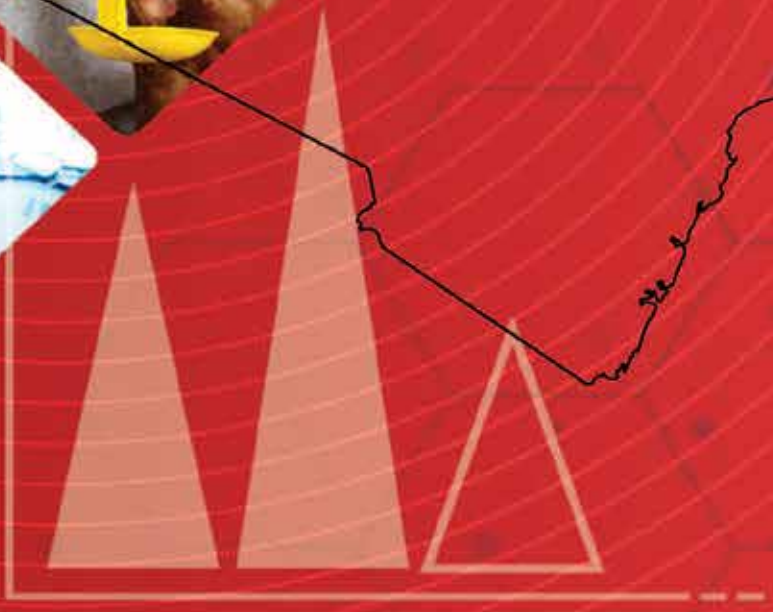
Building resilience and sustainable economic development in kenya

KENYA ECONOMIC REPORT 2022



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The KENYA INSTITUTE for PUBLIC POLICY RESEARCH and ANALYSIS

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KENYA ECONOMIC REPORT 2022

BUILDING RESILIENCE AND SUSTAINABLE ECONOMIC DEVELOPMENT IN KENYA

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KENYA VISION 2030

To create a globally competitive and prosperous nation with a high quality of life by 2030

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STATEMENT BY CABINET SECRETARY, THE NATIONAL TREASURY AND ECONOMIC PLANNING

The Kenya Economic Report (KER) 2022 is a statutory report prepared annually by the Kenya Institute for Public Policy Research and Analysis (KIPPRA), pursuant to Section 23(3) of the KIPPRA Act No. 15 of 2006. It is KIPPRA's flagship report, which provides Kenya's economic performance and prospects for the medium-term. The KER 2022 themed "Building Resilience and Sustainable Economic Development in Kenya" is timely considering the high frequency of shocks and stressors the country is increasingly experiencing. Besides the COVID-19 pandemic, the economy is prone to climate change, election cycles, pests and diseases, global commodity price fluctuations, global economic downturns and geo-political tensions.

The theme of KER 2022 is in line with the Medium-Term Plan IV – MTP IV (2023-2027) of the Kenya Vision 2030 themed "Accelerating Socio-Economic Transformation to a More Competitive, Inclusive and Resilient Economy", being prepared by the Government. As such, the KER 2022 provides the necessary evidence in articulating the development agenda in the MTP IV. Moreover, the socio-economic effects of COVID-19 pandemic have demonstrated the importance of nurturing and building economic resilience in fostering sustainable development. Several initiatives were undertaken by the Government to save lives and livelihoods, but the intensive effects of the pandemic reversed some of the gains made in poverty reduction and inequality by disproportionately affecting the vulnerable segments of the population, such as the poor, the youth and women. While the recovery process is beginning to gain momentum, it is important to remain vigilant to dynamics of the pandemic and other shocks for timely response.

In building resilience for sustainable development, the KER 2022 makes recommendations to: nurture the potential of the digital economy, creative economy and science, technology and innovation sectors; protect the trade interests of the country; mitigate geopolitical risks; support the manufacturing sector to maximize on its potential; promote and cushion the livestock industry in supporting the economies in the arid and semi-arid lands; and entrench national values and good governance within the society.

The Government is committed to strengthening the resilience of the economy to shocks and stressors at the household, business, sectoral and macroeconomic levels to promote sustainable development. This report therefore forms a foundation for using evidence-based policy advice in making policy decisions on building resilience. I call upon all stakeholders to consider the recommendations generated in the report.

Prof. Njuguna S. Ndung'u, CBS
Cabinet Secretary
The National Treasury and Economic Planning

FOREWORD

The Kenya Economic Report (KER) published annually by the Kenya Institute for Public Policy Research and Analysis (KIPPRA) seeks to promote evidence-based public policy making by considering development priorities and emerging policy issues. In realizing this goal, the Institute each year reviews the performance of the economy in the preceding year and the economic prospects for the next three years as required under the KIPPRA Act No. 15 of 2006. The Institute prepares this report in consultation with statutory and relevant stakeholders to validate the data, analysis and comprehensively articulate emerging policy issues.

The KER 2022 themed "Building Resilience and Sustainable Economic Development in Kenya" seeks to inform development priorities in the Kenya Vision 2030. The report is alive to the need for a resilient and sustainable development envisaged in the East African Community (EAC) Vision 2050, the African Union (AU) Agenda 2063 and the United Nations (UN) Sustainable Development Goals (SDGs). Building resilience requires a holistic approach drawing on macroeconomic stability, diversification of economic activity, and strong institutions.

The KIPPRA Board of Directors acknowledges staff and management for the devotion, diligence and professionalism that went into preparations of this report. I also recognize and appreciate the contributions and insights from the stakeholders through the various consultative forums.

Lastly, I wish to sincerely thank the Government of Kenya for the continued financial support to KIPPRA, enabling the Institute to undertake objective research and analysis and provide advisory services as established in the KIPPRA Act No. 15 of 2006.

Dr Benson Akong'o Ateng'
Chair, KIPPRA Board of Directors

PREFACE

This year, the Kenya Institute for Public Policy Research and Analysis (KIPPRA) is celebrating the Silver Jubilee since its establishment in May 1997. The preparation of the 14th edition of the Kenya Economic Report comes at a time when policy makers are seeking for evidence to make informed policy decisions that would propel the economy through various shocks. When the COVID-19 pandemic struck, the economy was experiencing the desert locust invasion. In the middle of the pandemic, the economy suffered a serious drought, and 2022 is an electioneering year. These and other shocks and stressors affect economic performance and welfare of many Kenyans. It is against this backdrop that the theme of the KER 2022 was selected to contribute to efforts by the Government to ensure the economy remains resilient and maintains momentum in the recovery path.

The KER is prepared through a participatory and inclusive process. The KIPPRA Act No. 15 of 2006, Section 23 (3) requires the Institute to develop a report in consultation with the Ministries responsible for Planning, National Development, and Finance and the Central Bank of Kenya. Consultations were held and a validation workshop organized to validate the content of the report. The technical team preparing the Report also benefited from discussions with KIPPRA staff, management and the Board.

Building resilience helps to foster an inclusive society that can endure shocks at the individual, sectoral and macroeconomic levels. Importantly is to reflect on the lessons learnt by leveraging on latent opportunities emerging from the COVID-19 pandemic. The pandemic saw countries devise fiscal, monetary and socio-economic support measures to contain the impact. These interventions were, however, not sufficient to cushion the economy from the adverse effects of the pandemic. This served as an awakening call on the need to review structures of economic systems in promoting preparedness and resilience to shocks and stressors.

The scope of KER 2022 interfaces the pillars of economic resilience (macroeconomic stability, social-economic development, institutions/good governance), the pillars of the Kenya Vision 2030 (economic, social and political), and the targets of the Sustainable Development Goals (SDGs) that seek to build resilience and nurture the required transformations through Science, Technology and Innovation (ST&I) and digital economy. Exploiting the opportunities brought out in the recommendations will go a long way in building a resilient economy.

The report recommends sustaining macroeconomic stability with growth-oriented demand management policies; intensified COVID-19 vaccination drive to maintain the economy open; diversification to medium and high technology manufacturing; exploiting the African export market under the African Continental Free Trade Area (AfCFTA); adopting an integrated rural development approach for ASALs; developing a sustainable creative industry infrastructure; and enhancing the role of the Annual Presidential Report in realizing the national values and principles of governance.

Dr Rose W. Ngugi
Executive Director, KIPPRA

ACKNOWLEDGEMENTS

The Kenya Economic Report (KER) 2022 is the fourteenth edition of this annual report on performance of the economy and medium-term prospects. As we celebrate this milestone, we recognize and appreciate that this has been made possible by multiple stakeholders. We acknowledge the KIPPRA Board Chairperson, Dr Benson Ateng', KIPPRA Board of Directors, and Executive Director Dr Rose Ngugi, for exceptional support and providing overall leadership and oversight in conceptualization and preparation of this report.

The research, policy analysis and preparation of the KER 2022 was undertaken by a Technical Committee under the overall leadership of Adan Shibia (Chairman) and Dr Evelyn Kihiu (Secretary). The other members of the Technical Committee and authors of the report are Anne Gitonga, Beverly Musili, Boaz Munga, Daniel Omanyo, Dr Humphrey Njogu, Dr Martin Wafula Nandelenga, Dr Moses Njenga, Hellen Chemnyongoi and James Gachanja. The report greatly benefited from insights and contributions of KIPPRA researchers who also actively participated in peer review processes and quality control seminars, to whom the team expresses gratitude.

The report also benefited from KIPPRA staff in Finance, Human Resources, Supply Chain Management, Knowledge Management and Transport Departments, who provided valuable support to ensure timely completion of the report.

KIPPRA is deeply grateful to all Ministries, State Departments and Government Agencies that availed data and information used in this report. We are particularly grateful for the expert advice by statutory partners, including the National Treasury and Planning, the Central Bank of Kenya, and the Kenya National Bureau of Statistics. We particularly appreciate the support by the Kenya Film Classification Board and Communications Authority who generously availed data that informed the report.

To all other stakeholders who participated in the various workshops in different capacities including providing additional insights and validation of the report, your contributions are highly appreciated. The preparation of this Report was made possible through financial support to KIPPRA by the Government of Kenya.

ABBREVIATIONS AND ACRONYMS

4IR	Fourth Industrial Revolution
A4AI	Alliance for Affordable Internet
ACA	Anti-Counterfeit Authority
ACECA	Anti-Corruption and Economic Crimes Act
AfCFTA	Africa Continental Free Trade Area
AfDB	Africa Development Bank
AGOA	Africa Growth and Opportunity Act
AI	Artificial Intelligence
ANITRAC	Animal Identification and Traceability
ARA	Asset Recovery Agency
ASALs	Arid and Semi-Arid Lands
ASTGS	Agriculture Sector Transformation and Growth Strategy
AU	African Union
AUCPCC	African Union Convention on Preventing and Combating Corruption
B2B	Business to Business
B2C	Business to Customer
Biotech	Biotechnology
BIRCs	Biotechnology Information and Resource Centres
BMC	Botswana Meat Commission
BRI	Biotechnology Research Institute
BTA	Bilateral Trade Agreements
C2B	Customer to Business
C2G	Customer to Government
CA	Communications Authority
CAA	Citizen Accountability Audit
CAD	Current Account Deficit
CBC	Competency-Based Curriculum
CBDC	Central Bank Digital Currency
CBK	Central Bank of Kenya
CBR	Central Bank Rate
CBRD	Centre for Biotechnology Research and Development
CCR	Centre for Clinical Research

CEMASTEA	Centre for Mathematics Science and Technology Education in Africa
CEWARN	Conflict Early Warning and Response Mechanism
CEWERU	Conflict Early Warning Response Unit
CFS	Consolidated Fund Services
CGHR	Centre for Global Health Research
CIP	Competitive Industrial Performance
CIPDCR	Centre for Infectious and Parasitic Diseases Control Research
COMESA	Common Market for Eastern and Southern Africa
COVID-19	Coronavirus Disease 2019
CPI	Consumer Price Index
CPI	Corruption Perception Index
CPIA	Country Policy and Institutional Assessment
CPMR	Conflict Prevention Management and Resolution
CRI	Commitment to Reducing Inequality
CRPD	Convention on the Rights of Persons with Disabilities
DARE	Digital Accessibility Rights Evaluation
DEA	Data Envelopment Analysis
DFID	Department for International Development
DFS	Department of Film Services
DFZ	Disease Free Zones
DIRISHA	Drought Index-insurance for Resilience in the Sahel and Horn of Africa
DLCO-EA	Desert Locust Control Organization of East Africa
DLT	Distributed Ledger Technology
DPI	Democratic Perception Index
DQLI	Digital Quality of Life Index
DRIVE	De-Risking, Inclusion and Value Enhancement
DST	Digital Service Tax
EAC	East Africa Community
EACC	Ethics and Anti-Corruption Commission
EACPPCC	East African Community Protocol on Preventing and Combating Corruption
ECF	Extended Credit Facility
EDCF	Economic Development Cooperation Fund
EFF	Extended Fund Facility
EPAs	Economic Partnership Agreements
ERI	Economic Resilience Index
ERS-WEC	Economic Recovery Strategy for Wealth and Employment Creation
EU	European Union
EVI	Economic Vulnerability Index
FAO DLIS	FAO Desert Locust Information Service
FAO	Food and Agriculture Organization

FRC	Financial Reporting Centre
FSD	Financial Sector Deepening
FTA	Free to Air
FTA	Free Trade Agreements
GCCN	Government Common Core Network
GCI	World Economic Forum's Global Competitiveness Index
GCP	Gross County Product
GDP	Gross Domestic Product
GNI	Gross National Income
GoK	Government of Kenya
GSP	Generalized System of Trade
HDI	Human Development Index
HHI	Herfindahl-Hirschman Index
IBLI	Index-Based Livestock Insurance
ICT	Information and Communication Technology
ICTA	ICT Authority
IDF	Import Declaration Form
IFC	International Finance Corporation
IGAD	Inter-Governmental Authority on Development
IIAG	Ibrahim Index of African Governance
ILO	International Labour Organization
IMF	International Monetary Fund
IoT	Internet of Things
IP	Intellectual Property
IPCC	Intergovernmental Panel on Climate Change
ISSOS	Informal Sector Skills and Occupations Survey
IT	Information Technology
ITC	International Trade Centre
ITU	International Telecommunication Union
JKUAT	Jomo Kenyatta University of Agriculture and Technology
KAIST	Kenya Advanced Institute of Science and Technology
KAPP	Knowledge Attitudes Practices and Perceptions
KBA	Kenya Bankers Association
KBL	Kenya Breweries Limited
KCB	Kenya Broadcasting Corporation
KCC-NT	Kenya Cultural Centre - National Theatre
KDC	Kenya Development Corporation
KEC	Kenya Education Cloud
KE-CERT	Kenya Computer Emergency Response Team
KEMRI	Kenya Medical Research Institute

KENIA	Kenya National Innovation Agency
KEPROBA	Kenya Export Promotion and Branding Agency
KFC	Kenya Film Commission
KFCB	Kenya Film Classification Board
KICD	Kenya Institute of Curriculum Development
KIHBS	Kenya Integrated Household Budget Survey
KIPI	Kenya Industrial Property Institute
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KIRDI	Kenya Industrial Research and Development Institute
KLIP	Kenya Livestock Insurance Programme
KMC	Kenya Meat Commission
KNA	Kenya News Agency
KNADS	Kenya National Archives and Documentation Service
KNBS	Kenya National Bureau of Statistics
KNLS	Kenya National Library Service
KOMEX	Kenya National Multi-commodity Exchange
KOTDA	Konza Technopolis Development Authority
KRA	Kenya Revenue Authority
KTMM	KIPPRA-Treasury Macro Model
KYEB	Kenya Yearbook Editorial Board
LDC	Least Developed Countries
LEZ	Livestock Export Zones
LPI	Logistics Performance Index
LTA	Lapsed Trade Agreements
M&E	Monitoring and Evaluation
MAT	Multi-Agency Taskforce
Mbps	Megabits Per Second
MCDAs	Ministries, Counties, Departments and Agencies
MDA	Ministry, Department and Agency
MDAs	Ministries, Departments and Agencies
MEP	Macroeconomic Performance Index
MoALFC	Ministry of Agriculture, Livestock, Fisheries and Cooperatives
MoH	Ministry of Health
MoU	Memorandum of Understanding
MSEs	Medium and Small Enterprises
MSME	Micro Small and Medium Enterprises
MTDS	Medium-Term Debt Management Strategy
MTEF	Medium-Term Budget Framework
MTP	Medium-Term Prospects
MTP	Medium-Term Plan

NACOSTI	National Commission for Science, Technology and Innovation
NCDs	Non-Communicable Diseases
NCEWC	National Conflict Early Warning Centre
NCIC	National Cohesion and Integration Commission
NDA	Net Domestic Assets
NDG	National Developments Goals
NDMA	National Disaster Management Authority
NFA	Net Foreign Assets
NFT	Non-Fungible Token
NMK	National Museum of Kenya
NOC	Network Operating Centre
NOFBI	National Optic Fibre Backbone Infrastructure
NPLs	Non-Performing Loans
NPS	National Police Service
NPS	National Payments Strategy
NPSRL	National Physical Science Research Laboratory
NPT	National Performance Trials
NRF	National Research Fund
NSC	National Steering Committee
NTM	Non-Tariff Measures
NV&PG	National Values and Principles of Governance
ODPP	Office of the Director of Public Prosecutions
OECD	Organization for Economic Cooperation and Development
OSR	Own Source Revenue
OTT	Over the Top
PCI	Productive Capacity Index
PDTP	Presidential Digital Talent Programme
PMI	Purchasing Managers Index
PPE	Personal Protective Equipment
PPI	Producer Price Index
PPMC	Permanent Presidential Music Commission
PPR	Peste des Petits Ruminants
PSC	Public Service Commission
PSPs	Payment Service Providers
PWDs	Persons With Disability
R&D	Research and Development
RCF	Rapid Credit Facility
RTA	Regional Trade Agreements
SACCO	Savings, Credit, Cooperative Organizations
SAPs	Structural Adjustment Programmes

SASDEF	Sports, Arts and Social Development Fund
SDGs	Sustainable Development Goals
SDR	Special Drawing Rights
SEZ	Special Economic Zones
SEZA	Special Economic Zones Authority
SKA	Square Kilometre Array
SMEs	Small and Medium Enterprises
SMS	Short Message Services
SOEs	State-Owned Enterprises
SPSs	Sanitary and Phytosanitary Standards
SSA	Sub-Saharan Africa
ST&I	Science Technology and Innovation
STEM	Science, Technology, Engineering and Mathematics
TI	Transparency International
TEC	Technical and Economic Cooperation
TLU	Tropical Livestock Units
TV	Television
TVET	Technical and Vocational Education and Training
UCCN	UNESCO Creative Cities Network
UK	United Kingdom
UN	United Nations
UNCAC	United Nations Convention Against Corruption
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNIDO	United Nations Industrial Development Organization
USA	United States of America
USD	United States Dollar
USSR	Union of Soviet Socialist Republics
VAT	Value Added Tax
VoD	Video on Demand
WEE	Waste Electrical and Electronic Equipment
WFP	World Food Programme
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

EXECUTIVE SUMMARY

Recent Trends and Developments in Macroeconomic Performance

Kenya's economy rebounded strongly in 2021 amid the COVID-19 pandemic disruptions, high global fuel prices and low precipitation experienced in the country during the year. The economy grew by 7.5 per cent in 2021 compared to a contraction of 0.3 per cent in 2020. The rebound followed the reopening of the economy, roll out of COVID-19 vaccination and reversal of COVD-19 tax measures that boosted revenues to support spending. Strong recoveries were recorded in services and industry while agriculture recorded a contraction. Agriculture, forestry, and fishing activities shrunk by 0.2 per cent due to dry weather conditions while all services activities recorded strong growth. The services activities that showed strong performance include accommodation and food services (52.5%), education (21.4%), arts, entertainment, and recreation (13.7%), financial and insurance (12.5%), information and communication (8.8%), wholesale and retail trade (7.9%) and transport and storage (7.2%). Industrial activities also recorded growth, with mining and quarrying growing by 18.1 per cent, manufacturing by 6.9 per cent, electricity supply by 4.4 per cent, water supply, sewerage, and waste management by 6.4 per cent, and construction by 6.6 per cent. The macroeconomic environment witnessed increased consumer prices in 2021; however, overall inflation remained within the Government's target band. The Central Bank of Kenya continued implementing monetary accommodation to support growth while lending rates were higher in 2021 compared to 2020. The continued depreciation of the exchange rate to dollar given the global market developments put pressure on prices and cost of external public debt. Noteworthy, revenues rebounded strongly in the first half of 2021/22, with virtually all tax heads recording above target collections. Total revenue inclusive of grants exceeded the target by Ksh 28.6 billion while improved growth was posted in Pay as You Earn (PAYE), Value Added Tax (VAT) imports, excise duty, appropriations-in-aid, and corporate income taxes. These resulted into narrowing of fiscal deficit in the first half of the year.

With agriculture contributing slightly over a fifth of Gross Domestic Product (GDP), over-reliance on rain-fed agriculture not only exposes the economy to vulnerabilities but also puts at risk livelihoods that depend on the sector. It is important to scale up irrigated crop farming to support GDP performance and ensure food and nutrition security, and stable food prices. Further, securing and sustaining resilient economic growth calls for enhanced investment in inclusive services and manufacturing activities. Enhancing fiscal stability remains key in ensuring economic resilience, while expansion of tax base will support the fiscal consolidation plan. Further, maintaining growth-oriented demand management policies will sustain the recovery trajectory. On the external position, it is imperative to enhance efforts to lower the costs related to remittance inflows while supporting international travel through enhanced adherence to Ministry of Health (MoH) and World Health Organization (WHO) guidelines on COVID-19. This will continue to support current account balance and keep the economy open. Fast-tracking risk-based pricing will ensure that the private sector continues to access affordable and appropriate credit. Further, diversification of export destinations will also play a critical role in narrowing the trade balance with growth in exports.

Medium-Term Prospects for Kenya

The easing of containment measures and accelerated uptake of COVID-19 vaccination are contributing to the recovery process. Economic activities in Kenya, like in many other countries, rebounded in 2021 after a sharp decline experienced in 2020. Notably, the COVID-19 pandemic exposed economic vulnerabilities of

many countries, Kenya included. As such, building resilience for the recovery process is crucial in the medium-term. Looking ahead, the country faces downside risks, including uncertainty on dynamics of the pandemic, weather-related shocks that have become frequent and intensive, political uncertainty associated with the August 2022 general elections, and a surge in commodity prices worsened by the geo-political tension between Russia and Ukraine. Nevertheless, the country is leveraging on mass COVID-19 vaccination drive and digitalization to sustain economic recovery.

The economy is projected to grow by 5.8 per cent in 2022 and an average of 5.3 per cent in the medium-term. This growth is supported by a rebound in consumption and envisaged recovery in all sectors of the economy. Notably, the agriculture sector is estimated to grow by 2.3 per cent in 2022 compared to a contraction of 0.2 per cent in 2021 caused by drought in the country. The slowed down performance in the agriculture sector due to drought calls for more investments in irrigation, and increased productivity of existing irrigation schemes to reduce over-reliance on rain-fed agriculture. Continued support of the health sector is vital to consolidate the gains in the fight against the pandemic, strengthening the health system and maintaining the growth trajectory. Specifically, synergy between the National and County Governments is important to create awareness and continue supporting the vaccination drive to reduce health risks and loss of lives. The ongoing mass vaccination has reduced health risks and loss of lives. Additionally, concentrated efforts by both the National and County Governments are key to promoting peace and political stability during the electioneering period. This will ensure sustained economic recovery in 2022 and beyond.

Building a Resilient Manufacturing Sector for Sustainable Development

Manufacturing supports inclusive development by creating direct and indirect employment opportunities through backward and forward linkages with sectors such as agriculture, livestock, extractives and trade. However, between 2017 and 2021, manufacturing contribution to national GDP declined by 1.1 percentage points while the contribution to the industrial sector GDP declined by 2.6 percentage points. This is considering higher growth rates in other sectors, particularly services, and the constraints facing manufacturing particularly infrastructure deficit, access and costs of finance and utilities such as electricity and water. Manufacturing faces both positive and negative shocks, which affect its growth and contribution to employment. The negative shocks include droughts, election cycles, global recessions, surge in oil prices, and Kenya shilling depreciation while the positive shocks arise from rainfall abundance to boost agricultural production, which is a key source of raw materials, and policy reforms that catalyze private sector development. Vulnerabilities of manufacturing to shocks and stressors are intensified by the dominance of Micro and Small Enterprises (MSEs), most of which operate in the informal sector, and high concentration in low technology manufacturing such as food, beverages, textile, furniture and leather. Besides being vulnerable to shocks, these low technology activities are characterized by low innovation and Research and Development (R&D) investments. Manufacturing also demonstrates weakening competitiveness against regional and global competitiveness, thus putting pressure on access to local and export markets. The realization of the Kenya Vision 2030 flagship targets and programmes are constrained by limited budgetary allocations, and the onset of COVID-19 has provided latent opportunities for exploitation, particularly within the manufacture of pharmaceuticals, medical ventilators, chemicals (hand sanitisers) and textiles and apparel in the manufacture of Personal Protective Equipment (PPEs). Measures towards sustainable markets for these innovations are critical in attracting private sector investments.

To build a resilient manufacturing sector, it is important to diversify into medium and high technology manufacturing through fiscal incentives and financing of R&D investments, including increased contribution by the private sector. Also, it requires facilitating access to markets through enhanced competitiveness and market diversification outside the EAC region and promoting measures for supporting accelerated innovation under shocks and stressors through market-related incentives such as public procurement and exports facilitation. Further, it is imperative that the country builds resilience against the identified shocks and stressors including droughts, global economic shocks linked to oil prices, economic downturns, exchange rate risks and supply chain disruptions. These measures include risk reduction and mitigation plans, mechanisms for early identification of hazards, and capacity development and technology support particularly among the MSEs. It is also imperative to support adoption of fourth industrial

revolution (industry 4.0) through financing, supportive infrastructure and skills development, particularly those related to Science, Technology, Engineering and Mathematics (STEM) courses.

Building a Resilient Economy through Trade

The trade sector is a key driver of economic growth to build resilience and sustainable development due to its linkage to sectors such as agriculture, manufacturing and services. This is premised on the sector's role during the COVID-19 pandemic where trade revenue was crucial to Kenya's fiscal space in mitigating the negative effects of the pandemic. While significant progress has been made in implementing the flagship projects to support growth in the trade sector, a lot more effort is needed to complete them. For example, the construction of the proposed one tier market in Athi River under MTP I remains at the land acquisition stage. During the COVID-19 period in 2020-2021, the retail and wholesale sector contribution to GDP reduced from 8.2 per cent in 2019 to 7.9 per cent. The East Africa Community market remains important to Kenya as it remained resilient in the 2020-2021 COVID-19 period, with an average export of 23 per cent of the total relative to COMESA at 4 per cent and rest of Africa at 14 per cent. Kenya's trade performance is held back by the concentration of exports and imports to specific markets and products. The exports are concentrated in the EAC and the imports in markets outside Africa, thus exposing Kenya to exogeneous shocks. Between 2016 and 2021, 72 per cent of African countries received less than 1 per cent each of Kenya's total exports to the continent. As such, the entry of the AfCFTA will enhance market access, improve export of cash crops such as coffee, tea and horticulture by 7 per cent, manufactured products by 40 per cent and improve welfare in rural areas compared to urban areas.

To realize the benefits of trade, there is need to review and revise the National Trade Policy of 2016 to align it with the AfCFTA and other free trade agreements that have been signed. This will be crucial to increase market access and export diversification. Further, there is need for the Government of Kenya in partnership with the private sector to set up a development fund to offer financial support to traders to improve product quality and enhance market access. From a domestic trade perspective, there is need to deepen information on the use of e-commerce through Customer to Government (C2G) and Customer to Business (C2B) mobile money services. This will increase trade activities and improve Government revenue and business' (or firms') returns. It is also important for the Government to pursue trade agreements that offer Kenya a competitive edge.

Enhancing a Resilient and Sustainable Livestock Industry in Kenya

The livestock industry in Kenya plays a significant role in steering growth of the agricultural sector and serves as a cornerstone for millions of livelihoods, particularly in arid and semi-arid lands (ASALs). Current evidence indicates that acute shocks and stressors are a great concern to livestock production systems in ASALs. The fragile ASAL ecosystems, central for livestock production and essential livelihood source for pastoral communities, have been disrupted by extreme weather conditions, desert locust invasions, livestock diseases, conflict and market shocks affecting millions of livelihoods. These disturbances affect livestock productivity and threaten food security, welfare of communities and economic stability of ASALs with consequent ripple effects across the country. The frequency, intensity and complexity of shocks and stressors in ASALs is likely to increase with climate variability and change, and its interaction with non-climate factors. As such, building resilient livestock production systems is a pressing priority in the country. There is need for the livestock industry to step up its approaches to mitigate risks by enhancing its preventive, anticipative, absorptive, adaptive and transformative capacities to deal with changing circumstances, as opposed to only focusing on the costly emergency response and relief strategies. This calls for approaches to improve the economic, social and ecological resilience of ASAL communities to deal with changing circumstances. Towards this, lessons from Botswana's livestock value chain identify key opportunities in: capacity building of farmers and extension workers; agribusiness promotion and strategies for strengthening food safety; enhanced partnerships for the industry to operate efficiently and get innovative; knowledge-driven development using quality data that is linked to disaster management information systems; input subsidization during disasters and increased fodder production in higher rainfall areas to support livestock production in stress periods; and creation and strengthening of livestock producers' associations/cooperatives for more organized service provision such as access to inputs, veterinary services or selling livestock.

Further, for livestock animal disease control and prevention, there are opportunities in enhancing access to veterinary services that are effective in terms of traceability and compliance with market requirements; and availing significant finance to include credit and livestock insurance through public-private partnerships.

The promotion of a resilient and competitive Kenya livestock industry in the ASALs calls for enhanced rural development of ASALs that integrates both economic and social activities to enhance access to livestock resources and promote ecological resilience of ASALs. In addition, given climate variability and change and its interaction with non-climate factors is a threat multiplier to shocks and stressors, ASAL counties are encouraged to explore climate-smart measures. Climate smart measures such as the silvo pastoral system entails intensification of livestock production based on sustainable natural processes and presents an opportunity to respond to climate change and sustainable utilization of ASALs. Further, efficient and effective data management systems support planning, decision making, monitoring and evaluation processes for resource control. The livestock industry in the country needs to be supported using quality data throughout the livestock value chain. The data needs to be centralized and linked to disaster management systems. To enhance economic and social resilience of ASAL livelihoods, there is need to integrate pastoralists in livestock value chains and commercial undertakings and build their capacities to improve the quality of livestock and livestock products and implement the various strategies and programmes currently being developed. Actors are also encouraged to diversify their livelihoods in sustainable programmes and participate in the value chains of diverse livestock products. Diversifying livelihoods is one of the key strategies in promoting resilience in ASALs. Needed too is enhanced access to supportive services to include adequate extension services and significant affordable livestock credit and insurance. This can be achieved effectively and efficiently by strengthening the livestock producer organizations in ASALs for more organized service delivery, and partnerships with the private sector. Counties are also encouraged to explore partnerships for investments and adequate funding for successful implementation of livestock industry strategies. This includes enhancing private sector involvement in the development of the livestock industry in Kenya. Lastly, counties are encouraged to engage in cultural heritage activities to minimize social polarization that can escalate intercommunal conflicts between pastoral communities or between pastoral and non-pastoral communities.

Building Resilience through the Digital Economy

The spread of the Internet and the emergence of digital technologies in an interconnected youthful world has led to the emergence of the digital economy. The digital economy is not only important to economic growth and development but is also an important factor in building a resilient economy. Kenya's Digital Economy Blueprint 2019 identifies five pillars of the digital economy; these are: digital government, digital business, innovation-driven entrepreneurship, digital skills and values and digital infrastructure. The economic importance of the digital economy can be demonstrated by the ICT sector's contribution to GDP. In 2021, the sector contribution to GDP declined to 2.4 per cent compared to 2.6 per cent in 2020. In 2021, the sector witnessed an increased growth rate of 8.8 per cent. Kenya has made significant progress in digital government by ensuring that several public services are provided electronically in the digital space. However, there exists the challenge of interoperability of government information systems. In the private sector, 84 per cent of enterprises have Internet in their premises. At the household level, evidence shows that Internet use in Kenya is low at 22.6 per cent nationally, 13.7 per cent for rural areas and 42.5 per cent for urban areas, signaling the existence of a digital divide. Some of the constraints to Internet access that households face include limited Internet service coverage, cost of Internet connectivity, cost of Internet-enabled devices, and limited knowledge and skills in using the Internet. Development of digital skills at the basic, intermediate and advanced level is therefore important for building resilience through the digital economy.

It is important to note that the digital economy enhances socio-economic resilience during shocks and emergency situations. It enhances the ability of a society to overcome crucial challenges such as wars or pandemics and return to normalcy, thereby providing a path for future development. A reliable telecommunications infrastructure and a high level of digitization is crucial to keep the economy running under emergency situations. However, hazards, shocks and emergency situations are also known to have adverse impacts on ICTs by affecting their

availability, reliability, use and functioning. To ensure that the digital economy plays its role in building socio-economic resilience, challenges of the digital divide will need to be addressed through providing universal access to Internet. Further, it is important to review the existing programmes on digital skills to identify gaps and come up with a programme that builds a critical mass of digital skills, including entrepreneurs. The challenges in interoperability of Government information systems can be resolved by developing an integration framework for legal, technical, organizational and semantic layers of interoperability.

Leveraging on Science, Technology and Innovation for Building a Resilient Knowledge-Based Economy

Science, Technology and Innovation (ST&I) is key in building a resilient knowledge-based economy. ST&I enhances agility and responsiveness to shocks/stressors and therefore reducing the adverse impacts of such shocks/stressors. This chapter focuses on four pillars: Skills, Infrastructure, Innovation Systems, and Institutional Structures for building a resilient knowledge-based economy. On skills, the key achievements include introduction of Competency-Based Curriculum (CBC) in the education system to enhance development of skills for real life application, increased capacity at the universities to offer Science, Technology, Engineering and Mathematics (STEM) courses, and strengthening of the Tertiary Vocational Education Training (TVETs). However, a gap of about 46,842 researchers in STEM fields is hampering efforts in anticipation and smart preparedness for future shocks/stressors. Significant efforts have been made on ST&I infrastructure on digital, space, energy, medical research, biotechnology and nanotechnology infrastructure. However, Kenya is yet to reap the enormous benefits from the envisioned opportunities mainly due to inadequate resource allocations. On innovations, major strides were witnessed during the COVID-19 pandemic. For instance, COVID-19 digital system for vaccinations, E-learning and E-commerce innovations were developed to mitigate the effects of the pandemic. Innovators and innovation centres, however, are constrained by limited funding coupled by inadequate framework to support the identification, nurturing, and scaling up of innovations. While the National Research Fund has been established to support the funding of ST&I activities, funding remains below the target of 2 per cent of GDP. Further, the absence of techno parks limits strong academia-industry linkages, thus dampening the motivation for innovations locally. Finally, on the institutional structures, the key institutions such as the National Commission for Science, Technology and Innovation (NACOSTI), Kenya Innovations Agency (KENIA) and National Research Fund (NRF) have been established through the ST&I Act 2013 to support the ST&I activities. The absence of the envisioned National ST&I Policy, however, hampers the effectiveness of ST&I in preparedness and response to shocks and stressor events.

To strengthen the role of ST&I in building resilience in the economy, there is need to promote public private partnerships. This will complement government initiatives in skills and infrastructure development, particularly in space, biotechnology and nanotechnology. This will serve to upgrade to high technology manufacturing, for example through the pharmaceutical industry. The focus on skills needs to be on anticipation and smart preparedness mainly relating to environmental shocks/stressors. In identifying, nurturing and scaling up innovations, there is need to develop and implement a collaborative innovation framework. This will create an enabling ecosystem to support identification, nurturing and scaling up of innovations for preparedness in case of shocks/stressors. This can be achieved through establishment of accelerator programmes across counties, fast-tracking the development of a policy framework for adoption of emerging technologies and standards for Artificial Intelligence, Blockchain, Fifth Generation technology (5G), Internet of Things (IoT), Fourth Industrial Revolution (4IR) and Industry 4.0 technologies to build economic resilience. Finally, putting in place the envisioned National ST&I Policy is critical in guiding the development of the ST&I sector, including the coordination of ST&I activities and programmes necessary for building economic resilience in the country.

Entrenching a Resilient Creative Economy

The creative economy contributes to the country's social and economic development in various ways. Socially, this is achieved through culture, entertainment, and festive events. Economically, it is achieved through income-generating activities that offer formal and informal employment. It therefore has the potential to promote economic inclusion and resilience due to the high level of interconnectivity with other

industries. This, however, also presents the embedded vulnerabilities and risks due to the knock-on impacts or indirect impacts. Kenya's creative economy industries experienced a decline in earnings largely because of the effects of COVID-19. The publications industry is the only creative industry that experienced some resilience in terms of earnings. This is evidenced in data on annual earnings, which reveals a growth of 6.3 per cent between 2019 and 2020 despite COVID-19. This is likely due to the industry's strong link with the education sector through provision of textbooks that are published locally. The policy and regulatory framework informing Kenya's creative economy touches on some of the creative industries such as culture, national heritage, national libraries and archives, music, and laws to protect intellectual property (IP) and establish standards in the film and broadcast industries. However, some including film, school-based festivals for performing arts and co-curricular activities lack effective policy interventions. The creative ecosystem further experiences business risks including intellectual property rights infringement and weak industry linkages, infrastructure risks on both physical and digital infrastructure, financial risks due to inadequate financial products, and gaps in data and statistics.

Despite the adverse impact of COVID-19 on Kenya's creative economy, the digital economy presents opportunities for enhancing resilience. Prior to COVID-19, creative industries were one of the fastest-growing industries with the highest average life of 10.1 years among all Micro, Small and Medium Enterprises (MSMEs) in Kenya. Digital technology platforms have and continue to provide an opportunity for the distribution, exhibition of and sale of creative products including music, film and digital art via the Internet. This reveals the importance of closing the digital divide to enhance access and lower costs of Internet and digital services. Creating interconnected creative physical and virtual infrastructure that allows the expression of creativity, enhance interactions and networks, strengthen innovation capacities and enhance access to local creative economy products is also of paramount importance. Enhanced policy attention to these critical aspects including provision of appropriate finance, and capacity building opportunities would result in accessible quality creative products. This calls for improvement in policy implementation and hastening of policy proposals and reviews that touch on the creative economy.

Role of National Values in Enhancing Socio-Economic Resilience

National values refer to generally acceptable qualities, standards, or ideals shared by members of the same nation or country. Studies suggest that espousal of positive values is associated with better outcomes in development and resilience of the economy. Although Kenya has anchored national values in its institutions, including laws and programmes implemented by Ministries, Counties, Departments and Agencies (MCDAs), their inculcation has remained a challenge. Specifically, most of the indices on national values and principles of governance have remained in the low range, and this has continued to suppress public trust in and resilience of political and governance institutions. Some of the identified challenges that limit the inculcation of values include: inadequate monitoring and evaluation, inadequate coordination across MCDAs, inadequate role modelling, weak transformational leadership, non-compliance with policy, legal and institutional provisions, a failure to apply the sanction system, and status of socio-economic development.

As a way forward, there are opportunities to enhance the role of the annual Presidential Report on measures taken and progress achieved in the realization of national values and principles of governance as a key monitoring tool for promoting and inculcating national values. This can be done by: incorporating the reporting of selected indicators of national values (global, regional and national indices); setting up and implementing a clear feedback mechanism clearly outlining areas of improvement for each or a cluster of ministries, counties, departments and agencies; and, matching institutional and policy interventions on values with corresponding budgetary resources. It will also be important to: enhance continuous improvements through periodic institutional analysis of actors in national values and principles of governance using predetermined frameworks; and ensure zero tolerance towards promotion of negative values and to promote and sustain economic growth with equity to reduce poverty and inequalities as a necessary condition for sustaining positive national values.

Good Governance in Building Resilience

Control of corruption has significant implications on development of various sectors of the Kenyan economy, and thus can derail initiatives to bolster resilience of the economy. Though Kenya has established laws and institutions as per international standards, reports by the Ethics and Anti-Corruption Commission (EACC), Asset Recovery Agency (ARA), World Bank and Transparency International have shown consistent low rankings of Kenya in control of corruption. The challenges facing a resolute fight against corruption include limited implementation of laws, which is worsened by delayed and lengthy judicial processes and the complex nature of corruption cases, which may necessitate multi-jurisdiction investigation, mutual legal assistance and assistance from anti-money laundering and proceeds of crime institutions such as the Financial Reporting Centre (FRC). Conflict, duplication and overlaps in mandate of oversight institutions complicates the investigation process, spreads resources thinly and may be a channel for accused persons to deliberately delay the process by raising procedural technicalities.

The multi-agency taskforce (MAT) established a multi-institutional partnership consisting of key anti- corruption institutions (including EACC, Office of the Director of Public Prosecution - ODPP, the Attorney General, ARA and Financial Reporting Centre (FRC). This has improved speedy exchange of information and ease of tracking suspects of corruption through other oversight institutions. Other institutions can be considered for further collaboration, such as the Commission on Administrative Justice, Inspectorate of State Corporations, Public Procurement Regulatory Authority and Public Service Commission to facilitate detection, investigation, and prosecution of corruption-related offences. Asset tracing, aversion, confiscation, seizure and recovery has proved to be efficient in both civil and criminal proceedings, though this needs a strong monitoring and evaluation framework to report on use of the recovered assets. Investment by institutions in instilling corruption prevention systems would also enhance control of corruption to sustain resilience of the Kenyan economy. Enforcing penalties for corruption within private sector organizations would further support anti-corruption efforts.

1 INTRODUCTION

1.1 Background

The Kenya Institute for Public Policy Research and Analysis (KIPPRA) Act No. 15 of 2006 mandates the Institute to prepare an annual report on Kenya's economic performance during the preceding financial year and medium-term prospects for the next three financial years. The Kenya Economic Report (KER) is therefore prepared within this statutory requirement. The report provides evidence-based policy proposals for addressing pertinent and emerging issues at both the National and County Government levels. To enhance timeliness and relevance of the analysis and policy discourse, the Institute each year articulates a theme for the report. The theme for KER 2022 is "Building Resilience and Sustainable Economic Development in Kenya". The goal is to provide policy insights on ways of building resilience at sectoral and macroeconomic levels within the context of resilience-development nexus. It is envisaged, as articulated in development literature, that resilience to shocks and stressors translates into high and sustainable development. Resilience to shocks and stressors is required for businesses and households to remain on the path of long-term development. This theme comes at a time when world economies, Kenya included, are struggling to recover from the adverse impacts of COVID-19. The Gross Domestic Product (GDP) growth rate globally fell from 2.8 per cent in 2019 to 3.1 per cent in 2020, before recovering to 6.1 per cent in 2021 (International Monetary Fund, 2022). The immense negative impacts experienced across various sectors of the global economy resulted in closure of businesses and job losses, culminating in negative GDP growth rates. The effects call for measures to promote the capacity of households and businesses to prepare for and cushion themselves against shocks and stressors to mitigate the vulnerabilities that erode developmental gains.

Besides the COVID-19 pandemic, the Kenyan economy is also prone to other negative shocks and stressors emanating from climate change hazards (e.g. droughts and floods), election cycles, pests (such as locusts, diseases), global commodity price fluctuations, and global economic downturns such as the financial crisis of 2007-2009. Kenya is linked to regional and global economies through trade ties, investments, and other financial resource flows, thus increasing its exposure to external shocks. Geo-political tensions such as the Russia-Ukraine conflict, and emerging nationalist policies such as those adopted by the US and the UK over the recent years further create new perspectives on the importance of analyzing a country's exposures and vulnerabilities. While increased digitization of economic transactions creates opportunities through enhanced efficiencies, it also presents unique challenges related to cyber security that can be a threat to personal interests and national interests. Thus, Kenya is prone not only to domestic market shocks and stressors, but also to a myriad of shocks emanating from regional and global markets. Notwithstanding the various channels through which shocks and stressors manifest, building resilience is of immense policy interest at this time because of the magnitude of the socio-economic impacts of COVID-19, compared to those experienced from other shocks and stressors over the last two decades. These include the prolonged droughts in 1999-2002, the twin challenges of global financial crisis and droughts of 2007-2009 and more recent the prolonged drought of 2019 during which the average economic growth rates were 0.8 per cent, 3.7 per cent and 5.0 per cent, respectively (KNBS, Various Economic Surveys). The economic impact of COVID-19 has been severe, considering the country's GDP growth rates averaged 4.7 per cent for the five-year period 2015-2019, but recorded a contracted growth at 0.3 per cent in 2020. This has impacted on resilience across developing, emerging and developed economies, thus

raising critical questions on how policy makers can nurture resilience that fosters sustainable development. The Medium-Term Plan III (MTP III) of the Kenya Vision 2030 acknowledges that Kenya is yet to sufficiently mainstream issues of building resilience in sectoral policies. Further, the National Disaster Risk Management (NDRM) Policy 2017 underscores weak resilience of Kenya to shocks and identifies the reactive interventions and tendency to focus on short-term outcomes as issues of developmental concern.

Considering the threats of negative shocks and stressors to development, the Sustainable Development Goal (SDG) target 1.5 calls for 'building the resilience of the poor and those in vulnerable situations by reducing their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks'. A number of other targets of SDGs also underscore the role of resilience in sustainable development, including: target 2.4: Sustainable food production systems and resilient agricultural practices; target 9.1: Quality, reliable, sustainable and resilient infrastructure; target 11.b: Resilience of cities and other human settlements; and target 13.1: Resilience to climate induced hazards. Further, the SDGs place emphasis on investments in Science, Technology and Innovation (ST&I) for supporting resilience across various sectors. ST&I serves as a transformative enabler by supporting resilience to shocks and stressors through various channels: anticipation and smart preparedness; and enhanced agility and responsiveness for lessening adverse impacts while capitalizing on opportunities and economic diversification (OECD, 2020). At the regional level, the African Union Agenda 2063 underscores resilience of economies through mobilization of financial resources, technology and skills development (African Union, 2014). In particular, it places emphasis on climate resilient development regarding economies and communities. At the national level, the MTP III of the Kenya Vision 2030 calls for measures to mainstream resilience through development plans, budgetary measures and institutional frameworks for disaster risk management. However, building resilience through policy mainstreaming requires evidence-based research. Further, the theme for the Budget Policy Statement 2021/22 on "Building back better: Strategy for resilient and sustainable economic recovery and inclusive growth" is an emphasis on the call for building resilience across various sectors. Resilience at sectoral level is imperative for realization of the "Big Four" agenda, as it enables sustained development.

This report will assess the contexts, policies and institutional frameworks that support sustainable development by building resilience across various sectors of the economy. The key concepts used in this report are defined in Box 1.1, including resilience, sustainable development, hazards, exposure, vulnerability, shocks and stressors.

Box 1.1: Definition of key concepts

Hazards:	Hazard is defined as a potentially damaging physical event, phenomenon or human activity that may cause damage, injury, losses, social and economic disruptions, or environmental degradation - United Nations International Strategy for Disaster Risk Reduction (UNISDR, 2009).
Exposure:	Exposure refers to the context or presence of people, assets, or livelihoods in places and settings that could be adversely affected, for example resulting from poorly planned development among other issues (UNISDR, 2009).
Vulnerability:	Vulnerability is the propensity or predisposition to be adversely affected, as a consequence of internal weaknesses, faults, deficiencies, low or lack of capacity to respond and adjust due to features such as poverty. It is the characteristics of households, businesses, assets, and systems that make them prone or susceptible to damaging effects of hazards (UNISDR, 2009).
Shocks and Stressors:	Shocks are short-term and abrupt deviations from long-term trends, often with substantial high negative effects on welfare, people, assets, and livelihoods; while stressors refer to slow onset pressure/trends that increase vulnerabilities (FSIN, 2014).

Resilience:	Resilience is the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions (UNISDR, 2009). Other organizations define resilience as follows:
	Intergovernmental Panel on Climate Change (IPCC, 2012): Resilience is the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through the preservation, restoration or improvements of its essential basic structures and functions.
	Food and Agriculture Organization (FAO, 2016): Resilience is the ability to prevent disasters and crisis and to anticipate, absorb, accommodate, or recover from them in a timely, efficient, and sustainable manner.
	European Commission (2016): Resilience is the ability of an individual, a household, a community, a country, or a region to withstand, to adapt, and to quickly recover from stressors and shocks.
	Organization for Economic Cooperation and Development (OECD, 2014): Resilience is the ability of households, communities, and nations to absorb and recover from shocks, while positively adapting and transforming their structures and means for living in the face of long-term stressors, change and uncertainty.
	Resilience Measurement Technical Working Group (RM-TWG) of the Food Security Information Network (FSIN, 2014): Resilience is the capacity that ensures stressors and shocks do not have long-lasting adverse development consequences.
	Department for International Development (2011): Resilience is the ability of households, communities, and countries to manage change by maintaining or transforming living standards in the face of shocks or stressors, without compromising their long-term prospects.
From the definitions above, despite the various definitions of resilience advanced in literature, all of them possess key features such as anticipation and preparation, resistance to shocks and stressors, quick recovery, and long-term sustainability. In this study, resilience is defined as the country's ability to withstand negative economic shocks and stressors and recover quickly from the resulting adverse effects with faster return to long-run growth trajectory and improvements in welfare and other macroeconomic fundamentals. As such, building a resilient Kenyan economy will foster an environment that limits downturn negative effects to the country to mitigate against shocks.	
Development:	Todaro and Smith (2012) define development in terms of increased availability and distribution of life sustaining goods, improved levels of living (jobs, education, human values, etc) and expanded range of economic and social choices.
Sustainable Development:	The Brundtland Commission (United Nations General Assembly, 1987) defines sustainable development as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs".

The aim of building resilience is to mitigate occurrence of disasters or generally weakening of the systems, which results from interactions of exposure, hazards and vulnerability that produce widespread damage, which causes alterations in the normal functioning of households, businesses, and the overall economy. Figure 1.1 illustrates the interactions of vulnerability, exposure and hazards that culminate into low resilience. As aforementioned, vulnerabilities are internal weaknesses, exposure reflects the state of being subject to or open to hazards, while hazards are the adverse physical events, phenomenon or human activities that cause loss or damage when they occur.

Figure 1.1: Interactions of vulnerability, exposure, and hazards

Source: Adapted from World Bank (2013) and Intergovernmental Panel on Climate Change–IPCC (2012)

1.2 Resilience and Sustainable Development Nexus

Sustainable development entails realizing the needs of the present generation without compromising the ability of future generations to meet their own needs, especially considering the poor segments of the population (United Nations General Assembly, 1987). Insights from severe shocks such as the 2007-2009 global financial crisis and the recent COVID-19 pandemic reveal the erosion of economic growth and disproportionately prolonged impacts on low-income economies, poorer households and Micro and Small Enterprises (MSEs). For instance, the International Monetary Fund (2021) estimates that economies relying on commodity exports and those with constrained monetary and fiscal space, which are generally low-income economies, suffer more in terms of economic output and pace of economic recovery. Further, youth, women, workforce with low educational levels and those within the informal sector are disproportionately affected by the COVID-19 pandemic, with projected increase in inequality within and across countries (International Monetary Fund, 2021). It is estimated that in 2020 alone, over 95 million people globally slumped into extreme poverty levels compared to pre-COVID-19 period.

Adverse shocks and stressors constrain most countries' ability to meet broad principles of sustainability, including equitable opportunities for all (United Nations General Assembly, 1987). In addition, adverse shocks and stressors constrain the social and economic well-being of people, for example through long-lasting losses that reverse economic gains over the years, besides jeopardizing future developmental prospects (United Nations, 2021).

Resilience can be inherent or nurtured (Briguglio et al., 2009). While inherent resilience results from lower vulnerabilities/weaknesses, nurtured resilience has to be built through deliberate policy interventions. Building resilience through policy interventions helps moderate or mitigate the adverse effects of shocks and stressors on development. Towards this end, to ensure sustained socio-economic development, this report provides insights aimed at building resilience to adverse shocks and stressors to recover better and build a more resilient, inclusive, and sustainable development.

1.3 Rationale of the Theme–A Reflection on COVID-19 Pandemic

The COVID-19 pandemic has imposed significant development challenges to the global economy, and countries have responded by devising fiscal, monetary and socio-economic support measures to contain its impact. Kenya like other countries, instituted both fiscal and monetary stimulus interventions as reactionary measures to cushion the economy from the adverse effects of COVID-19 (National Treasury and Planning, 2021). The fiscal interventions included lowering the upper band of income tax from 30 per cent to 25 per cent; reduction of value added tax from 16 per cent to 14 per cent; reduction of turnover tax from 3 per cent to 1 per cent; 100 per cent tax relief for persons earning monthly income below Ksh 24,000; and enhanced cash transfers to vulnerable groups, among other interventions. Although these measures played critical roles in supporting households and businesses, government revenue was critically constrained with increasing public expenditure demands. The monetary policy interventions included reduction of central bank rate from 8.25 per cent to 7.00 per cent; reduction of cash reserve ratio from 5.25 per cent to 4.25 per cent; and more flexibility for commercial banks regarding loan classification and provisioning.

While these measures played important roles of mitigating more severe effects of the pandemic and supporting the resilience of the country in ensuring firms remain in business with minimal disruptions, and households' welfare losses are contained, it resulted in a significant reduction in the country's fiscal space. The government revenue as a share of GDP narrowed from 19 per cent in 2015 to 17 per cent in 2020 and, as such, reducing the government's fiscal space that culminated in more borrowing. Shortfalls in revenue were largely attributed to the difficult operating environment due to the COVID-19 pandemic, which adversely affected revenue performance from March 2020. Consequently, Kenya's public debt increased, resulting in the country's reclassification from a moderate debt distress in 2019 to high-risk debt distress level in 2020 as the country sought to meet health-related procurements while recording depressed economic performance, with GDP growth rate falling from 5.0 per cent in 2019 to a contraction of 0.3 per cent in 2020 before recovering to 7.5 per cent in 2021 (Kenya National Bureau of Statistics, 2022).

The Government was faced with a complex situation of cushioning firms and households through fiscal measures (reduction in taxes), and consequently depressed revenue, against increased demand for social transfers and procurement of medical supplies. Like other developing countries, the Kenyan government eventually resorted to debt servicing suspension/ moratorium from G-20 countries and China. The effects of COVID-19 further resulted in narrowed capital inflows. However, Kenya's inflow of diaspora remittances increased by 14.3 per cent from equivalent of Ksh 289.5 billion in 2019 to Ksh 330.8 billion in 2020, and further increasing to Ksh 413.3 billion in 2021 (Kenya National Bureau of Statistics, 2022). Despite the increased remittances in 2020, it was not sufficient to cushion the economy from the adverse effects of COVID-19.

The firms across various sectors faced severe challenges of supply chain disruptions and depressed performance, consequently shifting focus from growth-oriented investments to survival (Kenya Association of Manufacturers, 2020). Micro and Small Enterprises (MSEs) have been disproportionately affected, yet this segment of firms account for 97 per cent of the enterprises within the formal sector alone (Kenya National Bureau of Statistics, 2017). Most of the MSEs operate within the informal sector, with

limited capacities to invest in resilience and weak social protection for the labour force working therein. Indeed, 83.4 per cent of the labour force in Kenya work in the informal sector (Kenya National Bureau of Statistics, 2021a).

The adverse impacts of COVID-19 have also trickled down to households' welfare through employment channels. Disruptions of business activities owing to supply chain weakening and social distancing health guidelines culminated in job losses and income disruptions, with the highest adverse impacts on vulnerable groups such as women, youth and the urban poor (World Bank, 2021). Unemployment rates in Kenya rose from 4 per cent in the fourth quarter of 2019 (before COVID) to 10 per cent and 18 per cent in June and November 2020, respectively. Further, labour force participation decreased from 75 per cent pre-COVID to 61 per cent in mid-2020 as people within the working age bracket were discouraged by lack of available jobs or being unable to actively search for work due to the resultant socio-economic conditions created by the pandemic. The rise of unemployment particularly among the vulnerable groups such as women and youth, and the decrease in labour force participation can have severe long-term inequality and other undesirable developmental outcomes.

Moreover, there are significant concerns on realization of national development goals, such as those articulated in the "Big Four" agenda of the Government, including food security and nutrition, universal health coverage, affordable housing, and growth of manufacturing. Despite the food supply, particularly agricultural produce being declared as "essential activities", severe social and economic repercussions of the pandemic led to the disruption of agri-food supply chains and trade flows (KIPPRA, 2020). Border restrictions and lockdowns, interruption of transport logistics and restrictions of movements, issued as a response to the pandemic limited access to key markets and therefore affected input supply, sale of produce and increased post-harvest losses and food price spikes. In addition, the pandemic dramatically affected livelihoods and food consumption patterns among vulnerable populations. Similarly, previous crises in the agri-food sector often resulted in reduced incomes among the value chain actors, food inflation, and reduced consumers' real incomes/purchasing power. Additionally, the manufacturing sector was not left behind on the negative effects of COVID-19 as firms in the sector suffered supply chain disruptions, constrained cashflow, and closure of businesses. While 60 per cent of manufacturing firms reported cutting costs as a strategic priority before COVID-19, this statistic increased to 80 per cent during the pandemic (Kenya Association of Manufacturers, 2020). The adverse effects have been more severe among the MSEs, of which 80 per cent reported they could not meet operating costs and tax and wage obligations. The effects of the pandemic also resulted in 0.4 per cent negative growth of the manufacturing sector in 2020, before recovering to a positive growth rate of 6.9 per cent in 2021 (Kenya National Bureau of Statistics, 2022).

On the social front, COVID-19 reduced the momentum in universal education as learning institutions were closed, thus increasing the incidences of early pregnancies among teenage girls and increasing school dropout rates. Further, the pandemic dragged efforts of advancing universal health coverage as the resources were channeled to meeting the containment measures of COVID-19. Relatedly, the increased restrictions to contain the spread of COVID-19 affected the transport sector from aviation, rail, water and road transport as there were enforcements on social distancing measures and restrictions on movements in and out of the country, resulting in heavy losses for transport operators. The most affected sub-sector was the Public Service Vehicle (PSV) operators as there was a reduction in daily operations and the number of passengers to be carried. With the COVID-19 containment measures, households faced weakened sources of livelihoods and difficulties in payment of rents, which further affected landlords who depend on rent for incomes and servicing of debt/mortgage obligations.

Considering how African countries have dealt with the COVID-19 pandemic, it is emerging that inequality in access to vaccines and constrained fiscal space and borrowing capacity to cushion households and businesses through reliefs and stimulus packages will affect the recovery of economies in the continent, compared to developed economies. As of 28th May 2022, only 22.3 per cent of Africa's adult population has been fully or partially vaccinated. Globally, 65.7 per cent have been fully or partially vaccinated, depicting a clear picture of *'haves' and 'have-nots'* (Source: www.ourworldindata.org/covid-vaccinations?)

In Kenya, 30.9 per cent of the population has been fully vaccinated as of 28th May, 2022 (Source: Kenya COVID-19 vaccination programme – Daily situation report, Ministry of Health, 28th May 2022): https://www.health.go.ke/#1621663315215-d6245403-490). For those countries that have achieved high levels of vaccination, the containment restrictions have been lifted and recovery is well on course.

The experiences from COVID-19 pandemic signal that developing countries are likely to further lag in economic development when faced with shocks. This is due to existing vulnerabilities, weak response measures and pace of economic recoveries. Since Kenya remains vulnerable to diverse shocks, some recurrent, emerging or even occurring simultaneously, there is need to devise strategies to enhance resilience at the sectoral and macroeconomic levels.

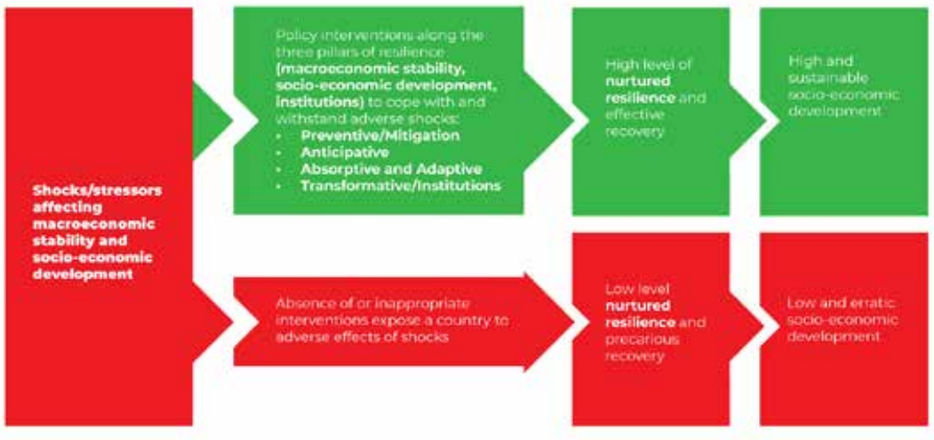
1.4 Conceptual Framework

The conceptualization of this report is anchored on three broad pillars of resilience (Briguglio et al., 2009; International Monetary Fund, 2019): Macroeconomic stability, socio-economic development, and improved institutions. The macroeconomic stability pillar supports fiscal and monetary policy efforts for a stable economic development of the country with ability to withstand shocks. The socio-economic development pillar addresses issues related to the well-being of citizens anchored on markets and infrastructure development. The institutions' pillar includes aspects such as governance and shared values. It should be noted that resilience could be an inherent ability or can be nurtured through appropriate policy interventions to enable an economy to recover from or adjust to the effects of adverse shocks, and/or transform and bounce back (Manyena et al., 2019). The policy interventions for nurtured resilience usually take a combination of various approaches, including preventive, anticipative, absorptive and adaptive, and transformative (Manyena et al., 2019). The national values, the creative economy, ST&I and infrastructure supporting digital economy serves as enablers for transformative resilience.

In this conceptual understanding, vulnerability (internal weakness) or a country's proneness to exogenous shocks (exposure) is adjudged to be a permanent or semi-permanent part of the economy. The level of vulnerability to shocks could be low, high or anywhere in between and could stem from several inherent economic, historical, social, geographic, demographic, cultural, institutional, governance, and environmental features. These factors may include: high degree of economic openness, concentration of exports within a narrow range of products, and/or dependence on strategic imports (IPCC, 2012). For instance, Kenya has all along depended on oil imports, which have been a major source of adverse economic shocks.

As illustrated in Figure 1.2, economies may experience a continuum of various degrees of economic shocks. However, what seems to matter for attainment of high resilience and sustainable development is not an economy's level of vulnerability, but the nature of intervening factors put in place. Appropriate economic, social and institutional policies would result in a high level of nurtured resilience. Indeed, some countries such as Singapore have managed to generate a relatively high and sustained GDP per capita growth, notwithstanding their exposure to relatively high levels of environmental and economic shocks.

Figure 1.2: From vulnerability to resilience and sustainable development through economic and social policies



Source: Author's construct based on Briguglio et al. (2009); and Manyena et al. (2019)

Based on the conceptual framework, building resilience would be a sequential process whose broad progression would be summarized as follows:

(i) Assessment of the key shocks affecting or likely to affect the economy (Manyena et al., 2019). The main purpose of the assessments is to inform decisions on the level of capacity required to address the risk. Some of the questions to be addressed include resilience to what? and/or resilience to what level?

(ii) Identify the appropriate actions to address the risks. Manyena et al. (2019) identify five broad actions discussed in the literature. These are preventive/mitigation, anticipative, absorptive, adaptive and transformative/ institutional actions. Preventive and anticipative actions are designed to avert the disaster altogether. An example is an early warning system used to anticipate and avert effects of drought. But even with such a system in place, a hazard such as drought may occur and other actions such as absorptive or adaptive measures may be necessary.

(iii) Having high level of capacities and applying these appropriately would result in a high nurtured resilience and hence high and sustainable economic development.

The resilience literature acknowledges that the preventive, absorptive and adaptive actions or capacities would tend to perpetuate the status quo or a return to the pre-disaster situation. For this reason, more recent research discourse introduces the concept of the transformative capacity (Manyena et al., 2019). A key idea of transformative capacity is the focus on not just bouncing back but being able to bounce forward. This suggests being able to develop the ability to transform the socio-economic conditions and the *status quo*. This report focuses on socio-economic resilience and the selected chapters will address a subset of the wider set of shocks affecting the country and/or capacities required to build resilience.

The KER 2022 identifies sectors that can support transformation following a shock. These sectors serving as enablers for socio-economic transformation include good governance; national values; Science, Technology and Innovation (ST&I); digital economy infrastructure; and the creative economy. In line with the Kenya Vision 2030, these sectors/thematic areas are identified as enablers. Further, assessment of macroeconomic performance and macroeconomic medium-term prospects, including risks to economic performance are articulated within the macroeconomic pillar of resilience. The coverage of the report further considers sectors that are important to socio-economic development/ pillar, namely manufacturing, trade and livestock industry. The manufacturing and trade sectors have strong linkages with other sectors of the economy, besides serving as engines of employment and export earnings. The livestock industry is prone to multiple and recurring shocks warranting attention from both exposure and vulnerability perspectives in line with the SDGs. Overall, the sectoral and thematic coverage of KER 2022 has considered developmental pillars of the Kenya Vision 2030 (economic, social and political), pillars of resilience (macroeconomic stability, socio-economic development and good governance), and aspirations of SDGs particularly ST&I, enabling infrastructure such as digital economy, and resilience for vulnerable livelihoods such as the livestock industry in the arid and semi-arid lands (ASALs).

2

MACROECONOMIC

RECENT TRENDS AND DEVELOPMENTS IN MACROECONOMIC PERFORMANCE

Kenya's economy remained resilient by staging a recovery in 2021 following the gradual reopening of the economy, continued mass vaccination drive and reversal of COVID-19 tax measures to generate adequate government revenue to support spending. The real Gross Domestic Product (GDP) growth reached above the pre-pandemic levels supported by rebounds in services and industry. The agriculture sector growth is, however, dragging partly due to the below-average precipitation in 2021. Government fiscal policy measures supported the ongoing fight against the pandemic, and the surge in economic activity has resulted in improved revenue, lessening the budget deficit. The accommodative monetary policy maintained by the Central Bank of Kenya has aided recovery by keeping inflation within the government target band and provided for adequate liquidity in the market. The medium-term growth prospects remain constrained by the uncertain global outlook and the 2022 election jitters. To sustain the recovery process, scaling up of COVID-19 vaccination, continuation of broadly accommodative domestic monetary policy stance and targeted government spending to boost employment creation remain fundamental. Nonetheless, policy makers need to keep vigilant on new variants of COVID-19 and the policy responses at global level and developments in the Russia-Ukraine war.

Table 2.1: Selected economic indicators

Nominal GDP, 2021 (Ksh millions)	12,098,200
Real GDP growth, 2021 (%)	7.5
Total revenue including grants (% of GDP), 1st half of 2021/22	8.3
Total expenditure and net lending (% of GDP), 1st half of 2021/22	10.8
Fiscal deficit as % of GDP, 1st half of 2021/22	2.6
Public debt (Ksh billion), December 2021	8,026.7
Public debt (% of GDP), December 2021	66.2
Domestic debt (Ksh billion), December 2021	4,032.37
Domestic debt (% of GDP), December 2021	32.5
External debt (Ksh billion), December 2021	4,174.4
External debt (% of GDP), December 2021	33.7
Average overall inflation, 2021 (%)	6.1
Central Bank rate, December 2021 (%)	7.0
Commercial banks' lending rate, December 2021	11.5
Unemployment rate, March 2021 (%)	6.6
Population size, 2021 (millions)	49.4
Exchange rate Ksh/US$, December 2021	112.9
Current account deficit, 2021 (% of GDP)	5.5
Purchasing Managers Index, December 2021 (%)	53.9
Cumulative COVID-19 tests, 28th May 2022	3,665,176
Cumulative COVID-19 confirmed cases, 28th May 2022	324,768
Cumulative COVID-19 confirmed recoveries, 28th May 2022	318,461
Cumulative COVID-19 confirmed deaths, 28th May 2022	5,651
Total COVID-19 vaccine doses administered, 28th May 2022	18,182,995
Population of adults fully vaccinated (%) as at 28th May 2022	30.9

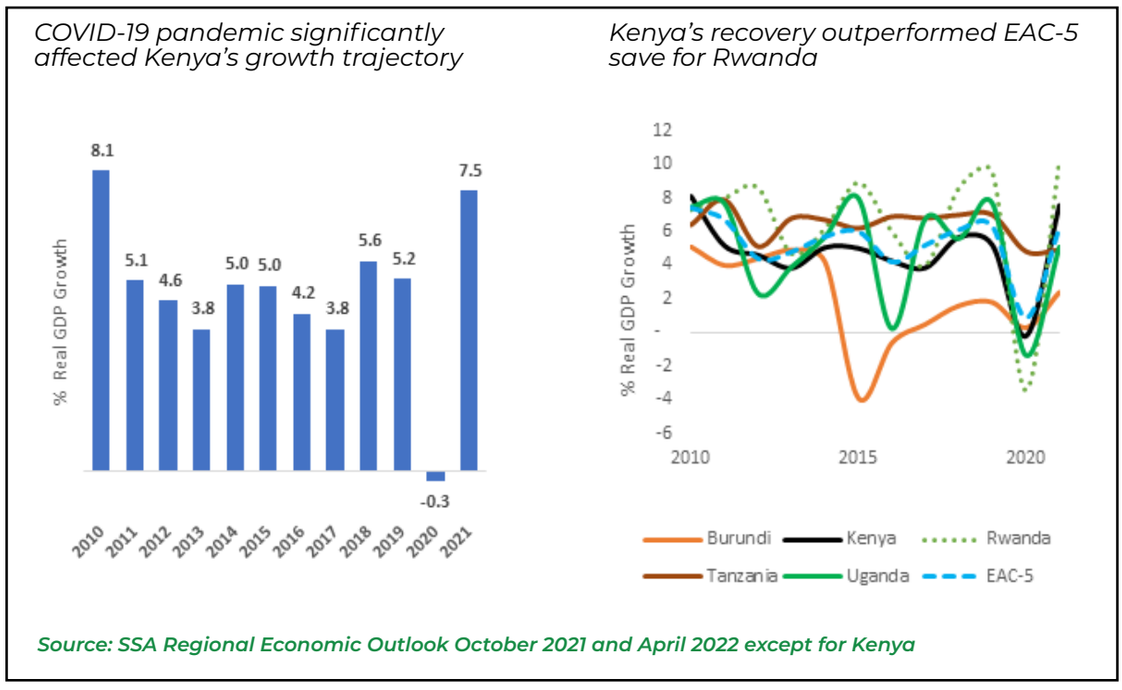
Data source: Kenya National Bureau of Statistics (Various), Central Bank of Kenya (Various), The National Treasury (Various), Ministry of Health (Various)

2.1 Economic Output and Demand

2.1.1. Real GDP growth and business environment

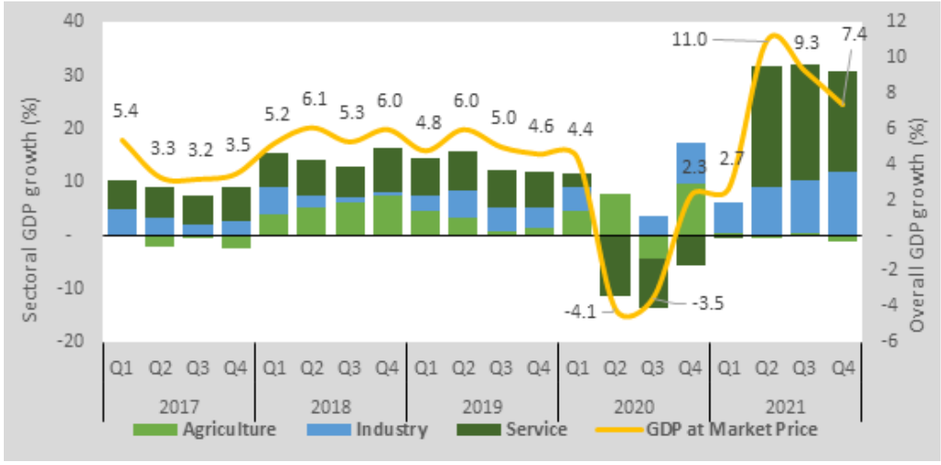
Following the COVID-19 pandemic that suddenly interrupted economic activities in 2020, Kenya's economy rebounded solidly in 2021 despite the low precipitation that adversely affected agricultural output. GDP growth accelerated from a contraction of 0.3 per cent in 2020 to 7.5 per cent in 2021. The timely and coordinated fiscal and monetary stimuli implemented by the government to cushion families and businesses from the ravaging effects of the pandemic strengthened the economic upturn. Regionally, Kenya's economic recovery in 2021 was above the average growth rate in the EAC-5 countries (Figure 2.1).

Figure 2.1: Economic growth episodes in Kenya and EAC-5



Source: SSA Regional Economic Outlook October 2021 and April 2022 except for Kenya

Figure 2.2: Quarterly GDP growth rates



Data source: Kenya National Bureau of Statistics (Various), Quarterly GDP Reports

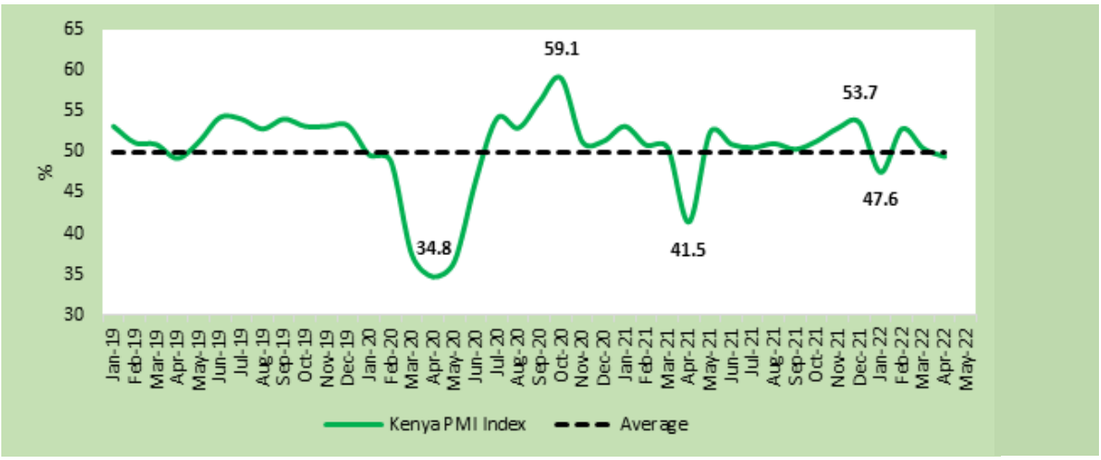
Kenya's real GDP growth rate of 7.5 per cent in 2021 comprised of a growth of 2.7 per cent, 11.0 per cent, 9.3 per cent and 7.4 per cent in the first, second, third and fourth quarters of 2021, respectively. This compares with a contraction of output by 0.3 per cent in 2021, which comprised of 4.4 per cent, -4.1 per cent, -3.5 per cent and 2.3 per cent in in the same period in 2020. A plausible explanation is that through the experience and learning during the first year of the pandemic, it is possible that consumers and producers begun to adapt to COVID-19 shocks and heightened their coping strategies.

The services sector showed the strongest recovery coming from a contraction of 5.9 per cent in 2020 and expanded by 15.4 per cent in 2021 (Figure 2.2). This was anchored on strong performance in accommodation and food services (75.8%), education activities (22.4%), other services (13.7%), and financial and insurance activities (12.7%), and encouraged by lifting of restrictions on domestic and international movements, which were largely in place in the second and third quarters of 2020. There was a slowdown in performance of agriculture, forestry, and fishing activities in 2021. The sector shrunk by 0.2 per cent compared to a growth of 4.5 per cent in 2020. The shrinkage of the sector output was propelled by contraction in growing of crops, which accounts for 76.2 per cent of the sub-sector's activities. The prolonged unfavourable dry weather conditions registered in most parts of the country in 2021 greatly affected growing of major crops such as maize, beans and wheat. Forestry and logging activities which account for 7.4 per cent of the agriculture, forestry and fishing sub-sectors also contracted by 2.4 per cent on account of the dry weather and the ongoing ban on logging activities that affected sales from government forests.

Industrial activities grew by 9.2 per cent in 2021 compared to 3.9 per cent in 2020. Industrial activities comprise manufacturing, construction, electricity, and water supply; and mining and quarrying, which account for 42.6 per cent, 41.2 per cent, 11.7 per cent and 4.5 per cent of total industrial activities, respectively. In 2021, manufacture of food products expanded by 5.5 per cent compared to a contraction of 1.6 per cent in 2021, while notable improvement of 8.8 per cent was recorded in other manufacturing, repairs and installation compared to a growth of 1.2 per cent in 2020. Mining and quarrying recorded a growth of 18.1 per cent in 2021 compared to a growth of 5.5 per cent in 2020. Construction grew by 6.6 per cent compared to 10.1 per cent growth in 2020. The ongoing public sector infrastructure projects, such as the construction of the Nairobi Expressway and rehabilitation of major railway lines, bolstered the performance of the sector. However, the reduced importation of construction inputs such as iron, steel, non-ferrous metals, and cement clinkers curtailed the performance of the sector. Electricity and water supply services grew by 5.4 per cent. The achievement of Kenya's industrialization goals as espoused in the Kenya Vision 2030 will heavily rely on enhancement of industrial activities, especially manufacturing and construction activities.

Consistent with economic recovery, high frequency data from Purchasing Managers Index (PMI) paints a favourable business environment in 2021, with strengthening of output and new business growth. Normally, PMI readings above 50.0 point to an improvement in business conditions on the previous month, while readings below 50.0 signal deterioration (Figure 2.3). In 2021, the average PMI was 50.6 per cent compared to 48.3 per cent in 2020, 52.6 per cent in 2019 and 54.3 per cent in 2018. A sharp decline in PMI was recorded in April 2021, largely due to renewed COVID-19 restrictions in several counties, which had a negative impact on movement and demand, leading to a sharp drop in output. However, it recovered in May 2021 with the lifting of these restrictions. At the end of December 2021, the PMI stood at 53.7 per cent, the highest recorded in the past 14 months. This signaled positive business sentiments in the wake of the ongoing recovery. However, in January 2022, the resurgence in COVID-19 cases following the outbreak of Omicron variant in late December 2021 caused jitters in business, leading to the lowest score recorded in the last one year. Similarly in April 2022, the PMI dropped to 49.7 per cent, reflecting reduced consumer demand in response to inflationary pressures, and increased firm input costs and supply shortages due to the spillover effects of the war in Ukraine.

Figure 2.3: CFC Stanbic Purchasing Managers' Index, Kenya



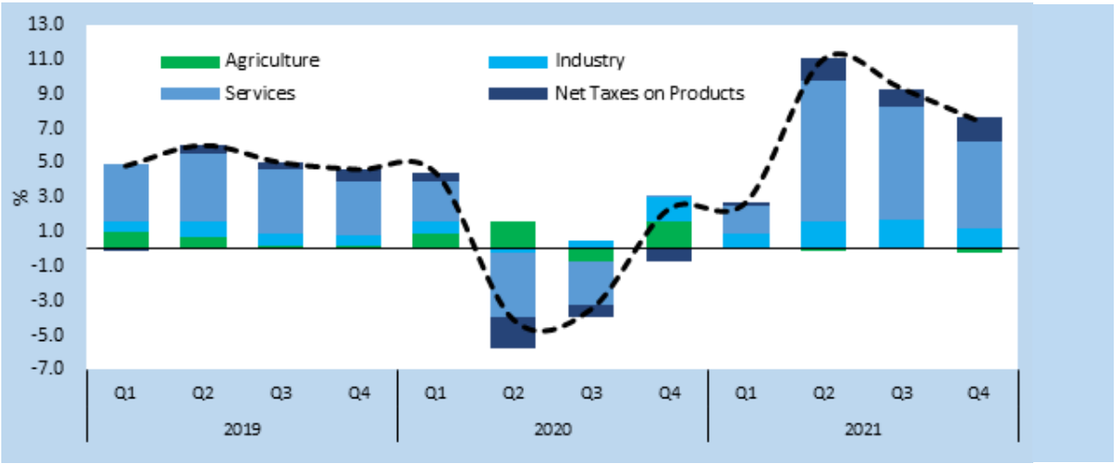
Data source: CFC Stanbic Bank

2.1.2 Contribution to real GDP growth

In 2021, the services sector (with over 50% share in the economy) was the main driver of economic growth, contributing 5.4 percentage points to real GDP growth. This performance compares to the negative contribution of 1.4 percentage points in 2020 over the same period and was better than pre-pandemic levels of 3.5 and 3.3 percentage points contribution in 2019 and 2018, respectively (Figure 2.4). Apart from the low base effect, the contribution of services sector to real GDP, growth was mainly anchored on stronger pick up of educational activities following the reopening of educational institutions, and increased government venture into the education sub-sector to equip learning institutions and at the very minimum meet the Ministry of Health guidelines on social distancing, wearing of masks and washing of hands. Other notable contributions to the services sector were driven by financial and insurance activities, transport and storage activities, real estate services and wholesale and retail activities, which were made vibrant by the relaxation of stringent COVID-19 measures that had adversely interrupted the normal operations in these sectors.

In addition, the industrial sector contributed 1.3 percentage points to real GDP growth compared to 0.6 percentage points in 2020, supported by rebound in manufacturing activities, which contributed 0.61 to GDP in 2021 compared to a negative contribution of 0.03 percentage points in 2020. Meanwhile, the agriculture sector dragged economic growth by a negative contribution of 0.03 percentage points in 2021 compared to a positive contribution of 0.9 percentage points in 2020. This was mainly as a result of extremely dry weather conditions in most parts of the country, which affected crop farming and livestock production.

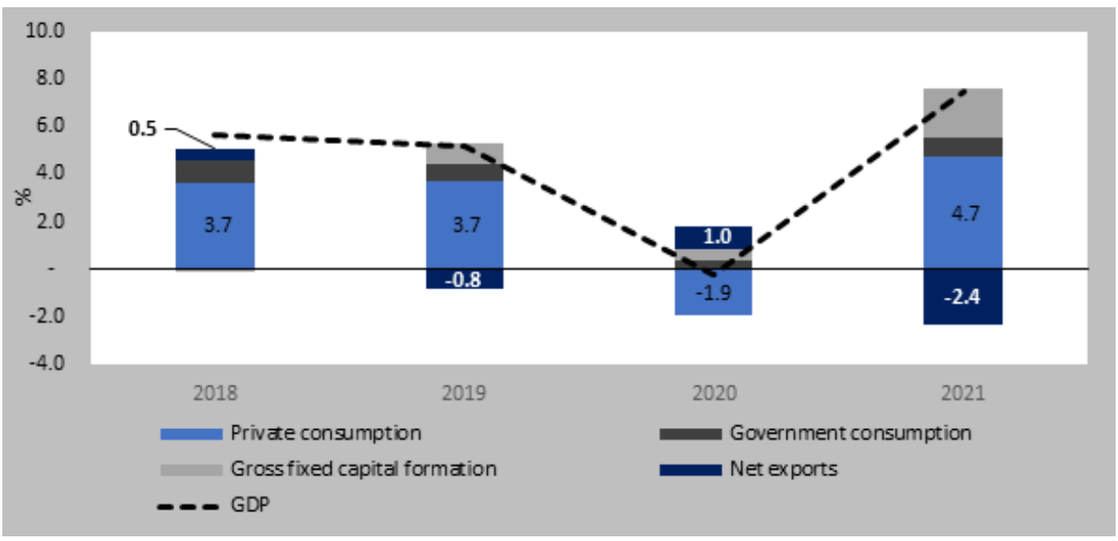
Figure 2.4: Supply side point contribution to GDP Growth (percentage points)



Data source: Kenya National Bureau of Statistics (Various), Quarterly GDP Reports

Considering the aggregate demand, growth in real GDP was primarily driven by private consumption, which historically has been the linchpin of growth. In 2021, private consumption accounted for 73.8 per cent of aggregate demand in Kenya and contributed 4.7 percentage points of real GDP growth. The expansion of private consumption stemmed from increased COVID-19 vaccination that necessitated gradual reopening of the economy, improved employment conditions as households and firms heightened their coping mechanisms to the new normal, and improved household incomes. The contraction of net exports dragged growth in 2021. Trade deficit widened in 2021, pulling down growth by 2.4 percentage points. This was largely on account of faster rise in merchandise imports due to improved local demand as more sectors of the economy reopened. In addition was the effects of the weakening of the shilling against the dollar, which led to a larger import bill (Figure 2.5). Nonetheless, the rebound in private consumption and improvements in government consumption, and fixed capital formation offset the negating effects of widening of trade deficit.

Figure 2.5: Demand-side point contribution to GDP (percentage points)



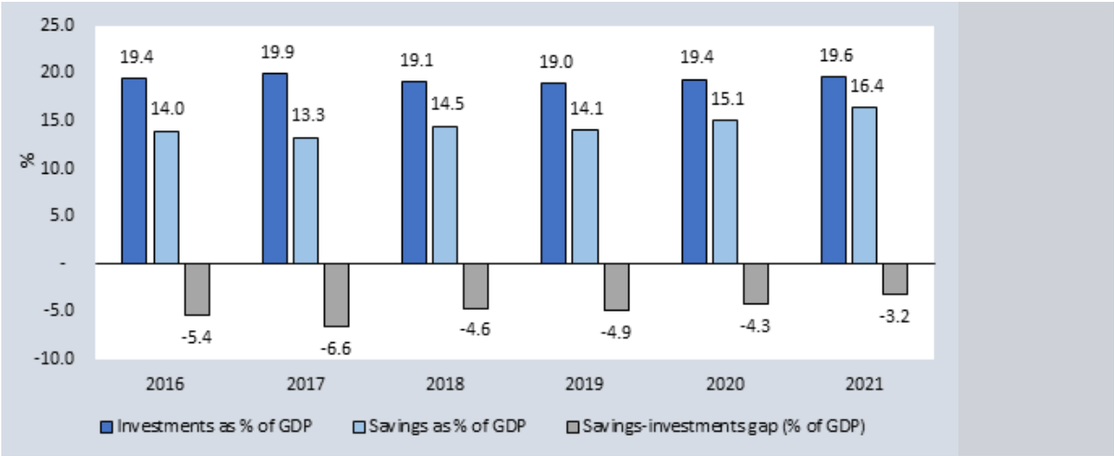
Data source: Kenya National Bureau of Statistics (Various), Economic Survey

Government consumption contributed 0.8 percentage points in 2021 compared to 0.4 percentage points in 2020. This was in line with the government's increased spending activities to support the ongoing economic recovery impetus. Further, gross fixed capital formation contributed 2.1 percentage points to real GDP growth against 0.5 percentage points in 2021. Gross fixed capital formation was anchored on increased investments in dwellings and buildings, transport equipment, ICT equipment and other machinery.

2.2 Savings and Investments

In 2016, the savings-investment gap was -5.4 per cent of GDP, widening to -6.6 per cent of GDP at the end of 2017 before narrowing to -4.3 per cent of GDP in 2020 and further to -3.2 per cent of GDP in 2021. This reflects improved financial inclusion in the country and reduced holding of savings in the form of non-financial assets. Figure 2.6 shows that the share of savings in GDP stood at 14.0 per cent in 2016 and declined to 13.3 per cent in 2017 before slightly picking up to 14.5 per cent in 2018. The share of savings oscillated between 13.3 per cent and 16.4 per cent during the review period. The lowest rate was in 2017 at 13.3 per cent of GDP while 2021 recorded the highest share. The share of investments in GDP remained above 19.0 per cent between 2016 and 2021, with year 2021 recording the highest share boosted by increased investor confidence during the recovery phase post-COVID-19 and revived investments in dwellings, buildings other than dwellings, other structures, investments in transport equipment, ICT equipment and other machinery. The savings and investment shares of GDP registered by the end of 2021 adequately fell below the MTP III aspiration. Economic literature has shown that low savings lead to low investments, reflecting the challenges in domestic resource mobilization.

Figure 2.6: Gross investments and savings, 2016-2020 (as % of GDP)



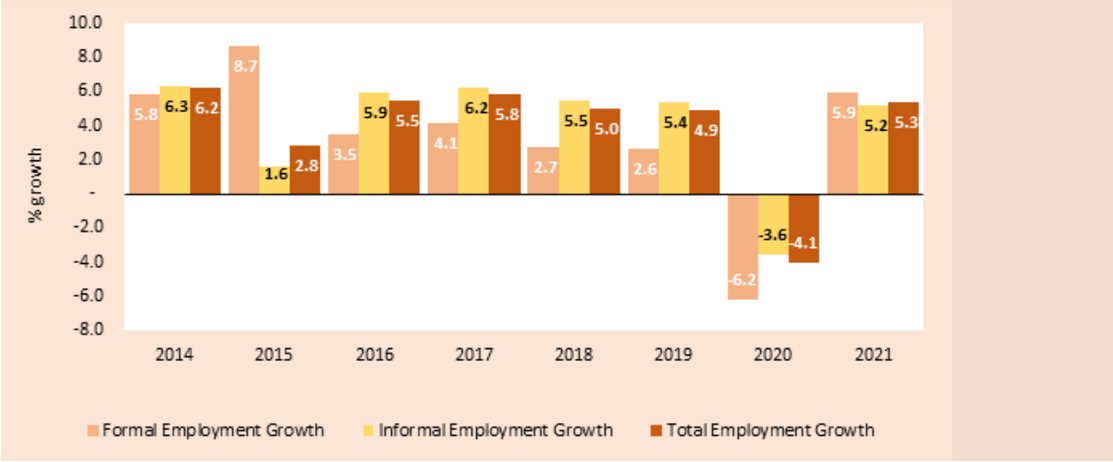
Data source: Kenya National Bureau of Statistics (Various), Economic Survey

2.3 Employment

Kenya's labour market structure has remained relatively the same between 2013 and 2021, with the informal sector accounting for about 82.5 per cent of total employment and formal employment accounting for an average of 17.5 per cent of total employment during that period.

Total employment outside small scale agriculture and pastoralist activities grew by 5.3 per cent in 2021 (Figure 2.7), with about 18.3 million Kenyans in employment. This compares to 4.1 per cent shrinkage in employment witnessed in 2020 following the outbreak of COVID-19 pandemic that resulted into 736,000 job losses in 2020. The improvement in employment was a compounded result of reopening of various sectors of the economy, improved demand conditions and removal of COVID-19 restrictions that disrupted economic activities. Meanwhile, informal sector jobs that account for an average of 82.5 per cent of total employment in the country expanded by 5.2 per cent while formal employment grew by 5.9 per cent against shrinkages of 3.6 per cent and 6.2 per cent, respectively, in 2020.

Figure 2.7: Annual changes in employment by categories (%)



Data source: Kenya National Bureau of Statistics (Various), Economic Survey

Distributional analysis of employment in the informal sector reveals that services account for an average of 72.7 per cent; these are contact sensitive activities that were greatly affected by the COVID-19 measures in 2020 but have greatly improved in 2021. For instance, 11.4 million persons were employed in the informal services sector in 2021 compared to 10.6 million persons in 2020, reflecting 7.5 per sent growth in employment. Industrial activities accounted for 22.8 per cent while other activities accounted for 4.5 per cent.

2.4 Inflation

2.4.1 CPI inflation

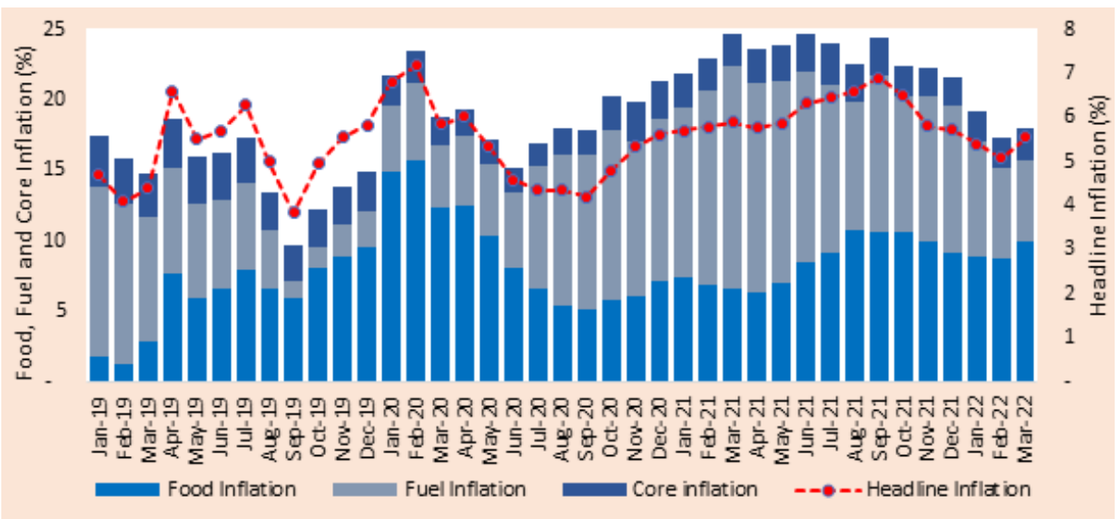
Headline Inflation, measured by consumer price index (CPI) is defined as the change in the prices of a basket of goods and services that are typically purchased by households.

Headline inflation remained within the government's target band of 5±2.5 per cent, averaging 6.1 per cent in 2021 compared to 5.2 per cent and 5.4 per cent in 2019 and 2020, respectively. In 2021, inflationary pressures were more amplified, driven mainly by uptake in transport index and food and non-alcoholic beverages index on account of strong domestic cost pressures, arising from increasing cost of electricity, petrol and house rents and external pressure that resulted in the rebound of global oil prices that drove up domestic pump petrol and electricity prices. In January 2022, headline inflation stood at 5.4 per cent, easing to 5.1 per cent in February 2022 before rising to 5.6 per cent reflective of the spillover effect of the war in Ukraine that has disrupted supply chain especially for wheat and other cereals, and transportation of petroleum products.

Food inflation, which accounts for over 30 per cent of the consumer basket used in computing CPI, averaged 8.6 per cent in 2021 compared to 9.2 per cent in 2020. Nonetheless, in August, September and October 2021, food inflation reached double digits, recording 10.7 per cent in August, and 10.6 per cent in both September and October 2021 compared to 5.4 per cent, 5.2 per cent and 5.8 per cent in August, September, and October 2020, respectively. The increase was on account of drought, which affected over 10 counties and threatened food security, and together with international oil prices and supply constraints that affected commodity prices. Food inflation in the first quarter of 2022 stood at 9.2 per cent compared to 7.0 per cent in the same period last year. This is mainly attributed to the rising cost of food commodities emanating from rising cost of fuel, and the ripple effects of the Russia-Ukraine war on supply of wheat and fertilizer production.

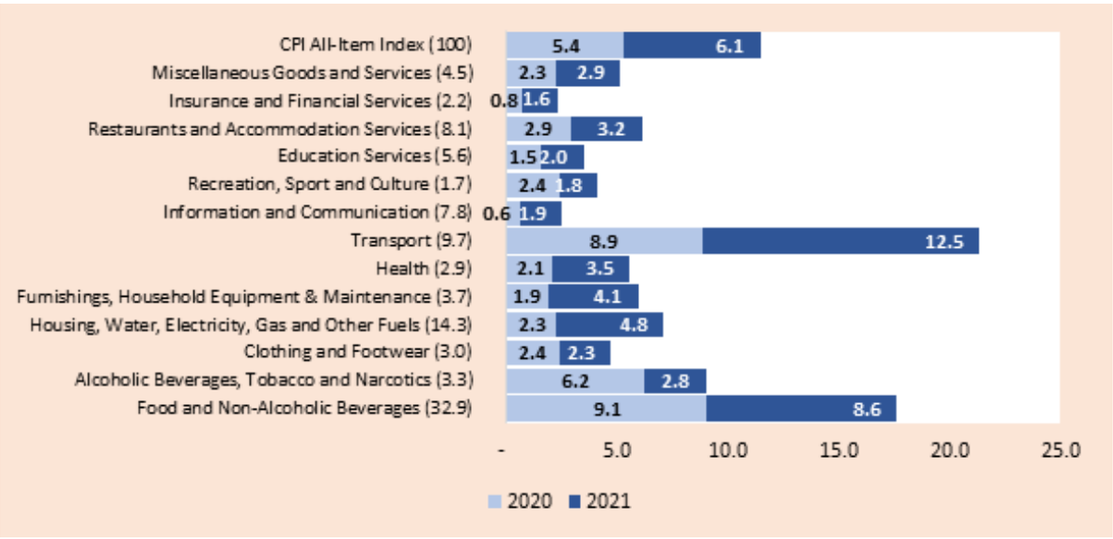
Figure 2.8: Inflation dynamics

(a) Monthly trends in inflation



NB: Headline inflation is measured in terms of the annual growth rate. In index the, February 2019 is the base year with a breakdown for food, energy and total excluding food and energy.

(b) Annual Average changes in the CPI by divisions %, weight in parenthesis



Data source: Kenya National Bureau of Statistics Leading Economic Indicators; and Central Bank of Kenya (Various), Monthly Economic Indicators

Fuel inflation remained high in 2021, averaging 12.3 per cent compared to 5.8 per cent in 2019 and 7.9 per cent in 2020. The increased cost of fuel in 2021 was the result of increased global oil prices and shipping costs, which are transmitted locally since Kenya is a net oil importer. The ongoing Russia-Ukraine war has already stifled the global oil prices since Russia is the third largest oil producer and the Baltic Sea corridor is a major shipping line for not only crude oil but also other commodities such as wheat and cereals. Retail pump prices have surged in the first quarter of 2022. For instance, super petrol retailed at Ksh 131.63 in January and February 2022 before increasing to Ksh 136.88 in March, Ksh 146.6 in April and 152.14 in May 2022, driven mainly by the rising cost of global oil due to supply disruptions in Russia.

With the easing of the COVID-19 restrictions, core prices picked up, averaging 2.4 per cent in 2021 compared to 2.0 per cent in 2020. This was because of increase in activities in recreational and cultural services, accommodation and food service activities, education services, health services, household equipment and point-to point movement of people, which form the main components of core inflation.

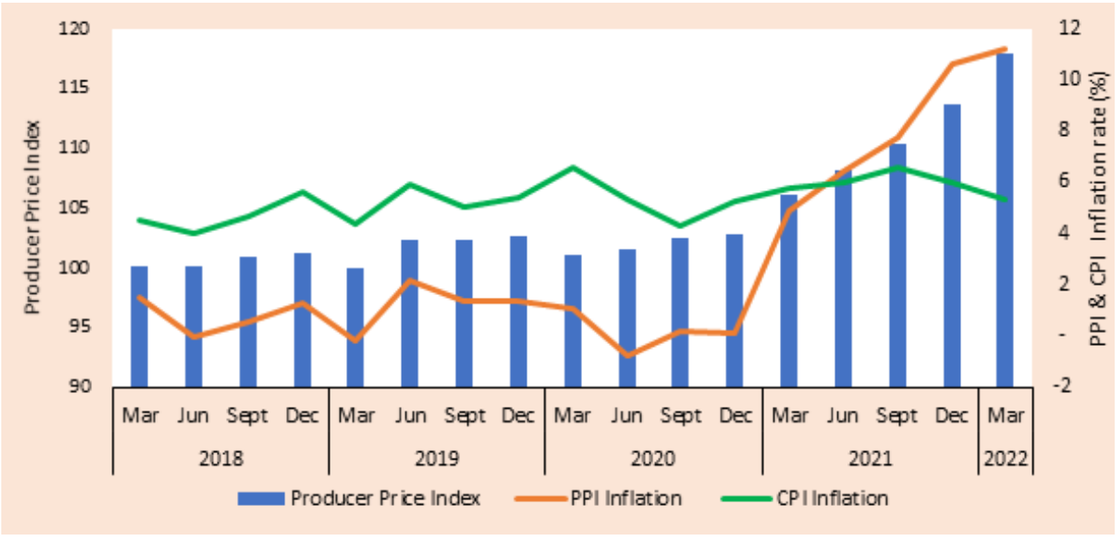
It should be noted that core prices or core inflation focuses on the underlying and persistent trends in inflation by excluding prices set by the government and the more volatile prices of products, such as food and energy, most affected by seasonal factors or temporary supply conditions. Core prices/inflation are usually monitored by policy makers.

The kick in core inflation is in tandem with the ongoing rebound in economic activities after a contraction in 2020.

2.4.2 PPI inflation

Producer prices increased sharply in 2021, reflecting the high cost of inputs. Kenya's overall Producer Price Index (PPI) inflation averaged 7.43 per cent in 2021 compared to 1.20 per cent in 2019 and 0.15 per cent in 2020 (Figure 2.9). The surge was mainly due to increased cost of production following the disruptive effects of COVID-19 measures that plunged both domestic and international supply chains into disarray. Further, the escalation was driven by high global cost of shipping and oil prices stemming from the ripple effects of Russian-Ukraine war.

Figure 2.9: Producer price inflation trends



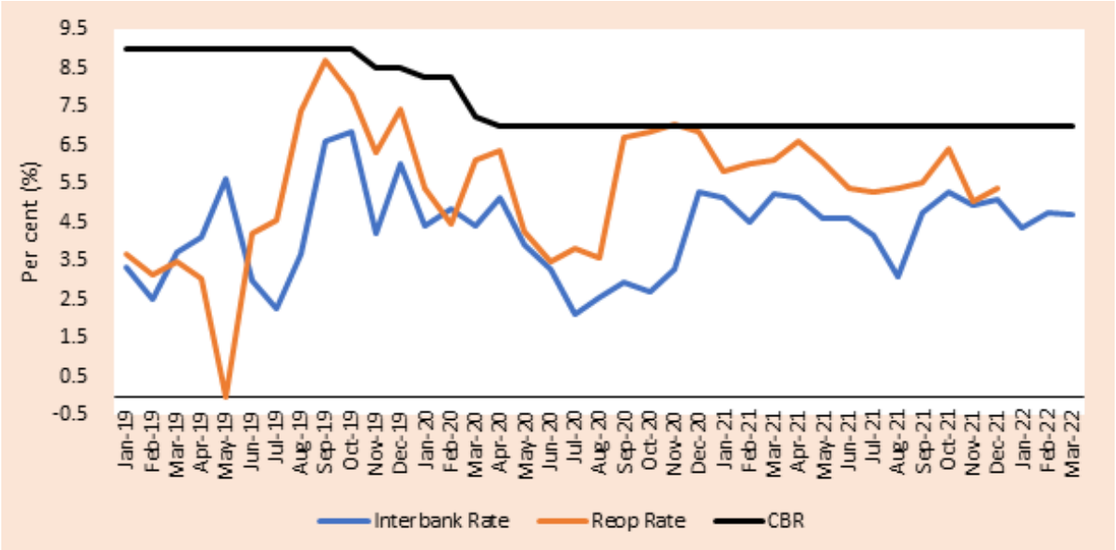
Data source: Kenya National Bureau of Statistics (various), CPI and PPI reports

2.5 Monetary Policy and Financial Sector Performance

2.5.1 Monetary policy stance and interest rates

Against the backdrop of adverse economic performance in 2020 and the need to accelerate the recovery process, the Central Bank maintained the Central Bank Rate (CBR) at 7.0 per cent since April 2020. Before the pandemic, the CBR was 7.25 per cent. To operate an accommodative monetary policy and ensure increased liquidity in the market, the CBR was reduced to 7.0 per cent and has since been retained at that rate.

Figure 2.10: Movements in interbank rate, CBR and repo rates



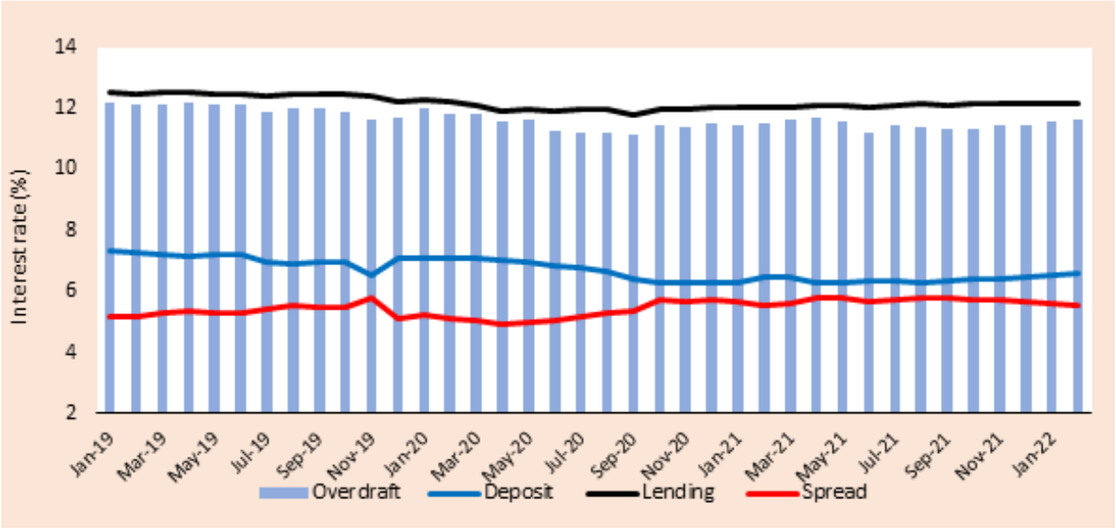
Data source: Central Bank of Kenya (Various), Monthly Economic Indicators

While interbank rates remained higher in 2021 than in 2020, they have remained below the policy rate (CBR). During 2021, the average interbank rate was 4.7 per cent compared to 3.7 in 2020 and 4.3 per cent in 2019. While the interbank market activity exhibits intermittent volatility (in terms of rates and transaction volumes), since 2020, CBK has maintained a low cash reserve requirement at 4.25 per cent from 5.25 per cent to ensure liquidity in the economy, which along with the National Government credit guarantee scheme has continued to support credit to the private sector and the rebound in economic activity.

The average repo rate in 2021 was 5.8 per cent and on a declining trend, reflecting increased efforts by the CBK to inject liquidity to support the ongoing recovery. When the repo rate is lower, it means banks get money at a cheaper rate. Reverse repo market was inactive during the period, probably signaling adequate liquidity in the market. However, Osoro and Muriithi (2017) note that the absence of reverse repos may imply inadequate use of reverse repos to signal for distress or abundance of liquidity.

While interest rate spread remained relatively stable, oscillating between 5.6 and 5.8 per cent and averaging 5.7 per cent in 2021, the spread was higher compared to 2020 and 2019 when the average spread was 5.3 per cent and 5.4 per cent, respectively, in the period characterized by interest rate capping. Commercial bank lending rate remained sticky and averaged 12.1 per cent in 2021 compared to 12.0 per cent and 12.4 per cent in the same period in 2020 and 2019, respectively. Similarly, deposit rates in 2021 averaged 6.4 per cent compared to 6.7 per cent in 2020 and 7.1 per cent in 2019. The stickiness of commercial bank lending rates reflects the difficulties faced by banks in effectively pricing risks. Risk pricing challenges have been the result of delayed approval and implementation of risk-based pricing models. Moreover, the continued suspension of the listing of negative credit information for borrowers with loans below Ksh 5 million has made it difficult for banks to effectively conduct customer credit assessment. The foregoing has the potential to stifle private sector credit growth, thereby impeding the pace of the ongoing economic recovery. The widening spread signals impediments to financial intermediation, including factors discouraging potential savings due to low returns.

Figure 2.11: Commercial banks weighted average rates (%)



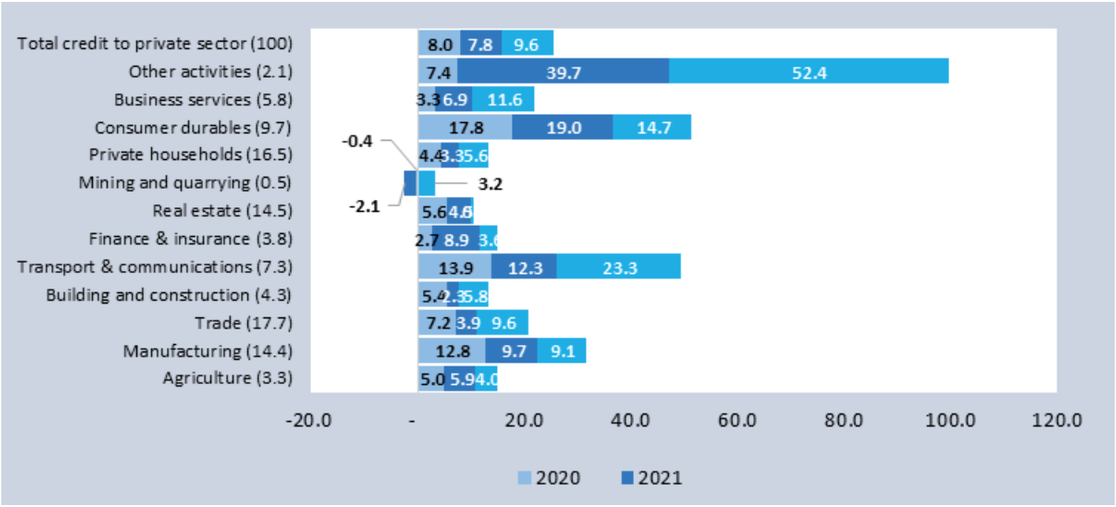
Data source: Central Bank of Kenya (Various), Monthly Economic Indicators

2.5.2 Credit to private sector

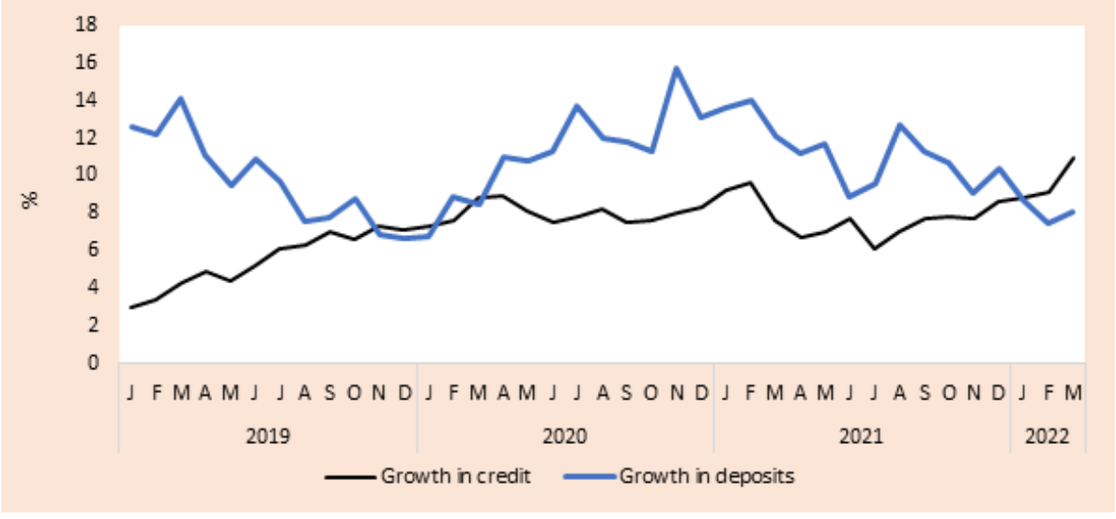
Credit extended to the private sector declined marginally in 2021 amid rebound in economic growth. Detailed data for 2021 indicate that credit expansion to the private sector remained broad-based across all sectors except for mining and quarrying. Specifically, credit to the private sector grew by 7.8 per cent in 2021 compared to 8.0 per cent in 2020 (Figure 2.12). On the contrary, the Central Bank of Kenya liquidity support resulted into 11.3 per cent growth in gross deposits in 2021 compared to growth of 11.2 per cent in 2020 (Figure 2.12). Overall, credit to the private sector remained strong despite the fifth wave of domestic COVID-19 infections posed by the outbreak of the Omicron variant that partly disturbed the business environment in January 2022, and the crisis in Russia and Ukraine that has had adverse implications on business operations.

Figure 2.12: Trends in private sector credit growth

(a) Average annual growth in credit to private sector %, share in parenthesis



(b) Private credit and gross deposits (annual growth, %)

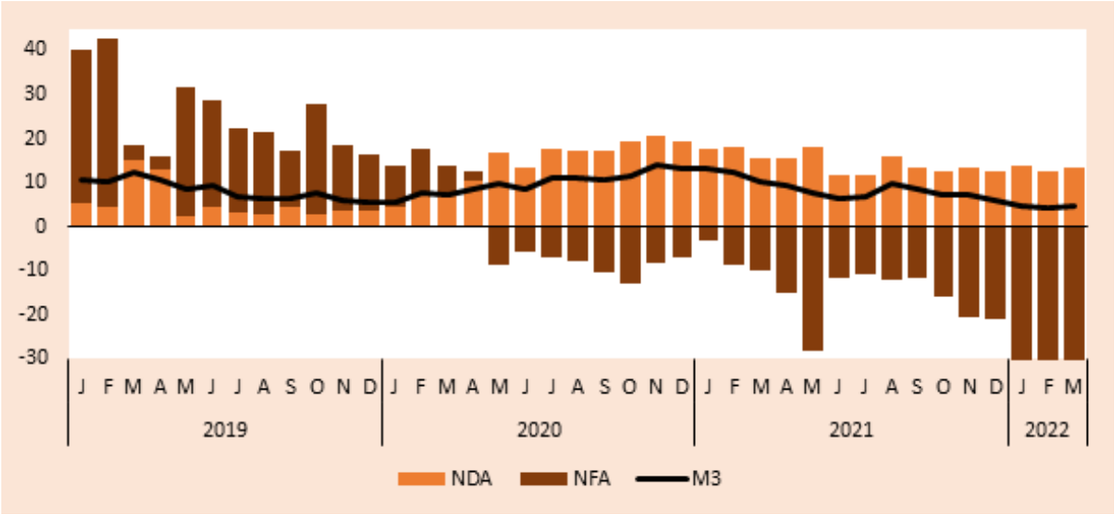


Data source: Central Bank of Kenya (various), Monthly Economic Indicators

2.5.3 Broad money supply

Broad money supply (M3) in 2021 expanded by 8.8 per cent compared to 10.0 per cent growth posted during the same period in 2020. This reflects the marginal decline in private sector credit and the effects of removal of some of the fiscal measures to bolster businesses and families from the impact of the economic crisis. Detailed data indicates that in 2019 before COVID, net foreign assets (NFA) was the main driver of money supply. However, after the outbreak of the pandemic, NFA picked negative growth and money supply was largely driven by net domestic assets (NDA). Specifically, in 2021, NDA grew by 14.7 per cent compared to 14.3 per cent posted in 2020 while NFA contracted by 14.0 per cent (Figure 2.13). The change in the latter largely reflects pressures on Kenya's external accounts, particularly the deterioration in foreign exchange receipts from transport and travel accounts due to travel restrictions and tourism-related activities instituted early on to control the spread of COVID-19.

Figure 2.13: Changes in stock of broad money supply (annual growth %)

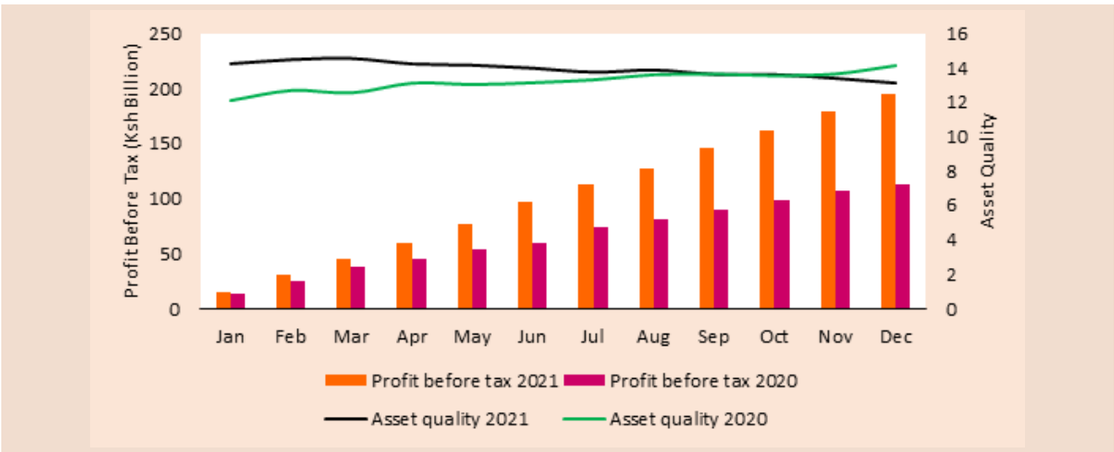


Data source: Central Bank of Kenya (Various), Monthly Economic Indicators

2.5.4 Banking sector asset quality

Banking sector asset quality, measured by the ratio of gross non-performing loans (NPLs) to gross loans, weakened in 2020. However, in 2021, asset quality continued to improve. The non-performing loans stood at 14.1 per cent at the end of December 2020 and improved to 13.1 per cent by December 2021. The deterioration in 2020 was largely attributed to the disruption of businesses and households by the COVID-19 pandemic. In 2021, improvement in asset quality is attributable to the ongoing economic rebound, particularly in the contact-sensitive service activities as the country gradually phased out stringent COVID-19 measures. Similarly, banks posted lower profits in 2020 compared to 2021. At the end of December 2021, banking sector profit before tax amounted to Ksh 194.8 billion compared to Ksh 112.8 billion in 2020, signalling the improved business environment in 2021 and the positive impact of reopening the economy.

Figure 2.14: Banking sector asset quality and profitability



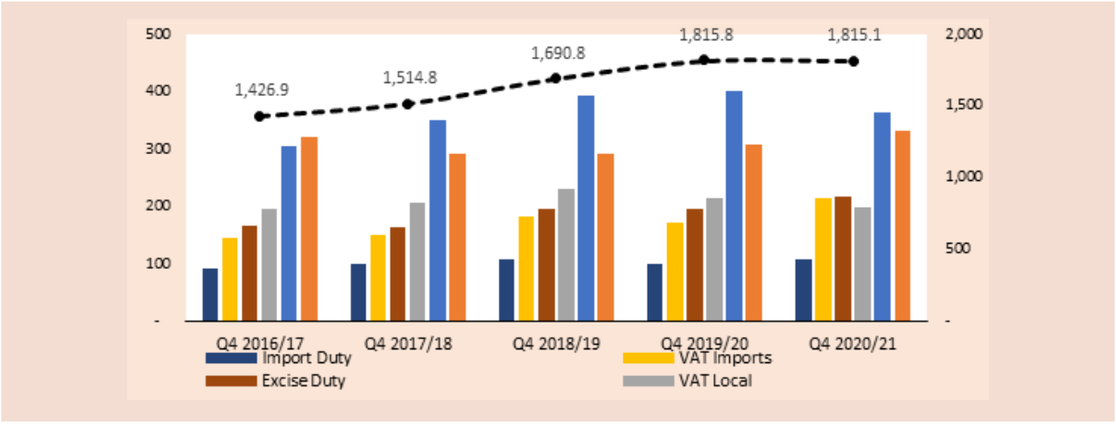
Data source: Central Bank of Kenya (2021), Monthly Economic Indicators

2.6 Fiscal Performance

2.6.1 Revenue performance

At the end of 2020/21, total revenue including grants amounted to Ksh 1,815.1 billion compared to Ksh 1,815.8 billion at the end of 2019/19. This is equivalent to a drop from 17.8 per cent of GDP in 2019/20 to 16.3 per cent of GDP in 2020/21. Total revenue inclusive of appropriations-in-aid amounted to Ksh 1,783.7 billion compared to Ksh 1,796.0 billion collected in 2019/20, reflecting 0.7 per cent decline in collection. Against the target, collections for 2020/21 recorded a shortfall of Ksh 54.1 billion, largely attributed to Ksh 37.1 billion shortfall in appropriations-in-aid occasioned partly by under-reporting by semi-autonomous government agencies.

Figure 2.15: Fourth quarter revenue performance, Ksh billion



Data source: National Treasury (Various), Quarterly Economic and Budgetary Review

In 2020/21, ordinary revenue amounted to Ksh 1,562.0 billion (or 14.0% of GDP) compared to Ksh 1,573.7 billion (15.5% of GDP) collected in 2019/20, reflecting a decline of 0.7 per cent (Table 2.2). Similarly, ordinary revenue collection fell short of its target by Ksh 16.8 billion, driven by under-performance in income tax, excise tax and other revenue, which missed targets by 0.4 per cent, 0.8 per cent and 16.3 per cent, respectively. VAT and import duty were on target, supported by the gradual recovery of activities both locally and abroad and removal of COVID-19 tax reliefs that were implemented from April 2020. The poor performance in 'other revenues' category was a result of below target mop up of idle cash from State corporations, which accounted for Ksh 20.3 billion of the shortfall in this category. Overall revenue performance in 2020/21 was muted by the difficult economic conditions occasioned by the COVID-19 pandemic; however, the removal of COVID-19 tax reprieves in the second half of the financial year and gradual reopening of both local and foreign economies bolstered revenue, albeit to a lesser extent.

Table 2.2: Sources of government revenue 2019/20 and 2020/21

	2019/20			2020/21						
	Actual (Ksh billion)	% of Total Revenue	% of GDP	Actual (Ksh billion)	% of Total Revenue	% of GDP	Target Collection	Deviation from Target (Ksh billion)	Deviation from Target (%)	Growth in Revenue (2020/21)
Total revenue	1,796.0	100.0	17.7	1,783.7	100	16.0	1,837.8	(54.1)	(2.9)	(0.7)
a. Ordinary revenue	1,573.7	87.6	15.5	1,562.0	87.6	14.0	1,578.8	(16.8)	(1.1)	(0.7)
Income Tax	706.9	39.4	6.9	694.1	38.9	6.2	697.0	(3.0)	(0.4)	(1.8)
VAT	383.7	21.4	3.8	410.8	23.0	3.7	403.1	7.7	1.9	7.0
Import Duty	98.0	5.5	1.0	108.4	6.1	1.0	102.4	6.0	5.8	10.6
Excise Duty	195.3	10.9	1.9	216.3	12.1	1.9	218.0	(1.7)	(0.8)	10.8
Other Revenue	189.8	10.6	1.9	132.5	7.4	1.2	158.3	(25.8)	(16.3)	(30.2)
b. Appropriation-in-aid	222.2	12.4	2.2	221.7	12.4	2.0	259.0	(37.3)	(14.4)	(0.2)
c. External grants	19.8	1.1	0.2	31.3	1.8	0.3	72.8	(41.5)	(57.0)	58.0
Total revenue incl.* grants	1,815.8	-	17.8	1,815.1	-	16.3	1,910.6	- 95.6	(5.0)	(0.0)

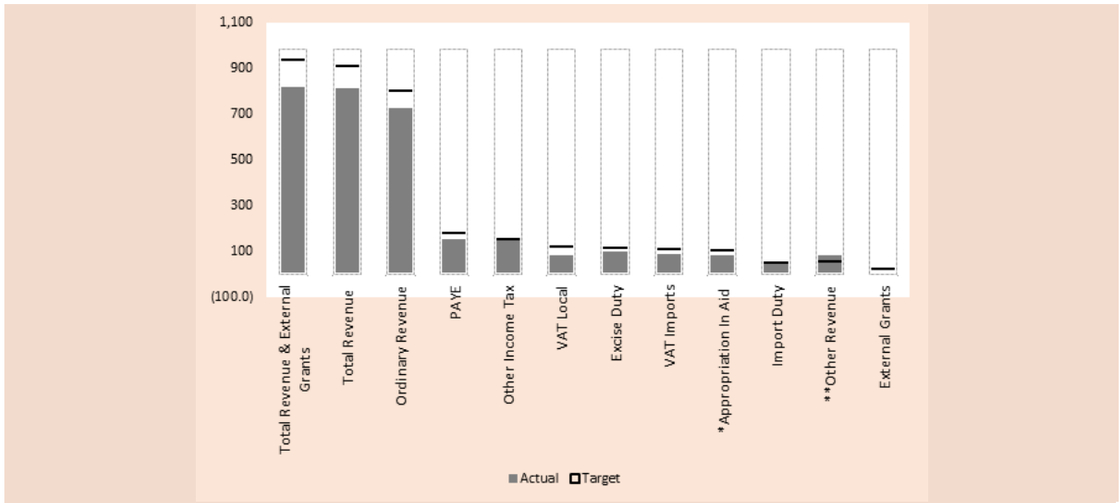
**incl.=including*

Data source: National Treasury (Various), Quarterly Economic and Budgetary Review

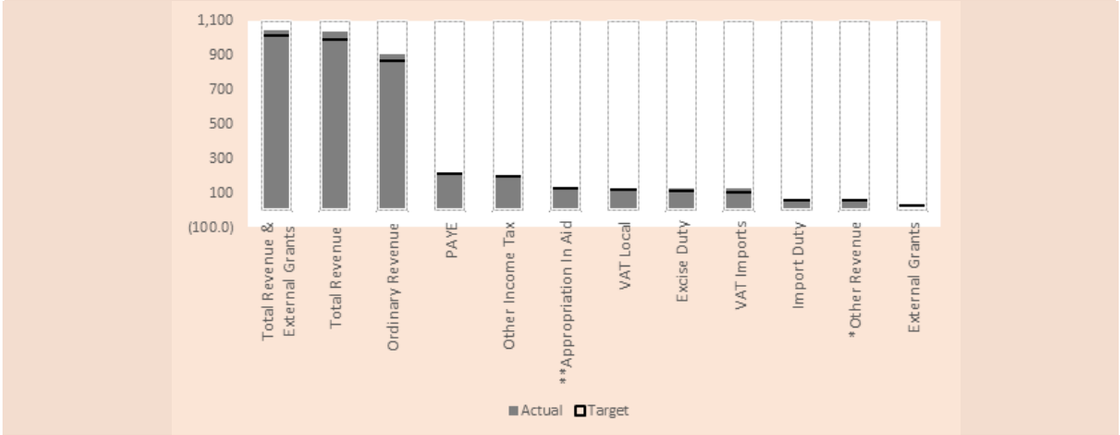
In the first half of 2021/22, total revenue recovered steadily due to the combined effect of relaxation of the COVID-19 containment measures, gradual reopening of the economy and removal of 2020 COVID-19 tax reprieve. The government targeted to collect total revenue amounting to Ksh 989.7 billion in the first half of 2021/22, and preliminary data shows that total revenue collected was above target by Ksh 42.5 billion. Total revenue grew by 27.3 per cent in the half year compared with the same period in 2020/21 (Figure 2.16). Among the major tax heads, PAYE (Pay As You Earn) grew by 43.9 per cent, VAT (Value Added Tax) local 16.8 per cent, VAT imports by 53.7 per cent, while other income tax increased by 19.2 per cent, excise duty grew by 32.7 per cent, import duty grew by 9.6 per cent while "other revenue" contracted by 20.6 per cent. "Other" revenue includes investment revenue, taxes on international trade and IDF fees, traffic revenue and revenue comprising rent on land/ buildings, fines and forfeitures, other taxes, loan interest receipts reimbursements and other fund contributions, fees, and miscellaneous revenue. The improved economic environment saw revenue increase above the pre-COVID levels.

Figure 2.16: Revenue performance in the first half of fiscal year, Ksh billion

(a) 1st half of FY 2020/21



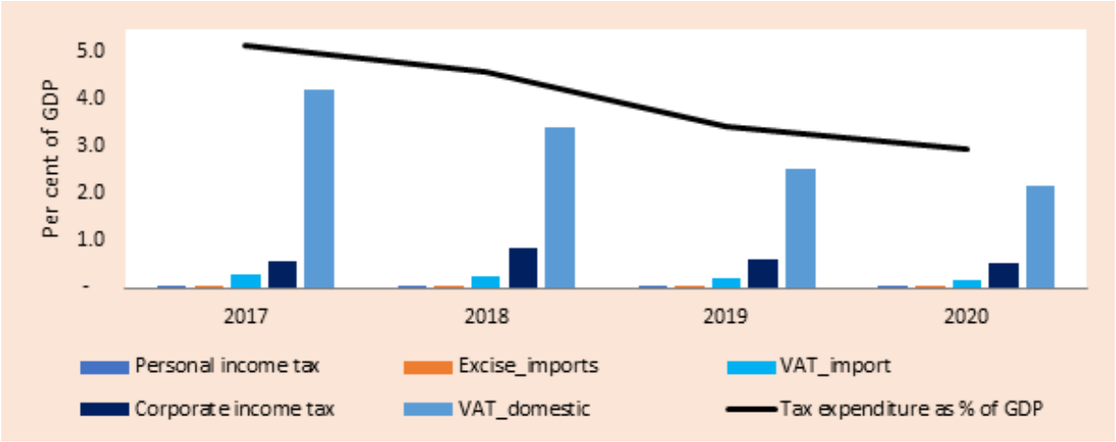
(b) 1st half of 2021/22



Data source: National Treasury (Various), Quarterly Economic and Budget Review

The tax expenditures report released in November 2021 also show that government tax expenditures have been declining since 2017, coinciding with government's fiscal consolidation programmes (Figure 2.17). Tax expenditure are estimates of the total revenue foregone because of preferential tax measures such as waivers, exemptions, deductions, or credits. The recently released Tax Exemption Report 2021 indicates that exemptions have declined from 5.2 per cent of GDP in 2017 to 3.0 per cent in 2020, boosting domestic revenue mobilization. VAT on domestic products accounts for the largest share at 2.2 per cent of GDP and 73.2 per cent of total tax expenditure, implying that if the ongoing trend is sustained, more revenue will be mobilized.

Figure 2.17: Tax expenditures as a share of GDP 2017 to 2020

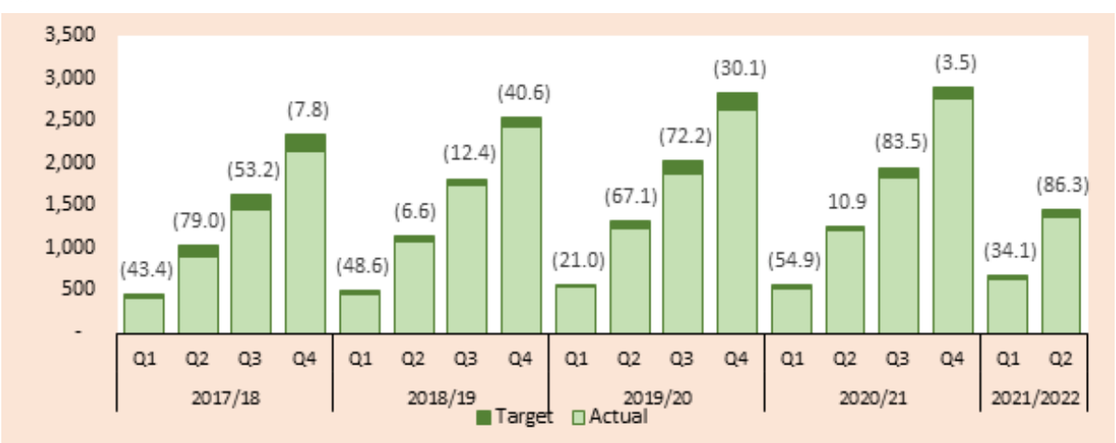


Data source: National Treasury (2021), Tax Expenditures Report 2021

2.6.2 Expenditure performance

In the first half of 2021/22, government target expenditure was Ksh 1,451.2 billion. However, at the end of two quarters, total expenditure amounted to Ksh 1,364.9 billion, reflecting an under-expenditure of Ksh 86.3 billion (Figure 2.18). The under-expenditure was mainly due to low absorption of development expenditure by the National Government and lower than expected transfers to County Governments. Relative to the spending in the same period in 2020/21, total spending recorded a 12.4 per cent increase reflective of increased expenditure, consistent with the ongoing economic recovery process. The increased spending coincides with the government's increased operations in the fight against the pandemic, and budgetary support to sustain the ongoing economic recovery. Further, the persistent underspending has been attributed to below target absorption of development expenditures (A-in-A) by the National Government and below target transfers to County Governments.

Figure 2.18: Expenditure performance, under expenditure in parenthesis, Ksh billion



Data source: National Treasury (Various), Quarterly Economic and Budget Review

Analysis of expenditure by categories indicates that in the first half of 2021/22, recurrent expenditure recorded a 17.7 per cent annual growth (Table 2.3), attributed to higher domestic interest payments and increased spending on operations and maintenance. Recurrent expenditure constituted 92.2 per cent of total revenue during the period, implying that development spending was heavily financed by external borrowing. Development expenditure during the period amounted to Ksh 234.7 billion, reflecting a 10.7 per cent annual contraction on account of reduced absorption of development spending by MDAs. Spending by County Governments, Parliamentary Service Commission, and Judicial Service Commission recorded stronger performance consistent with increased expenditure demands staged by the ongoing economic recovery.

Recurrent expenditure remains the largest component of total expenditure, on average accounting for 62.3 per cent over the 2017/18 to 2020/21 period. Development expenditure follows at 22.0 per cent, County Government 14.1 per cent while Parliamentary Service and Judicial Service constitute 1.1 per cent and 0.5 per cent, respectively.

Table 2.3: Government expenditure by category, Ksh billion

Expenditure category	2017/18	2018/19	2019/20	2020/21	Average share of total expenditure (%)	1st Half of 2020/21	1st Half of 2021/22	% Growth 1st half of 2021/22
Recurrent	1,312.10	1,489.80	1,652.90	1,753.60	62.3	818.2	963.1	17.7
Development	469.7	541.9	608.1	569.9	22.0	262.8	234.7	(10.7)
County Governments	327.3	360.7	325.3	388.9	14.1	128.7	145.0	12.7
Parliamentary Service	25.7	28.5	28.5	29.2	1.1	3.5	15.7	347.2
Judicial Service	11.9	12.7	12.7	14.3	0.5	1.6	6.5	296.3
Total government expenditure	**2,146.70**	**2,433.70**	**2,627.50**	**2,755.80**	**100**	**1,214.8**	**1,364.9**	**12.4**

Data source: National Treasury (Various), Quarterly Economic and Budget Review

Sectoral analysis of MDAs' expenditure (Table 2.4) indicates that in 2020/21, the education sector accounted for the largest share at 26.0 per cent, followed closely by energy, infrastructure, and ICT sector. Education spending amounted to Ksh 445.3 billion compared to Ksh 429.6 billion in the same period in 2019/20, representing a 3.6 per cent increase attributable to increased government spending before and during reopening of learning institutions following relaxation of COVID-19 protocols. The spending on energy, infrastructure and ICT decreased by 13.2 per cent from Ksh 421.8 billion in 2019/20 to Ksh 366.2 billion on account of lower than programmed absorption of domestically financed programmes and execution of externally funded programmes. Health expenditure decreased by 12.8 per cent between 2019/20 and 2020/21 but remained above the pre-COVID levels. National security sector also recorded a notable increase of 14.5 per cent as security services heightened due to political rallies and the 2022 elections.

Table 2.4: Sectoral spending by MDAs, 2017/18 to 2020/21, Ksh billion

Sector	2017/18	2018/19	2019/20	2020/21	Growth (%)
Agriculture, Rural and Urban Development	42.3	51.3	51.7	47.4	(8.3)
Energy, Infrastructure, and ICT	292.2	393.8	421.8	366.2	(13.2)
General Economics and Commercial Affairs	11.2	20.5	24.2	22.0	(8.9)
Health	47.6	76.6	105.4	91.9	(12.8)
Education	388.9	438.0	429.6	445.3	3.6
Governance, Justice, Law and Order	183.8	197.8	197.7	190.3	(3.7)
Public Administration and International Relations	173.3	188.0	218.3	272.8	25.0
National Security	144.6	141.8	145.8	166.9	14.5
Social Protection, Culture and Recreation	51.1	51.0	58.1	51.4	(11.5)
Environment Protection, Water and Natural Resources	52.7	48.6	72.5	59.3	(18.2)
Total expenditure by MDAs - The difference between total expenditure by MDAs and total expenditure by the government is explained by Consolidated Fund Services (CFS), see section 2.7 for definition of CFS.	**1,387.7**	**1,607.4**	**1,725.0**	**1,713.6**	**(0.7)**

Data source: Controller of Budget (Various), Budget Implementation and Review Reports

Spending by MDAs in the first half of 2021/22 shows a 6.2 per cent increase arising from increased spending in health (Ksh 38.4 billion) and Ksh 24.2 billion and Ksh 12.6 billion increases recorded in public administration and international relations sector, and national security sector, respectively. Increased spending in the health sector is consistent with the governments' concentrated efforts towards attaining 32.8 million fully vaccinated adult and teenage population by end of December 2022.

The 2022 general elections have also resulted into increased spending on public administration and national security as the government seeks to maintain a peaceful and secure family and business environment during the electioneering period. Table 2.5 shows that other sectors have recorded contraction in spending especially due to below target development spending and delays in exchequer releases.

Table 2.5: Sectoral spending by MDAs in the first half of the fiscal year, Ksh billion

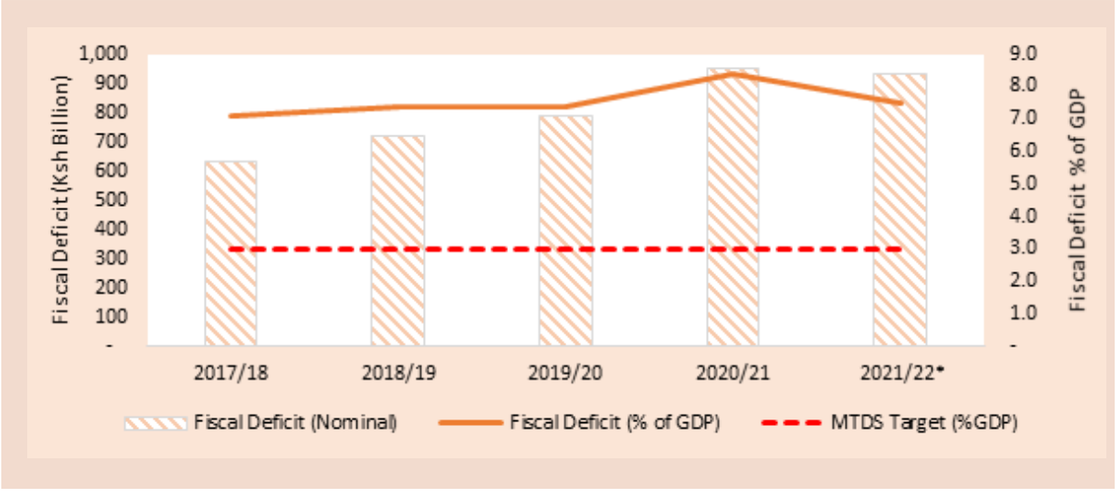
Sector	2017/18	2018/19	2019/20	2020/21	2021/22	% Change H1 2020/21 to H1 2021/22
Agriculture, Rural and Urban Development	19.2	21.0	16.3	27.8	20.9	(24.6)
Energy, Infrastructure, and ICT	136.2	181.9	204.5	153.2	137.9	(10.0)
General Economics and Commercial Affairs	4.8	11.6	7.8	9.0	6.7	(25.5)
Health	21.0	24.1	26.9	32.3	44.7	38.4
Education	213.8	181.9	245.9	219.6	232.1	5.7
Governance, Justice, Law and Order	94.5	97.0	78.7	92.4	102.8	11.3
Public Administration and International Relations	69.5	81.8	93.5	109.2	135.7	24.2
National Security	67.8	78.7	79.9	89.1	100.4	12.6
Social Protection, Culture and Recreation	22.9	17.7	24.8	21.9	21.6	(1.4)
Environment Protection, Water and Natural Resources	20.9	22.3	28.9	26.5	26.5	(0.1)
Total expenditure by MDAs	670.6	718.2	807.1	781.1	829.3	6.2

Data source: Controller of Budget (Various), Budget Implementation and Review Reports

2.6.3 Fiscal balance

Consistent with the performance of revenue and expenditure, fiscal deficit in nominal terms grew steadily from Ksh 631.1 billion in 2017/18 to Ksh 950.2 billion in 2020/21 and is expected to narrow to Ksh 929.7 billion at the end of 2021/22. The spike in 2020/21 was mainly driven by increased government borrowing during the pandemic period to finance shortfalls in revenue due to the fiscal stimulus package that partly involved reduction of various tax rates. As a share of GDP, fiscal deficit in 2020/21 stood at 8.4 per cent compared to 7.4 per cent in 2019/20, and is projected to narrow to 7.5 per cent by the end of 2021/22. Over the period 2017/18–2020/21, fiscal deficit has remained largely above the Medium-Term Debt Strategy (MTDS) target, which is set at 3.0 per cent of GDP (Figure 2.19). The persistent revenue shortfalls coupled with large expenditure demands to support public service provision has continually led to accumulation of fiscal deficit.

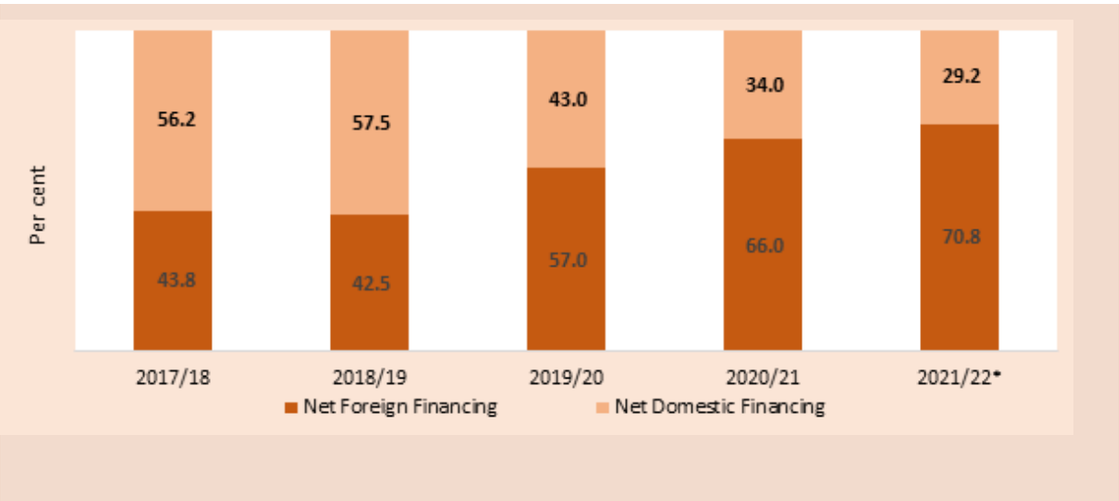
Figure 2.19: Trends in fiscal deficit



Data source: National Treasury, Budget Review Outlook Paper and Quarterly Economic Budget Reviews

Before the outbreak of COVID-19, financing of fiscal deficit was largely accomplished through domestic financing. However, the impact of COVID-19 pandemic, coupled with the government stimulus fiscal measures, resulted into sharper revenue shortfalls. Consequently, the deficit widened resulting into increased foreign borrowing to finance the deficit (Figure 2.20). In 2017/18, foreign financing accounted for 43.8 per cent of total financing. At the end of 2020/21, fiscal deficit was largely financed through foreign borrowing, amounting to Ksh 626.9 billion while domestic borrowing in terms of debt repayment amounted to Ksh 323.3 billion. It is projected that at the end of 2021/22, foreign borrowing will account for 70.8 per cent of total financing of fiscal deficit. Reliance on foreign financing increases external public debt, which exposes the economy to foreign exchange risks.

Figure 2.20: Deficit financing



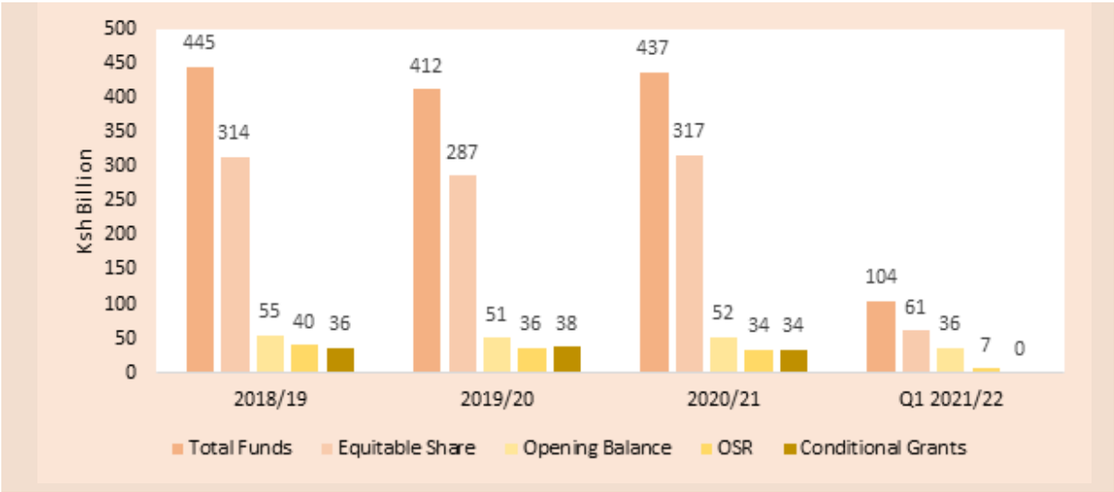
Data source: National Treasury (Various), Budget Review Outlook Paper, and Quarterly Economic Budget Reviews

2.6.4 County fiscal performance

2.6.4.1 County revenue

At the end of 2020/21, total funds available to counties was Ksh 436.6 billion, which was a 6.0 per cent increase from Ksh 412.0 billion in 2019/20. The increase was on account of expansion of equitable share, which increased from Ksh 287 billion in 2019/20 to Ksh 317 billion as a fiscal support to combat the COVID-19 pandemic. Own source revenue (OSR) stood at Ksh 34.4 billion, representing a 3.9 per cent decline on account of difficult business environment set by the pandemic, depriving businesses and individuals of incomes.

Figure 2.21: County revenue outturn

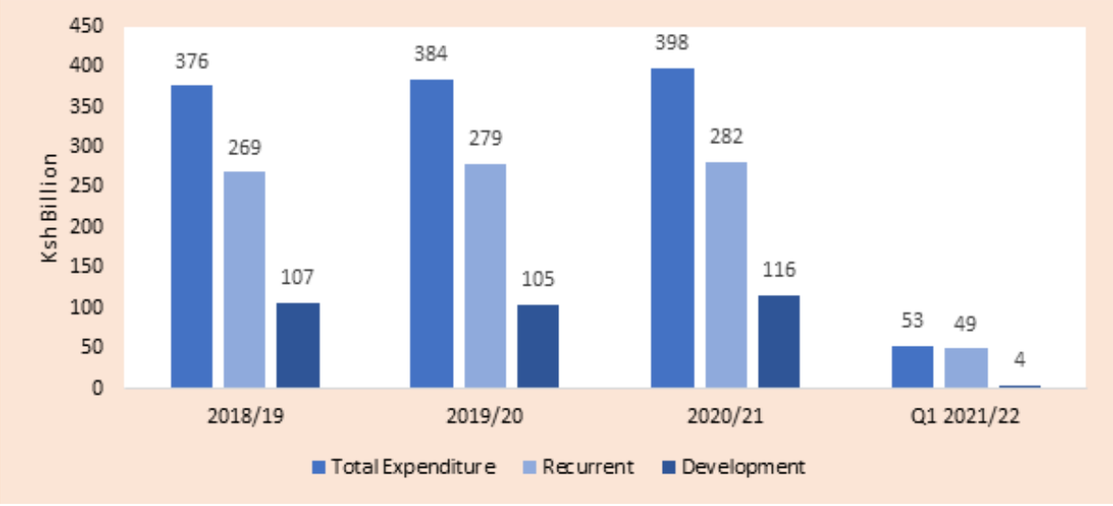


Data source: Office of the Controller of Budget (Various), County Budget Implementation and Review Reports Reports

2.6.4.2 County expenditure

The total expenditure by County Governments in 2020/21 was Ksh 398.0 billion compared to Ksh 383.8 billion in 2019/20. The increase in expenditure was mainly driven by COVID-19-related spending pressures. Recurrent expenditure was Ksh 282.0 billion while development spending was Ksh 116.1 billion compared to Ksh 279.3 billion and Ksh 104.5 billion in 2019/20, respectively. Development expenditure increase was on account of counties' increased health sector development spending to scale up health infrastructure in the fight against the pandemic.

Figure 2.22: County expenditure by major economic classification

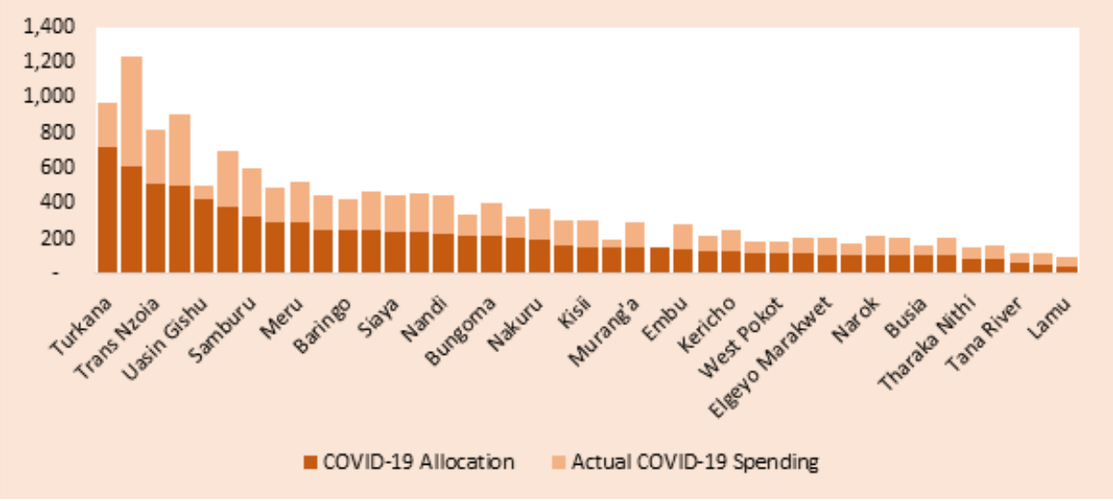


Data source: Office of the Controller of Budget (Various), County Budget Implementation and Review Reports

2.6.4.3 County COVID-19 expenditure

The outbreak of COVID-19 put at risk human health and public safety especially at the county level. National and County Governments moved swiftly to enhance COVID-19 preparedness and response efforts in the counties amid limited fiscal resources. Cumulatively, in 2020/21, a total of Ksh 8,893.1 million was set aside by counties (excluding 6 six counties that did not provide this information) to combat the pandemic. Out of the allocated amount, Ksh 6,890.8 million was utilized in the fight against COVID-19 at the counties, representing an aggregate absorption rate of 77.5 per cent. This implies that 22.5 per cent of the allocated monies were not utilized (Figure 2.23).

Figure 2.23: County COVID-19 budgetary allocation and actual spending, Ksh million



Data source: Office of the Controller of Budget (Various), County Budget Implementation and Review Reports

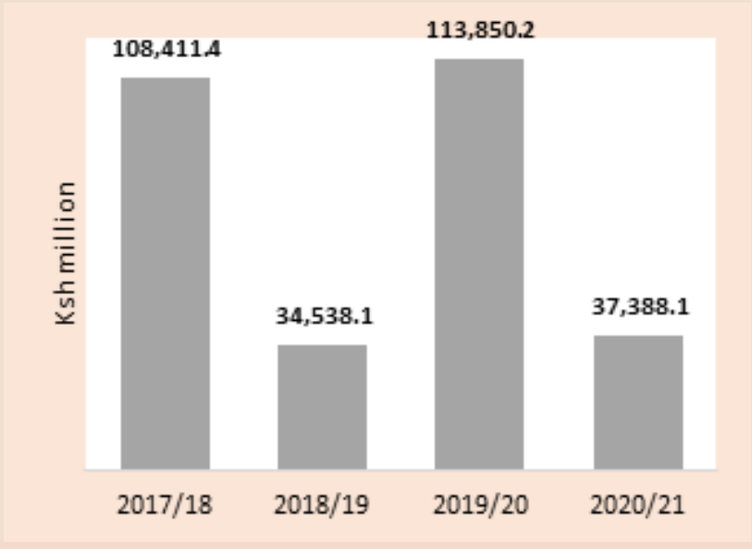
The top counties in terms of allocation to COVID-19 were Turkana Ksh 716.7 million, Mandera Ksh 614.5 million, Trans Nzoia Ksh 515.5 million, Kitui Ksh 498.5 million, and Uasin Gishu Ksh 426.9 million. Counties that had the smallest allocation were Tharaka Nithi Ksh 82.7 million, Taita Taveta Ksh 82.0 million, Tana River Ksh 68.2 million, Laikipia Ksh 59.2 million, and Lamu Ksh 47.8 million. Homa Bay, Kajiado, Kakamega, Kilifi, Machakos and Marsabit counties did not provide information on what was allocated

2.6.4.4 County pending bills

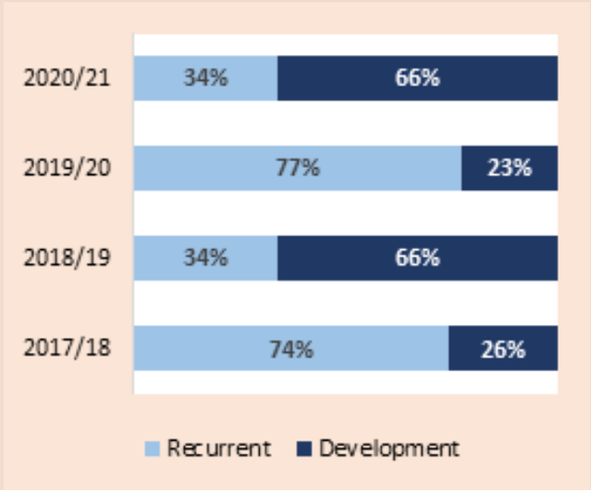
Total pending bills by counties amounted to Ksh 37,388.1 million at the end of 2021/21. In 2017/18, the county pending bills totalled Ksh 108,411.4 million, declining to Ksh 34,538.1 million in 2018/19 before rising to Ksh 113,850.2 million in 2019/20. Generally, pending bills related to development have been greater than those related to recurrent expenditure, on average accounting for 56.7 per cent of the pending bills portfolio over the review period. There is need to prioritize payment of pending bills related to development expenditure to enhance the execution of development budget in subsequent years.

Figure 2.24: Trends in county bills, Ksh million

(a) Total pending bills

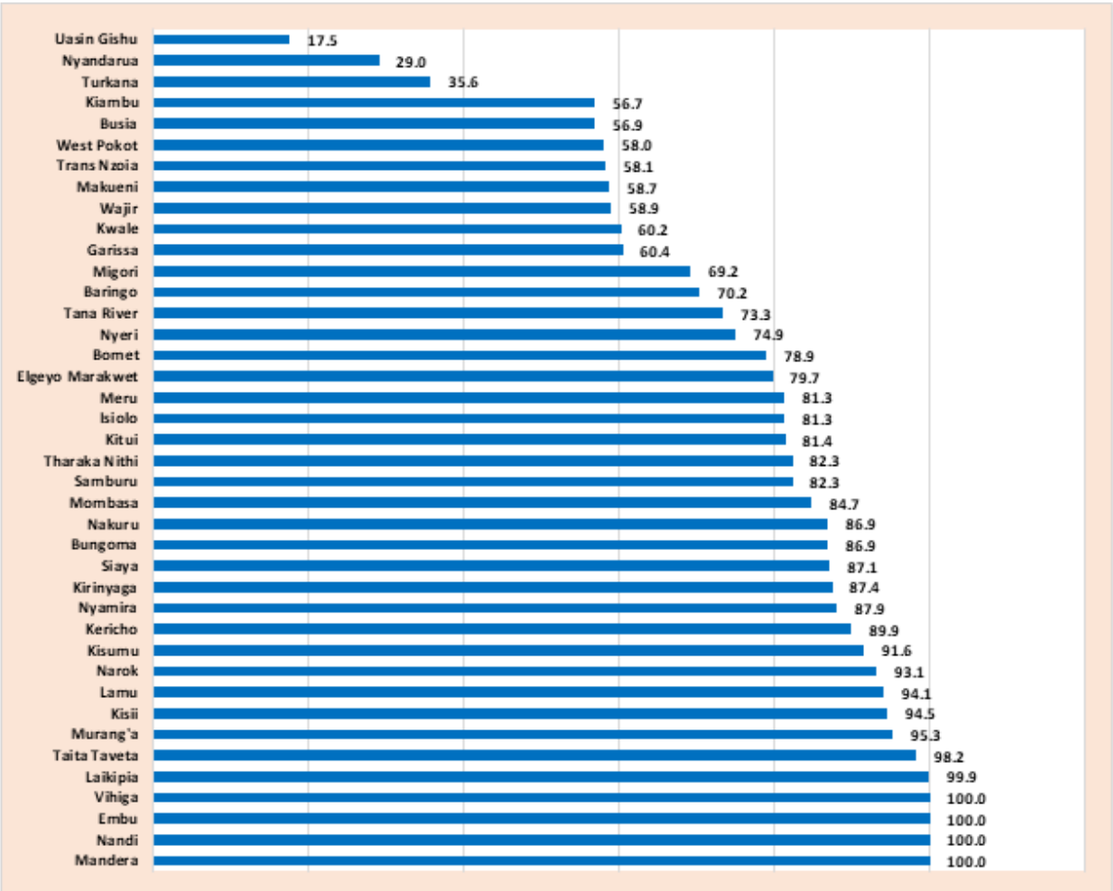


(b) Composition of pending bills



Data source: Office of the Controller of Budget (Various), County Budget Implementation and Review Reports

Figure 2.25: Absorption of county COVID-19 budgets



Data source: Office of the Controller of Budget (Various), County Budget

2.7 Public Debt and Publicly Guaranteed Debt

Persistent budget deficits, emergency spending and depreciation of the shilling against major currencies worsened public debt conditions in 2021. Public debt levels rose from Ksh 6.1 trillion in December 2019 to Ksh 7.3 trillion in December 2020 (or 64.5% of GDP) and Ksh 8.2 trillion (or 66.2% of GDP) in December 2021, implying that between December 2019 and December 2021, the country borrowed an additional Ksh 2.1 trillion. Domestic debt stood at Ksh 4.0 trillion (or 32.5% of GDP) while external debt was Ksh 4.2 trillion (or 33.7% of GDP) at the end of December 2021. As a share of total debt, domestic and external debt accounted for 49.1 per cent and 50.9 per cent of total debt, respectively. Several borrowing activities from local and foreign sources led to these dynamics.

Domestically, the government attracted more long-term domestic debt and reduced holding of short-term debts. Treasury bonds increased by 26.7 per cent from Ksh 2,561.3 billion in December 2020 to Ksh 3,242.2 billion in December 2021. The stock of Treasury bills reduced by 16.7 per cent from Ksh 875.7 billion to Ksh 728.0 billion during the same period. Similarly, overdraft at the Central Bank of Kenya increased by 24.6 per cent to Ksh 59.3 billion, advances from commercial banks declined by 18.5 per cent to Ksh 2.2 billion, and other domestic debts (Other domestic debt includes items in transit, securities re-discounted and Tax Reserve Certificates (TRCs) decreased by 50 per cent to Ksh 0.6 billion during the same period. These movements are consistent with government borrowing priorities in the Medium-Term Debt Strategy (MTDS) 2020 and 2021, which intended to increase maturity structure of domestic debt and reduce rollover risks.

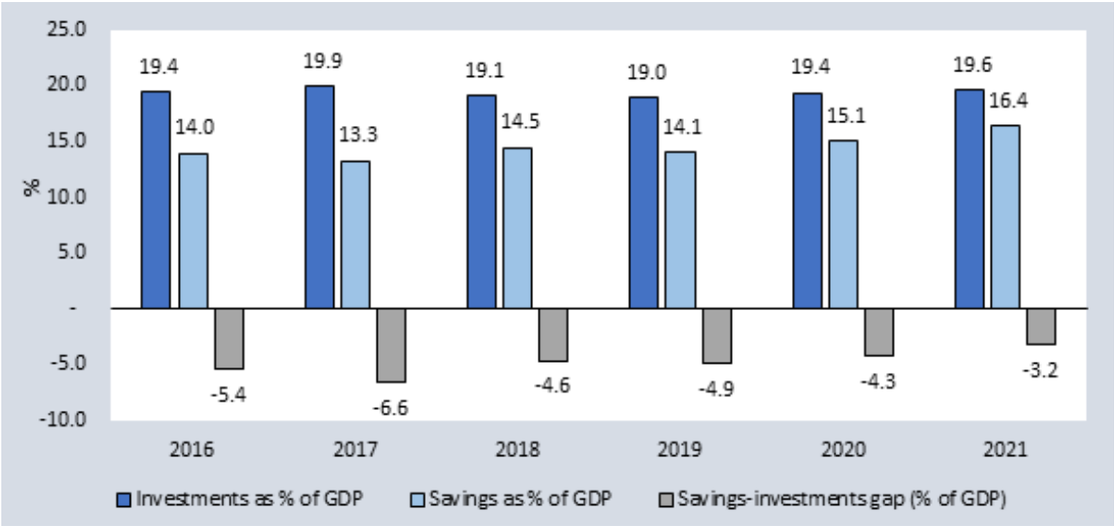
External debt stock increased from Ksh 3,793.3 billion in December 2020 to Ksh 4,174.4 billion in December 2021. Accumulation of multilateral debt was the largest, increasing by 18.9 per cent from Ksh 1,498.8 billion to Ksh 1,782.1 billion over the period. Commercial loans increased from Ksh 1,119.4 billion in December 2020 to Ksh 1,208.3 billion in December 2021 while bilateral loans increased by 1.3 per cent to Ksh 1,171.7 billion in December 2021. Suppliers' credit declined by 32.0 per cent from Ksh 18.0 billion to Ksh 12.3 billion in December 2021. The increased multilateral debt was because of receipts from the International Monetary Fund (IMF), World Bank and African Development Bank – AfDB (Box 2.1). The ever-growing public debt stock also resulted into a surge in debt servicing charges. Figure 2.26 shows the dynamics in consolidated fund services (CFS). CFS is the component of the national budget that includes mandatory payments towards repayment of public debt (domestic and foreign) and government-guaranteed loans to parastatals; pensions and gratuities; salaries and allowances to constitutional office holders; and subscriptions to international organizations. Over 70 per cent of CFS spending goes to repayment of public debt. In the first quarter of 2021/22, public debt accounted for 84.6 per cent of CFS compared to the same period when it accounted for 86.8 per cent, reflecting a 2.2 percentage point decline attributed to decline in domestic debt redemption and interest payments, which could be due to the changing dynamics in the overall debt and maturity structure.

Box 2.1: Chronology of Kenya's external borrowing during 2020-2021 period

When COVID-19 pandemic truck Kenya, the government rolled out fiscal support measures to bolster the economy from the economic impacts of the pandemic and support the mitigation of contagion of the disease. As a result of the fiscal stimulus, budget deficit widened, requiring extra support. The following is a chronology of how much Kenya borrowed from multilateral sources during the period.

April 2020:	Kenya sought emergency financial assistance under the IMF's Rapid Credit Facility (RCF) exogenous shock window to address the shocks related to the COVID-19 pandemic.
May 2020:	IMF approved a single disbursement of Special Drawing Rights (SDR) 542.8 million **(US$ 739 million)** to help in financing the budget and balance of payment deficit. In addition, **World Bank and AfDB** also approved **US$ 1 billion** and **EUR 188 million**, respectively, to help Kenya contain the COVID-19 pandemic.
March 2021:	Kenya requested additional funding for budget support under the **IMF's** Extended Credit Facility (ECF) and Extended Fund Facility (EFF) arrangements.
April 2021:	**IMF** approved SDR 1.655 billion **(US$ 2.34 billion)** disbursement to Kenya under a 3-year programme (2021-2024) of which US$ 577.26 million is through ECF and US$ 1770.09 million through the EFF. The amount was disbursed in different instalments, with the first instalment being **US$ 307.5 million in April 2021.**
June 2021:	June 2021: **World Bank** approved **US$ 750 million** for development policy financing to support policy reforms that will strengthen transparency and accountability in public procurement and promote efficient public investment spending.
June 2021:	National Treasury successfully raised **US$ 1 billion** through issuance of a 12-year Eurobond in the international financial markets, following a successful 3-day virtual Eurobond Roadshow. This is the first new **Eurobond** issue by the Republic in two years. The bond was over-subscribed with over US$ 5.4 billion offered by investors to the new issue.

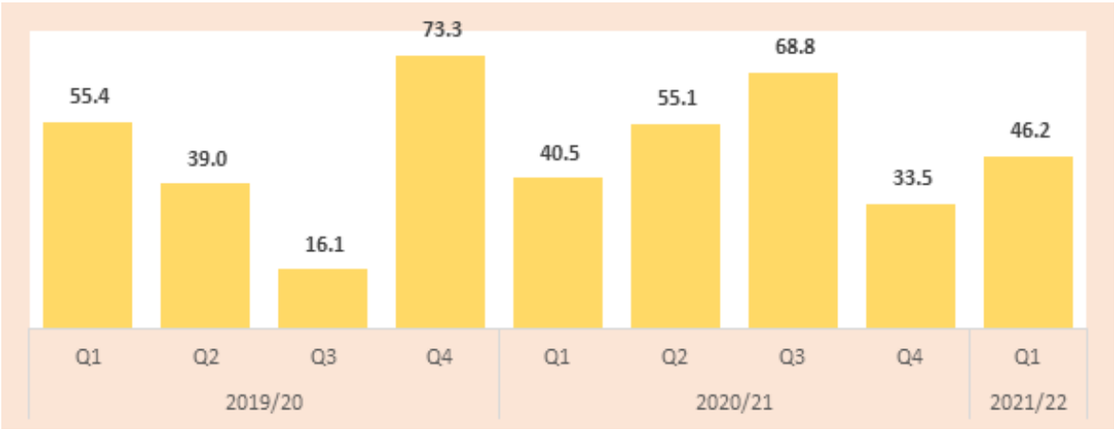
Figure 2.26: Dynamics in the consolidated fund services (CFS)



Data source: National Treasury (Various), Quarterly Economic Budget Review and Office of the Controller of Budget (Various), National Budget Implementation and Review Reports

Debt servicing cost continue to exert significant pressure on tax revenue. Total debt service increased from 40.5 per cent of tax revenue in the first quarter of 2020/21 to 46.2 per cent in the first quarter of 2021/22 (Figure 2.27). Kenya applied for the Debt Suspension Service Initiative (DSSI) arrangement in November 2020. The first phase covered January to June 2021 and benefited from a 6- months debt service suspension from the Paris Club worth Ksh 46.5 billion. The Paris Club creditors extended the DSSI relief through end-December 2021, as agreed by the G20 in April 2021. The second phase of DSSI covered the period July to December 2021, yielding debt service suspension of Ksh 39.0 billion. In addition, China which is a non-Paris Club member granted Kenya relief under DSSI terms, enabling the country to push the repayment of Ksh 27 billion. Overall, the public debt service re-arrangement initiatives that Kenya entered was aimed to improve debt sustainability. Total expenditure on external debt amounted to Ksh 137.3 billion at the end of the first half of 2021/22, consisting of Ksh 80.0 billion for principal payments and Ksh 57.3 billion for interest payments. This compares to the first half of 2020/21 when expenditure on external debt was Ksh 141.8 billion, consisting of Ksh 80.7 billion for principal payments and Ksh 61.0 billion in respect of interest payment. The decline in spending on external debt was largely attributed to the deferment of debt service under the DSSI.

Figure 2.27: Share of public debt servicing to tax revenue (%)



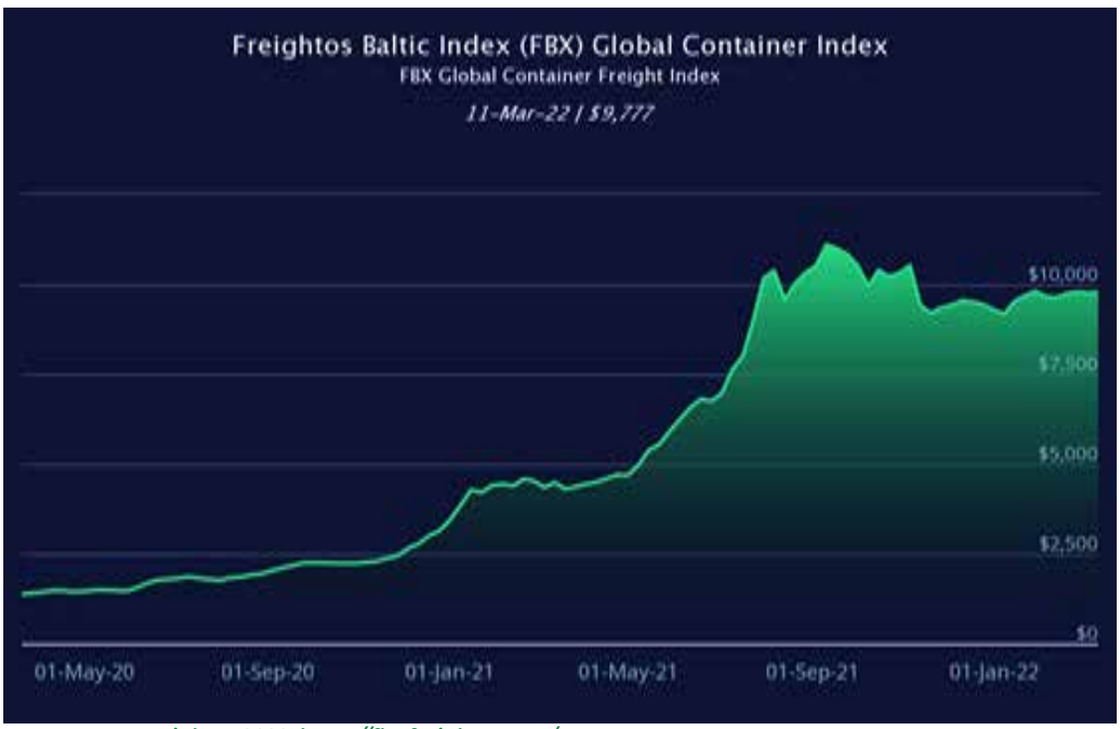
Data source: National Treasury (Various), Quarterly Economic Budget Review and Office of the Controller of Budget (Various), National Budget Implementation and Review Reports

2.8 Current Account Balance and External Sector Developments

2.8.1 Current account balance

According to the April 2022 IMF World Economic Outlook, global output remained robust in 2021, growing by 6.1 per cent compared to a contraction of 3.1 per cent in 2020. The global recovery resulted into increased global trade activity, with Kenya's merchandise trade recording an annual growth of 40.4 per cent in 2021 against a contraction of 18.5 per cent in 2020. Services grew by 32.3 per cent in 2021 compared to a contraction of 29.3 per cent in 2020, but targeted restrictions on travel activities across the globe due to the outbreak of the Omicron variant held back performance of services. Moreover, the soaring shipping costs since the start of the pandemic (Figure 2.28), with stronger surges happening between June and November 2021, adversely affected Kenya's current account outlook.

Figure 2.28: Global container freight index–Freightos Baltic Index, US Dollars



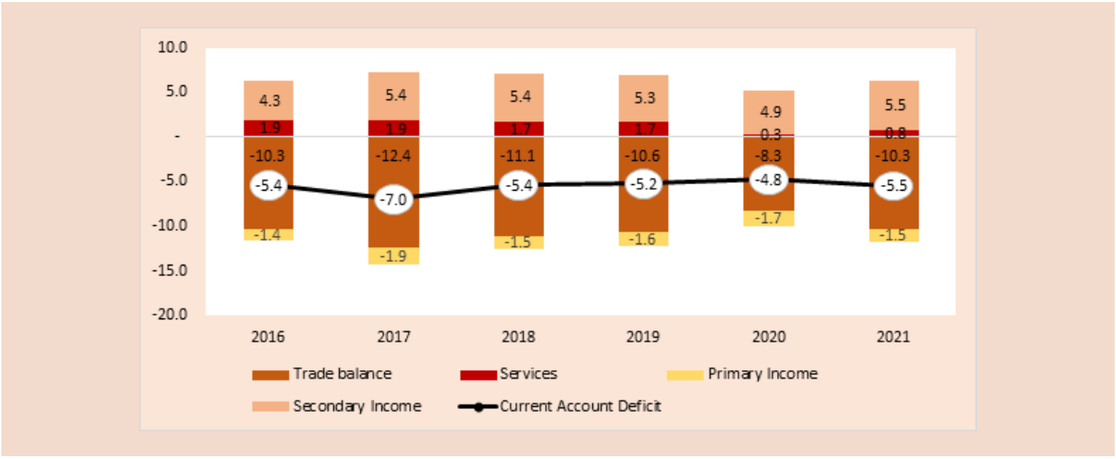
Data source: Freightos 2022, https://fbx.freightos.com/

Note:

The Freightos Baltic Index represents a weighted average of spot rates for 40-foot shipping containers using real-time data from hundreds of logistical providers on 12 global trade lanes

Dynamics in the global market exacerbated Kenya's already weak external account position in 2021. The current account deficit (CAD) in 2021 widened to Ksh 663.8 billion or 5.5 per cent of GDP compared to Ksh 510.1 billion or 4.8 per cent of GDP in 2020 (Figure 2.29). This weakening in CAD was largely driven by deterioration of merchandise trade deficit and continued weaknesses in services-related trade. The deficit in merchandise trade was Ksh 1,245.9 billion or 10.3 per cent of GDP in 2021, compared to Ksh 887.6 billion or 8.3 per cent of GDP.

Figure 2.29: Current account deficit and its drivers (% of GDP)



Data Source: KNBS (2021), Economic Survey 2021 and BOP Report Q3 2021

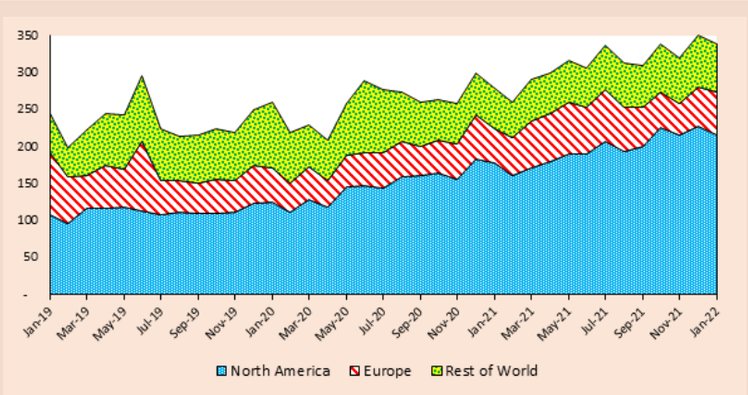
The surge in merchandise trade deficit reflected global food and oil prices and improved domestic demand due to the rebound in economic activities. Services had not reached pre-pandemic levels by the end of 2021 but remained stronger compared to 2020, mainly driven by receipts from transport and travel services due to resumption of international travel. Transport and travel service receipts rose by Ksh 34.9 billion in 2021 compared to a contraction of Ksh 45.1 billion in the same period in 2020. Primary income balance has continued to drag the CAD. However, primary income deficit narrowed slightly from Ksh 184.7 billion or 1.7 per cent of GDP in 2020 to Ksh 181.5 billion or 1.5 per cent of GDP in 2021, reflecting improvements in receipts from compensation of employees, investment income and rent.

Receipts in secondary account remained resilient, helping to curtail the widening of the CAD. At the end of 2021, secondary income stood at Ksh 670.8 billion or 5.5 per cent of GDP against Ksh 527.1 billion or 4.9 per cent of GDP in the same period in 2020. The improvement in secondary account was on account of strong performance in diaspora remittances, which accounted for 61.6 per cent of secondary income or about 3.4 per cent of GDP.

2.8.2 Diaspora remittances

Diaspora remittances registered annual growth of 19.7 per cent in December 2020 compared to an increased growth of 17.0 per cent in December 2021. According to the Central Bank diaspora remittances survey 2021, over 50.0 per cent of remittances are for the purposes of food and purchase of household goods, offsetting medical expenses, meeting education expenses, payment of rent and investment in real estate (land and building). The strong performance of remittances in 2020 is partly because of the COVID-19 pandemic that disrupted normal way of life, including job losses, health and poverty burden resulting into increased remittances by the Kenyan diaspora to cushion families back at home. Officially recorded remittance flows reached US$ 350.6 million in December 2021 compared to US$ 299.6 million at the end of December 2020, implying that in absolute terms, Kenyans living abroad sent more money in 2021 as economies globally staged recoveries from the impact of the COVID-19 pandemic.

Figure 2.30: Flow of monthly diaspora remittance (US$ million)



Data source: Central Bank of Kenya

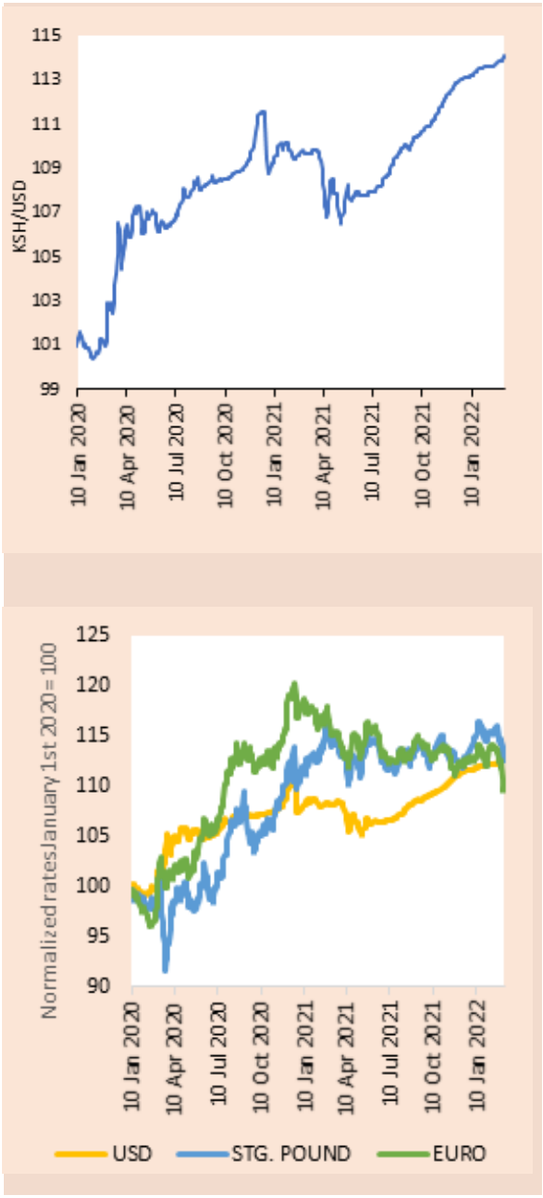
Remittances from North America recorded the strongest performance followed by those from the rest of the world. In December 2021, remittances from North America, which account for 64.9 per cent of total diaspora remittances, recorded a 24.8 per cent increase anchored on increases in employment due to opening of the North American economies with ongoing vaccination programmes. Remittances from the rest of the world and Europe accounted for 20.0 per cent and 15.1 per cent of total remittances, respectively. Remittances from rest of the world grew by 22.5 per cent while inflows from Europe contracted by 11.8 per cent.

The overall strong performance of total remittances flow was driven by fiscal stimulus that resulted in better-than-expected economic conditions in host countries and a shift in flows from cash to digital and from informal to formal channels. According to the Central Bank, the true size of remittances, which includes formal and informal flows, is believed to be larger than officially reported data. Moreover, the extent of the impact of COVID-19 on informal flows is unclear. Financial innovations in Kenya have opened more convenient channels for remittances' transmission, such as using mobile phones for transactions, which makes it easy for families to send and receive money despite the widespread restriction of movement and lockdowns during the pandemic.

2.8.3 Exchange rate and foreign exchange reserves

The brief spell of appreciation of the Kenya shilling to dollar experienced between mid-December 2020 and mid-May 2021 was reversed. The appreciation was the result of improved inflows from selected exports, strong diaspora remittances and relatively lower imports. However, the strengthening of the US dollar in global markets following improvements in growth outlook, inflation expectations, high global fuel prices, growing global economic demand and increased demand for imports by domestic importers exerted pressure on the shilling, leading to rapid depreciation between May and December 2021.

Figure 2.31: Kenya shillings' performance against major currencies



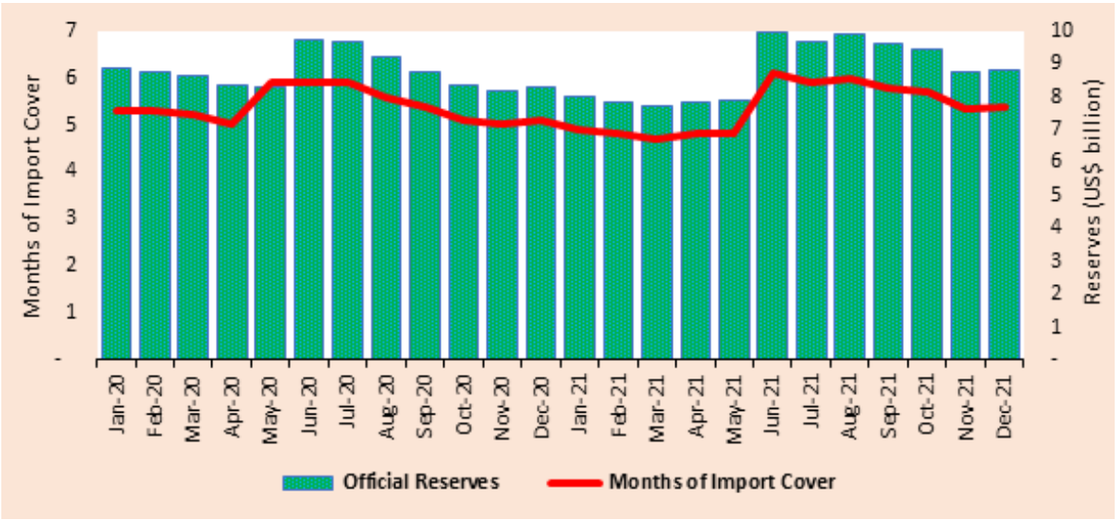
Data source: Central Bank of Kenya

At the end of December 2021, the shilling exchanged at an average of Ksh 112.9 against the dollar compared to an average of Ksh 107.4 against the US dollar in May 2021 when depreciation started. In the last 12 months to 10th March 2022, the Kenya shilling lost 4.1 per cent against the US Dollar but gained 1.4 per cent and 4.3 per cent, respectively, against the Sterling Pound and the Euro. The implication of continued depreciation is increased cost of imports, which transmits to domestic price of commodities including electricity and fuel prices. Further, currency composition of Kenya's external debt

as of December 2021 comprises of 67.0 per cent in US dollar, 19.0 per cent in Euro, 6.7 per cent and 2.0 per cent in Sterling Pound. As a result, weakening of the shilling increases the cost of external debt.

Foreign exchange reserves remained adequate and within the statutory requirement of at least four months of import cover but are on a declining trend. At the beginning of 2021, reserves amounted to US$ 8,009 million (4.9 months of import cover). This trend continued until June 2021 when reserves jumped to US$ 9,957 million before declining to US$ 9,652 million in July 2021, and then jumping to US$ 9,983 million in August 2021. Thereafter, the reserves have picked a declining trajectory.

Figure 2.32: Developments in official foreign reserves holdings



Data source: Central Bank of Kenya

The strong performance of foreign exchange reserves experienced in 2021 is consistent with the external debt uptake, consisting of Ksh 112.5 billion (US$ 1 billion) Eurobond IV, Ksh 80.8 billion (US$ 715 million) from the International Monetary Fund and Ksh 84.4 billion (US$ 750 million) from the World Bank, geared towards budgetary support. At the end of December 2021, reserves stood at US$ 8,817 million or 5.4 months of import cover against US$ 8,297 million or 5.1 months of import cover at the end of December 2020. The December 2021 position is 135.0 per cent of the statutory adequacy metric of 4 months of import cover, and about 174.0 per cent of the IMF's reserve adequacy metric for credit-constrained economies. The optimal level of reserves for Kenya is 3.1 months of imports, according to IMF reserves adequacy metric for credit-constrained economies

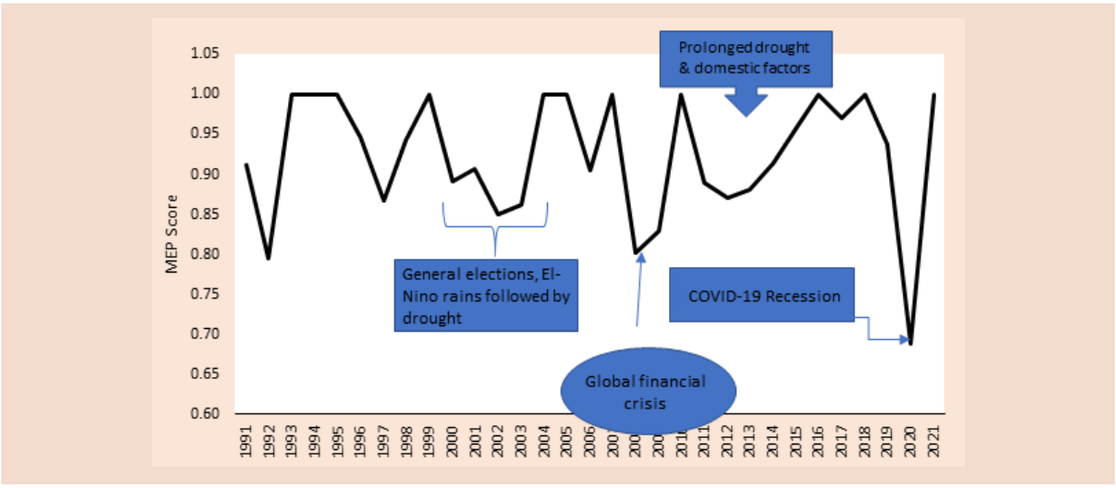
2.9.1 Macroeconomic performance index

Kenya's economy has experienced various economic crisis/shocks, some of which have threatened its macroeconomic fundamentals. In such instances, various macroeconomic indicators have behaved erratically. While earlier sections of this chapter have evaluated Kenya's economic performance using single macroeconomic indicators separately, this section follows a composite index approach to depict a wholesome view of the economy. The comprehensive multidimensional index, consisting of several macroeconomic indicators, was developed using Data Envelopment Analysis (DEA) to provide proper signals about the progress or deterioration of the country over the past 30 years. The composite index is referred to as macroeconomic performance (MEP) index, which combines several indicators into one single succinct statistic.

Time series data used in constructing the MEP index for Kenya covered the period 1991-2020. The variables used in constructing the index are defined as follows: Economic growth (GDPGR) is defined as the rate of growth of Gross Domestic Product (GDP) at market price, using constant 2016 prices. Employment rate (EMPLR) is captured by the ratio of persons aged 15 years

and over, employed in public and private sector to the population; XGDP is measured by the ratio of total export to GDP. The inflation rate (INFLR) is measured as annual percentage change in the CPI. The fiscal deficit (FDGDP) is captured by the national fiscal deficit of the government as a percentage of GDP and interest rate on 91-days treasury bills (INT). For the construction of the DEA model, it has chosen to maximize economic growth, employment rate and exports, and to minimize the inflation rate, fiscal deficit, and interest rate to arrive at MEP indices

Figure 2.33: Trends in Kenya's macroeconomic performance 1991-2021



Data source: KNBS (Various), Economic Surveys

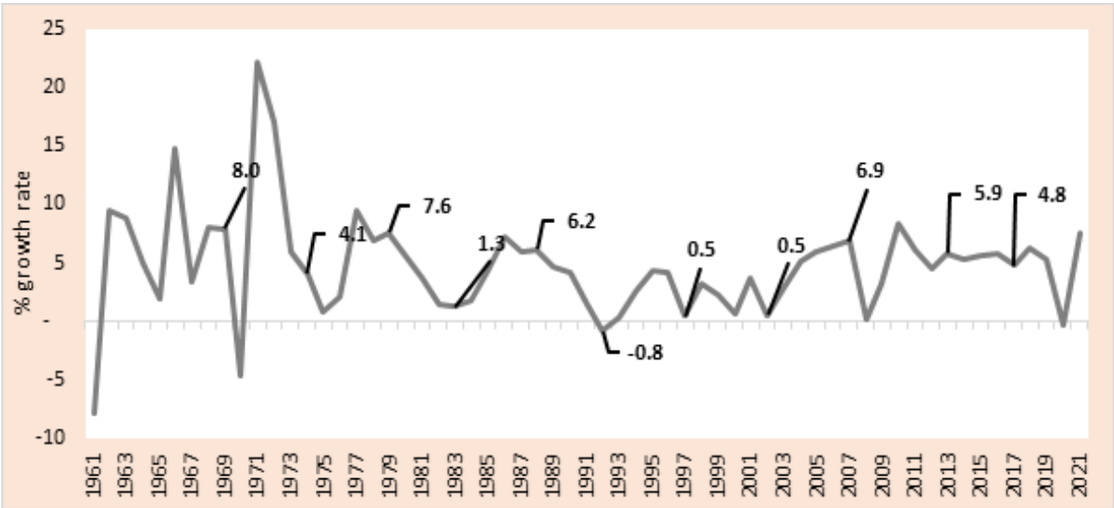
because these last three indicators are viewed as "economic-bads".

Appendix Table A1 shows the macroeconomic performance index (MEP) scores over the 1991-2021 period for Kenya's economy while Figure 2.33 gives graphical illustration of the trends. The best and worst values of the MEP index help to evaluate the macroeconomic resilience, which implies the progress or deterioration of the economy for the review period. The years that register unit efficiency scores are considered efficient/performed optimally in that they have the highest values of desirable attributes, and the lowest values of undesirable attributes, whereas the year with efficiency scores less than unit may be considered to operate sub-optimally for a given set of attributes. The MEP scores imply that the country performed extremely well in 1993-1995 following the economic liberalization reforms implemented during the period 2003, 2004, 2007 coinciding with implementation of the Economic Recovery Strategy for Wealth and Employment Creation (ERS-WEC). The year 2020 was the worst performing year for the country, rightfully coinciding with the COVID-19 recession following the outbreak of the COVID-19 pandemic that disrupted performance across various sectors.

2.9.2 Economic growth and electoral cycles

Periods before elections in Kenya are usually characterized by political campaigns as politicians criss-cross the country in search of votes. Similarly, in the event of highly contested electoral results, the country is plunged into a state of panic and electoral jitters; for instance, in 2007, the country had widespread post-election violence while in 2017 due to the contestation of presidential results and the subsequent nullification of that election by the Supreme Court, Kenyans had to go for repeat elections. The consequences of such events can be far-reaching to the economy and, as such, electoral cycles become the focus of this analysis.

Figure 2.34: Kenya's economic growth episodes (1961-2021)



Data source: World Bank (Various), World Development Indicators

Figure 2.34 shows the trend of GDP growth rates from 1961 to 2021. Comparison of GDP growth rates during election years and non-election years form the basis of analysis. Fluctuations in GDP growth rates may occasionally be driven by shocks such as drought, terrorism, disease outbreaks, economic sanctions, and travel advisories from tourists' country of origin. As a result, a longer time series covering 60 years minimizes the effect of occasional factors and sufficiently shows existence of patterns between GDP and political business cycles related to elections.

Growth rate is considered to have reached a high level when it forms a peak and a low level when it forms a trough (Figure 2.34). The average growth rate during peak/high growth episodes is 8.1 per cent compared to an average of 2.0 per cent realized during low growth episodes. During years of elections, economic growth averaged 4.1 per cent while in non-election years it averaged 4.6 per cent. It is also evident that during the single party elections, growth averaged 5.4 per cent while in the multi-party era growth averaged 3.0 per cent. Evaluation of probability that low/high economic growth rate will be recorded in election year is presented in Table 2.6 below.

Table 2.6: Probability of low economic growth record during election years

Period (1961-2021)	
Election years during the period	11
Election years with low growth episodes	6
Probability of recording low economic growth during election year	54.5%
Period (1961-1990) - Single-party era	
Election years during the period	5
Election years with low growth episodes	2
Probability of recording low economic growth during election year	40.0%
Period (1991-2021) - multi-party era	**6**
Election years with low growth episodes	4
Probability of recording low economic growth during election year	66.7%

It is evident that election cycles shock the progress gained in economic growth and results into low growth episodes. From Table 2.6, the overall probability of the economy recording low growth in election year stands at 54.4 per cent, meaning that as a country, the chance of growth experiencing turbulence due to elections is high. During the single-party era, the probability stood at 40.0 per cent compared to the current multi-party framework where the probability stands at 66.7 per cent. Clearly, elections have a dampening effect on economic prospects. From Figure 2.34, it is clear that the average years it takes for the growth to rebound following a dip during election varies from period to period.

2.10 Key Messages

1. Kenya staged an economic recovery in 2021. The economy expanded by 7.5 per cent in 2021 compared to a contraction of 0.3 per cent in 2020. This was attributable to services and industry, which rebounded strongly to surpass pre-pandemic contribution to growth while agriculture contracted by 0.2 per cent, signaling the vulnerability to drought conditions stemming from over-reliance on rain-fed agriculture.

2. Headline inflation remained within the government's target band of 5±2.5%. However, heightened inflationary pressures were experienced in 2021, with rise in both producer and consumer prices. Overall inflation was pushed up by higher food prices and imported inflation from rising global commodities and oil prices.

3. COVID-19 tax reprieves were removed effective January 2021. Consequently, revenues inclusive of external grants bounced back in the first half of 2021/22 due to the combined impacts of relaxation of COVID-19 containment measures, reopening of the economy, and stepped-up economic recovery. Fiscal deficit is projected to narrow to 7.5 per cent of GDP at the end of 2021/22 on account of improved revenue collection. However, increasing expenditure demands to support growth and public debt remain a policy priority.

4. Even though monetary policy stance has remained accommodative since the outbreak of COVID-19, liquidity conditions are beginning to tighten. This is well reflected in the gradually increasing domestic interest rates.

5. Growth in credit to the private sector slowed in 2021, growing at 7.8 per cent compared to 8.0 per cent posted in 2020. The constrained credit extension was partly due to challenges facing the banking sector in effective risk pricing.

6. The banking sector remained resilient with stronger liquidity and capital adequacy ratios. In 2020, the sector faced weaker asset quality when non-performing loans in December 2020 stood at 14.1 per cent. However, by end of December 2021, NPLs stood at 13.1 per cent, reflecting improved repayments and recoveries from manufacturing, personal and household, transport and communication and building and construction sectors.

7. Since the end of mid-May 2021, the Kenya shilling weakened significantly against the US dollar given the global market developments. Foreign exchange reserves remained within the statutory requirement boosted by resources received from the World Bank, International Monetary Fund, and the African Development Bank.

8. Despite the COVID-19 pandemic, diaspora remittance flows remained resilient. Diaspora remittances and international travel receipts have continued to cushion the current account deficit amid the widening trade balance.

2.11 Policy Recommendations

1. Implement a growth-oriented fiscal policy with targeted fiscal support to the services sector and industry to accelerate and cement economic recovery. There is also need to provide adequate budget allocation to sustain growth in the agriculture sector, which historically remains the linchpin of growth and employment in Kenya.

2. Expand irrigated agriculture to enhance sustainable agricultural production. This will serve to mute imported inflationary pressures that arise from importation of commodities such as sugar, wheat, maize, and other cereals that can potentially and adequately be produced locally. Intensifying productivity of existing irrigation schemes could reduce over-reliance on rain-fed agriculture.

3. Given that improvement in revenue above target emanated from the existing tax base, stepping up revenue collection by widening the tax base is critical for revenue enhancement. Moreover, spending efficiency at both National and County Government level and strict adherence to medium-term fiscal consolidation plan will play a fundamental role in de-escalating fiscal deficit risks and public debt distress risks.

4. Furtherance of monetary accommodation remains vital to ensure that inflation expectations are well anchored and to support the ongoing recovery. Further, retention of the 4.25 per cent cash reserve ratio will continue to ensure adequate overall liquidity in the market.

5. Scaling up credit supply to the private sector by fast-tracking a system-wide implementation of risk-based pricing will enhance conversion of the adequate liquidity into credit to support the ongoing economic recovery.

6. Lower costs related to remittance inflows while supporting international travel through enhanced adherence to Ministry of Health and World Health Organization guidelines on COVID-19. Diversification of export destinations will also play a critical role in narrowing the trade balance. This will abate the widening of current account deficit and secure external stability

3

MEDIUM-TERM ECONOMIC PROSPECTS FOR KENYA

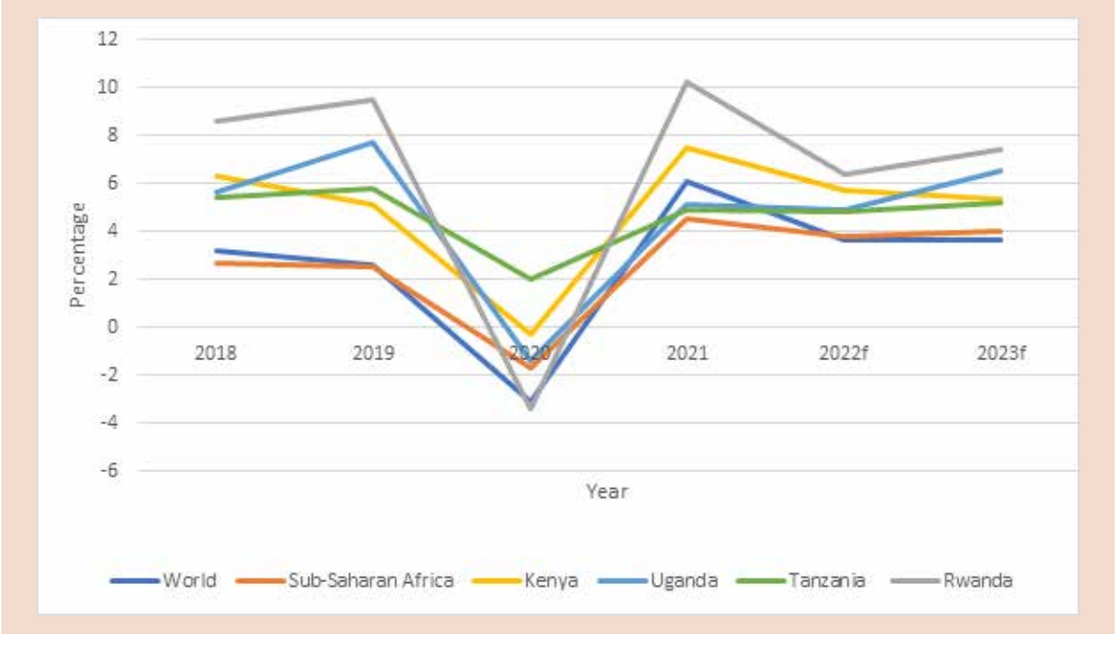
Kenya's economic recovery has continued despite the dynamics of the COVI-19 pandemic and Ukraine-Russia conflict. The easing of containment measures and accelerated uptake of COVID-19 vaccination are key to sustained economic recovery. Economic activities in Kenya, like in many other countries, rebounded in 2021 after a sharp decline experienced in 2020. Notably, the COVID-19 pandemic exposed economic vulnerabilities of many countries, Kenya included. As such, building resilience for the recovery process is crucial in the short-term. Looking ahead, the country faces downside risks, including uncertainty of the pandemic, weather-related shocks, and a surge in commodity prices worsened by the war between Russia and Ukraine. Nevertheless, the country is leveraging on mass vaccination against COVID-19 drive and digitalization to sustain economic recovery. Cognizant of these risks, the economy is projected to grow by 5.8 per cent in 2022 and, on average, 5.3 per cent in the medium-term. The robust performance is supported by the envisaged recovery in all sectors of the economy. Notably, the agriculture sector is estimated to grow by 2.3 per cent compared to a contraction of 0.2 per cent registered in 2021, and caused by the drought experienced in the country. To build resilience in the sector, it is important for the Government to do more investments in irrigation and increase the productivity of existing irrigation schemes to reduce over-reliance on rain-fed agriculture. Continued support of the health sector remains vital to consolidate gains in the fight against the pandemic and to maintain the growth trajectory. In addition, synergy between the National and County Governments is important to create awareness and continue supporting the vaccination drive for sustained recovery.

3.1 Introduction

Economic activities globally were constrained in 2020 due to outbreak and spread of the COVID-19 pandemic, and the ensuing containment measures. Kenya's economic activities and human livelihoods were highly disrupted. The gradual easing of containment measures in 2021 and the uptake of the COVID-19 vaccine from March 2021 were key drivers of economic recovery in 2021. The Government also focused on putting in place policies aimed at fostering a conducive environment for recovery. The medium-term prospects are based on potential risk factors and growth forecasts are generated with a view to building a resilient economic recovery. The forecasts apply both at the supply-side model to attain sectorial forecasts and the demand-side model (KIPPRA-Treasury Macro Model) to attain the aggregate demand outlook.

In 2020, the global and Sub-Saharan Africa (SSA) output contracted by 3.1 and 1.7 per cent, respectively, with recoveries to 6.1 and 4.5 per cent in 2021 according to International Monetary Fund (2022). The region's recession was milder than earlier projected as the COVID-19 spread slower than anticipated, resulting to less severity. Easing of containment measures and recoveries in various economic sectors supported firm economic recovery in 2021. Economic growth in 2022 is projected to soften relative to the robust growth realized in 2021, with global and SSA output envisaged to grow at 3.6 and 3.8 per cent, respectively (International Monetary Fund, 2022). The weakened growth in 2022 is attributed to the conflict between Ukraine and Russia, continued COVID-19 flare-ups, and supply disruptions. The country's estimated growth for 2021 and projected growth for 2022 compares to Rwanda, Uganda and Tanzania in East Africa as shown in Figure 3.1. The country's 2021 and beyond recovery is premised on the improved external demand, positive spillovers from strengthening global economic activity and progress at containing COVID-19 spread, among others.

Figure 3.1: Selected GDP growth rates (2018-2023)



Source: International Monetary Fund (2022), April Edition; Where f is the forecasted

Kenya's performance in 2021 was robust compared to 2020, signifying recovery from the COVID-19 pandemic. The economy grew by 7.5 per cent, a significant improvement from a contraction of 0.3 per cent experienced in 2020. The strong performance was attributed to the gradual lifting of containment measures that led to a rebound in most economic activities. Specifically, the robust growth was supported by improved performance in the manufacturing, wholesale and retail trade, real estate, transportation and storage, and financial and insurance activities. Maintaining the growth trajectory in the short-term is key for sustained economic recovery.

Sectorial analysis indicate that the services sector is a major contributor to growth in Kenya. In 2019, the sector contributed an average of 3.4 per cent whereas industry and agriculture contributed 0.9 and 0.8 per cent respectively. Based on 2019 statistics, the services sector growth is driven by accommodation and food services, information

and communication, and wholesale and retail trade sub-sectors. This underscores the important role played by the sector and the sub-sectors in sustaining economic growth. In 2020, Kenya's economy contracted by 0.3 per cent, mainly driven by contraction in the services sector. The sector contracted by 7.6 per cent, whereas the agriculture and industry sectors grew by 4.8 and 4.4 per cent, respectively. The contraction of the services sector was largely attributed to the shutdown of most learning institutions between March to December 2020. Similarly, activity in the accommodation and food services sub-sector were severely affected by the suspension of international travel and mobility restrictions at local level, which saw hotels closing or scaling down their operations. With the gradual lifting of the containment measures, economic activities in the various sectors rebounded in 2021. Activities in the services sector contributed significantly to overall growth. Financial and insurance activities was the leading source of economic growth in 2021, accounting for 13.8 per cent. The other activities included transportation and storage (9.2%), real estate (9.1%), and wholesale and retail trade (8.7%).

The COVID-19 pandemic exposed the economic vulnerability of many countries, Kenya included. According to Africa Development Bank (2021), most African countries were classified as highly economically vulnerable even before the pandemic. This was premised on the Economic Vulnerability Index (EVI) developed by the African Economic Outlook Team, which showed that 31 African countries were above the United Nations Department of Economic and Social Affairs threshold of 36 points. The Index focuses on structural characteristics that accentuate under-development and factors that limit policy makers' capacity to respond to shocks and are beyond the county's control. It is composed of eight indicators with different weights that include size of population, remoteness or landlockedness, share of agriculture in GDP, share of population in low coastal zones, instability of exports of goods and agricultural production and victims of natural disasters. The index score lies between 0 and 100, where a lower EVI indicates lower economic vulnerability. Kenya was below the threshold, though above 25, hence classified as less vulnerable. This necessitates the need to solidify economic resilience.

In measuring economic resilience for countries, AfDB (2021) similarly computed the Economic Resilience Indices (ERI) for 46 African countries. The Index was premised on the country's policy-induced ability to recover from, or adjust to the negative impacts of adverse exogenous shocks. It captures four components: macroeconomic stability, microeconomic market efficiency, good governance, and social development. An economy was considered to be more resilient if it has discretionary policy space to counteract the effect of shocks. This implies that it has the ability to absorb shocks and hence neutralize the overall effects. Based on the index, Botswana, Mauritius, Namibia, Rwanda, Seychelles and South Africa were ranked the most resilient economies whereas Angola, Central Africa Republic, Chad, Guinea Bissau and Sudan were ranked as the least resilient economies in 2020.

Generally, building resilience for economic recovery may need the country to increase its capacity to absorb the shocks and improve its ability to reallocate resources to support the affected sectors for them to recover from the shocks. As such, identifying the vulnerable sectors and the likely risks is critical in the medium-term prospects. In building resilience and safeguarding livelihood during the pandemic period, countries applied various measures in addition to the prescribed World Health Organization guidelines. Countries mainly applied appropriate policies to boost their resilience. During the pandemic, Botswana, Ghana and Rwanda portrayed some level of resilience that helped the economies absorb the COVID-19-related shocks.

Further, based on World Bank (2022), there are countries such as Mauritius and Namibia that were viewed as less vulnerable and had resilience-building processes. However, most African countries were viewed as "self-inflicted cases" as they had low economic vulnerability, with policies that adversely affected their economic resilience. Box 1 highlights the strategies used by selected countries to withstand the COVID-19 shock in 2020. Based on the review, timely intervention to mitigate shocks is key in building resilience. The experiences highlighted the importance of having the capacity to act responsively to absorb shocks and implement effective strategies such as case testing, tracing and isolation among others, thereby gaining public confidence in the strategies implemented.

Box 3.1: Review of selected countries

In strengthening COVID-19 pandemic relief while bolstering resilience to future shocks, Botswana's government formulated and implemented the Economic Recovery and Transformation Plan (ERTP). The ERTP focused on reducing the potential economic effects from the COVID-19 crisis, accelerating structural transformation, and increasing job creation and inclusiveness. Specifically, it was centred on promoting investment in digitalization, human capital and R&D, enhancing business environment and strengthening accountability and governance. The government also introduced various programmes that aimed at supporting the traditional sectors (mining, tourism and livestock farming) and MSMEs.

Ghana built its resilience during the pandemic period through formulation and successful implementation of the Ghana COVID-19 Alleviation and Revitalization of Enterprise Support programme. The programme was a two-phase programme. The first phase (July-December 2020) focused on stabilizing the economy through reduction cost of basic services, supporting businesses and workers, strengthening the health system among others. The second phase (2021-2023) aimed at revitalizing and transforming the economy. The activities to be undertaken included: fast-tracking digitization, developing digital economy industries, building Ghana's light manufacturing sector and supporting commerce farming, among others. In addition, the country undertook a banking sector reform, including recapitalization of banks and liquidation of insolvent financial institutions to overall resilience of the sector.

Rwanda's resilience was premised on its use of appropriate policies to boost resilience and withstand the exogenous shocks. The country adopted innovative ways to combat the spread of the virus, which include disseminating public information through drones, using robots for screening and inpatient care, and delivering official communications through a national number to combat misinformation. For recovery, the government fast-tracked its implementation of its Economic Recovery Plan that focused on mitigating the social and economic impact of COVID-19. In addition, it launched the Economic Recovery Fund in June 2020 to support businesses most significantly affected by COVID-19. Specifically, the Fund aimed at supporting businesses in the sectors hit hardest by the pandemic, so that they can survive, resume work, production and safeguard employment; and expanding domestic production during the COVID-19 pandemic and in the post-recovery period.

Djibouti's economy was relatively resilient in 2020 as it instituted stringent measures after the first case was reported. The government instituted a curfew, lockdown, broad range of social distancing and mass testing campaigns. It maintained maximum security measures at all entry points and hence managed to control the spread of the COVID-19 virus. The swift recovery was premised on the rapid recovery of port activities as international trade picked up.

Source: Various Country Reports

3.2 Medium-Term Prospects for Kenya (Baseline Scenario)

The robust economic momentum gained over the years was reversed in 2020 following the outbreak of COVID-19 pandemic. Uncertainty to the economic outlook remains elevated globally with the unfolding dynamics of the pandemic. However, the country leverages on the continuous support by the government to revive the economy by ensuring continuity of businesses is maintained. This includes the roll out of COVID-19 vaccination with a target of over 30 million individuals aged 15 and above by end of 2022, the implementation of the post-COVID-19 Economic Recovery Strategy, fast-tracking of ongoing investments under the "Big Four" agenda and development of other infrastructural projects including upscaling investments in the Information Communication Technology (ICT) and digital infrastructure, and facilitation of the County Governments to enhance their service delivery, among others. These interventions will play a key role in accelerating recovery of economic activities.

The medium-term prospects (2022 to 2024) are presented under two scenarios: the baseline scenario and the alternative scenario, which take into account the risks and opportunities faced by the country. Under the baseline scenario, the country is envisaged to operate under normal

circumstances and in the absence of significant risk conditions. Table 3.1 presents aggregate forecasts under the baseline scenario.

Under the baseline scenario, the economy is expected to remain robust, with a growth of 6.3 per cent in 2022, averaging 6.3 per cent in the medium-term. The robust growth could be attributed to continued improvements in economic activities after reopening of the economy in 2021. In addition, the growth is supported by rebound and sustained growth of private consumption, which on average constitutes approximately 75 per cent of real GDP. Leveraging on policy support and continued supportive financial conditions, growth in the medium-term is expected to remain robust. Notably, the slow estimated growth compared to the growth realized in 2021 could be premised on a surge in commodity prices in the first quarter of 2022 following the outbreak of Ukraine-Russia conflict, and higher base effect of 2021 when the economy rebounded strongly.

Table 3.1: Economic outlook baseline scenario

	2019	2020	2021	2022*	2023*	2024*
Rates (%)						
GDP Growth	5.2	-0.3	7.5	6.3	6.1	6.4
Inflation	5.2	5.4	6.1	5.6	5.0	5.0
Interest Rate	6.9	6.9	7.0	7.0	6.9	6.9
Volume Growth						
Private Consumption	5.0	-2.6	6.4	7.2	6.1	6.7
Government Consumption	5.6	3.0	5.7	3.4	6.5	6.6
Private Investments	8.5	6.5	3.9	4.9	2.7	4.1
Government Investments	18.1	8.7	4.2	-5.7	10.9	9.1
Export Goods and Service	-3.2	-8.8	12.9	6.4	7.2	7.7
Import Goods and Services	1.8	-9.2	18.9	4.3	5.3	4.6
% of GDP						
Current Account Balance	-5.2	-4.8	-5.5	-6.1	-5.8	-5.6
Index						
Ksh per Dollar	102.1	106.5	109.6	114.3	113.5	110.4

*Source: KIPPRA (2022), KIPPRA Treasury Macroeconomic Model (KTMM) where * is forecast*

Inflation is envisaged to be within the Government's range of 5±2.5 per cent in the medium-term. In 2021, inflation rate averaged 6.1 per cent and is projected to ease slightly to 5.6 per cent in 2022 and an average of 5.2 per cent by 2024. The Kenya shilling against the US Dollar is projected to depreciate marginally to exchange at an average of Ksh 114.3 per dollar in 2022 from an average of Ksh 109.6 attained in 2021. This may be attributed to the effects of Ukraine-Russia conflict and high demand for the dollar following huge import bills. However, it is expected that the Kenya Shilling will appreciate in the medium-term to exchange at Ksh 110.4 in 2024. The recovery of the country's economic activities and improved global economic outlook that caused demand for Kenya's exports resulted to improved net exports. However, the current account balance is envisaged to widen marginally in 2022 following the depreciation of the Kenya shilling and the effects of Russia-Ukraine conflict. Improved economic activities would narrow down the current account balance in the medium-term.

3.3 Medium-Term Risks, Opportunities and Outlook

3.3.1 Risk factors

The medium-term prospects are susceptible to downside and upside risks. On the downside risks, the pandemic could prove to be more persistent than expected. The emergence of more contagious COVID-19 variants globally threatens the anticipated swift recovery in the medium-term. As the COVID-19 unfolds, a slower than expected uptake of the vaccination would increase the risk of spread. This may result to a situation of repeated cycling of activities

from making progress in reducing the infection cases and relaxing the stringent measures to resurgence in the number of infections, leading to introduction of new lockdowns and reduction in economic activities.

Re-introduction of containment measures poses a significant risk in the medium-term. A study by the Africa Development Bank (2021) on the impact of lockdowns on COVID-19 cases and economic activities on selected African countries established that the countries that introduced more stringent lockdown measures experienced sharper economic contractions in 2020. In Kenya, the introduction of stringent measures in March 2020 led to 11 per cent contraction in the services sector during the second quarter (April to June). As the containment measures eased towards the end of 2020, the sector improved to a contraction of 4.7 per cent in the third quarter (July-September). Notably, significant improvements were registered in 2021 with the partial reopening of the economy. Therefore, the re-introduction of the containment measures could slow down the ongoing recovery and reverse the already gained milestones in the medium-term.

The agriculture sector remained resilient in 2020 amidst the health pandemic and registered a growth of 4.8 per cent. World Bank (2021b) premised the resilient economic growth of Sub-Saharan Africa in 2020 to unexpected strong agricultural output in four countries, Kenya being one of them. However, the sector is relatively vulnerable to weather-related shocks, mainly the drought experienced in 2021.The weather review indicated a continued sunny and dry weather conditions in lowlands, North Eastern, South Eastern and most of North Western Kenya during the last quarter of 2021 (Kenya Meteorological Department, 2021a). The outlook for January 2022 indicates occasional rainfall in few parts of the country, mainly around the Lake Victoria basin whereas the rest of the country is expected to remain sunny and dry. According to the report, this may lead to diminishing pastures for livestock, food and water shortages and water-borne diseases such as dysentery and cholera due to water scarcity in the regions. In 2021, the ASALs experienced dry and sunny conditions resulting to insufficient pasture and water for livestock. Cases of livestock death, crop failure and food shortages were recorded in Wajir, Kilifi, Lamu, Marsabit and Kajiado counties. Notably, Uasin Gishu County reported crop failure in the months of March, April and May 2021 due to delayed rainfall, posing a threat of shortage of agricultural output as the county is considered the food basket of the country. Similarly, Marsabit County registered decline in milk production during the months of July and August (Kenya Meteorological Department, 2021b). As a result, the President of Kenya declared the drought affecting most parts of the country a national disaster on 8th September 2021. These developments underscore the need to build resilience in the agriculture sector in the medium-term to reduce the severity of weather-related shocks such as drought.

Peace and political stability are key to economic recovery as they attract investors and stimulate private sector activities. A study undertaken on the effect of elections on economic activities indicates that political uncertainty affects investors' confidence and hence the decline in output and private consumption. The 2017 elections adversely affected the productive sectors, including agriculture, energy, services and manufacturing sectors, thus interrupting food supplies which led to increased food prices and reduced standard of living for many Kenyans (Kiriga, Chemnyongoi and Nato, forthcoming)). Therefore, as the country nears the 2022 general elections, maintaining peace and stability is crucial for continuity of businesses and economic activities.

On the external front, the conflict between Russia and Ukraine poses a significant risk due to its effect on the global economy, emanating from financial sanctions, and commodity and supply chain disruptions. Russia and Ukraine are key suppliers of commodities such as wheat, corn, barley and several metals such as aluminium, titanium, palladium and nickel. Russian and Ukrainian wheat and sunflower oil exports are about 25 and 80 per cent of global trade, according to the US Department of Agriculture (2022). Similarly, Russia supplies about 13 per cent of global fertilizer. The sanctions and disrupted supplies could lead to higher prices of various commodities such as fuel, gas, wheat and wheat products, corn, and various metals causing inflationary pressures in the global economy. Applying the National Institute Global Econometric Model (NiGEM), Liadze et al. (2022) estimated that the conflict could reduce the level of global GDP by one per cent by 2023 and increase global inflation by 3 per cent and 2 per cent in 2022 and 2023, respectively. The effect in the Kenyan economy was earlier felt through increase in pump prices of super petrol and diesel from an average of Ksh 130.54 and Ksh 111.51 in January 2022 to an average of Ksh 145.44 and Ksh 126.41 in April 2022. During the same period, wheat flour (2 kilogrammes packet) increased by 11 per cent from Ksh 144.45 to Ksh 160.7. The impact of the Russia-Ukraine conflict on commodity prices has compounded existing challenges in global food markets experienced

during the COVID-19 pandemic. It intensifies the dilemma facing policy makers as it weakens growth, increases inflation and lowers consumer and business confidence, already hampered by the COVID-19 pandemic.

Commodity prices such as oil, food and metal prices in the international market and the global response to COVID-19 pandemic play a role in the medium-term prospects. Continued rise in global food and energy prices poses a risk that could filter into general inflation expectations and narrowing of policy space. According to World Bank (2022), commodity prices soared in 2021 driven by strong recovery in aggregate global demand, easy financial conditions and weather-related supply disruptions. In 2021, crude oil, metal and food prices globally rose by nearly 82, 28 and 11 per cent respectively, premised on recovery in manufacturing, infrastructure investments and weather-related supply shocks. The rise in prices has also been exacerbated by the war between Russia and Ukraine, which has led to a further rise in the global price of petroleum. Emergence of new variants of COVID-19 and with recurring resurgence of infections across countries, especially among Kenya's trading partners, could lead to re-introduction of containment measures that are likely to reverse the momentum gained towards the recovery path. Prevalence of the new variants across countries could encourage countries to re-introduce travel restrictions, which may delay recovery in various sectors such as tourism for Kenya.

3.3.2 Opportunities

There are also upside risks to the projections that Kenya could leverage on to remain on the recovery path. The concerted efforts to accelerate vaccination roll out globally could maintain easing of mobility restrictions, restore consumer and business confidence and improve economic activities. The Government has prioritized vaccination as one of the key measures to contain the spread of COVID-19, and an avenue to full re-opening of the economy. It has established a vaccination programme to be implemented in three phases to vaccinate the entire adult population of 27 million people and 5.8 million teenagers aged 15 to 17 years by December 2022. The first phase covered March to June 2021 where focus was on vaccinating frontline workers and persons aged 58 years and above. The second phase between July and December 2021 was a mass vaccination drive that embarked on targeted populations considered most vulnerable to severe diseases. In the third phase scheduled for January to December 2022, the Government focuses on open access mass vaccination given sufficient supply of vaccine doses. Additionally, Kenya started the administration of booster doses at the beginning of 2022, with an aim of administering 4.2 million booster shots by June 2022 (Ministry of Health, 2022). As of 28th May 2022, a total of 18.2 million doses of COVID-19 vaccine had been administered. During the same period, a total of 8.7 million people had been fully vaccinated against COVID-19 in Kenya (Ministry of Health, Kenya).

This represented 26.5 per cent of the targeted population of 32.8 million by December 2022. The vaccination drive in Kenya sets a good precedent as the country continues to acquire more vaccines to attain the target set for end of 2022.

Digitalization and technological adoption in most sectors of the economy, similarly, has a potential for economic dividends that could be tapped on. Accelerated digitalization in Kenya emanating from pandemic-related containment measures continues to boost productivity in the private and public sectors. Specifically, digitalization has enhanced trade due to online marketing and payment platforms. The value of mobile commerce transactions registered a growth of 126.66 per cent from Ksh 1,553.98 billion during the first quarter of 2020 (January to March) to Ksh 3,522.17 billion during the same period of 2021. Similarly, data/Internet subscriptions grew by 52.1 per cent from 39.39 million to 59.93 million over the same period (Communication Authority of Kenya, 2021a). As at the third quarter of 2021 (July to September), the value of mobile commerce transactions had increased to Ksh 3,974.83 billion. During the same period, total Kenyan trade improved significantly after a decline experienced during the second quarter of 2020 (April to June).

3.3.3 Medium-term outlook

Kenya's economic recovery is expected to continue in 2022 and beyond, supported by the accelerated COVID-19 vaccination and lifting of the containment measures that have led to recovery of economic activities. Table 3.2 presents sectorial forecasts for Kenya.

The forecasts indicate that sectorial output is expected to recover gradually in the medium-term. The agricultural output maintains an increasing trend in the medium-term, though with low growth rates, which may be premised on erratic weather patterns. The sector is envisaged to recover and grow by 2.3 per cent in 2022 and an average of 3.0 per cent in the medium-term compared to a contraction of 0.2 per cent registered in 2020. The performance shows that the sector is highly

susceptible to weather changes and hence the need to devise means to build resilience for sustained growth.

The performance of the services sector slowed down in 2020 mainly due to the containment measures instituted to curb the spread of COVID-19 pandemic. With the gradual lifting of the containment measures in 2021, the sector activities rebounded significantly. In the medium-term, the activities are expected to maintain a growth trajectory with a little slow down in 2022 following the higher base experienced in 2021 (Table 3.2). The performance of accommodation and food services sector is expected to grow at an average of 14.1 per cent in the medium-term from the worst contraction of 47.7 per cent in 2020 as the Government lifted the restrictive measures that affected it. Similarly, the transport sector recovered to a growth of 7.2 per cent in 2021 from a contraction of 7.8 per cent in 2020. The growth was supported by the resumption of night travels following the lift of dusk to dawn curfew and the return to carrying full capacity for public sector vehicles in August 2021. The performance of the sector is envisioned to remain robust and grow at an average of 5.7 per cent in the medium-term. With the opening of schools, the performance of education activities rebounded strongly, growing by 21.4 per cent in 2021 from a contraction of 10.8 per cent in 2020. In the medium-term, the sector is expected to stabilize and grow by 6.7 per cent as the Government continues to ensure recovery of the lost learning period, and resumption of normal school calendar by January 2023.

The manufacturing sector indicated some resilience in 2020 as the Government supported local production of the necessary requirements, including masks, sanitizers and personal protective equipment (PPE) that were critical during the pandemic period. The sector benefited from reduction of corporation tax from 30 per cent to 25 per cent applied to all firms. This implied that firms had more funds that could be ploughed back to increase production. Similarly, the reduction in the Central Bank Rate to 7 per cent acted as a form of financial support as the sector could access credit at a cheaper rate. In the medium-term, the sector is envisaged to grow at an average rate of 4.3 per cent.

Table 3.2: Sectorial forecasts for 2021 to 2024

	2019	2020	2021	2022*	2023*	2024*
Agriculture Industry	2.5	4.8	-0.2	2.3	3.0	3.7
Mining and Quarrying	4.4	6.7	18.1	5.6	5.7	4.8
Manufacturing	2.5	-0.1	6.9	4.5	3.2	5.3
Electricity and Water Supply	1.7	0.1	4.4	2.8	3.3	3.1
Construction Services	5.6	11.8	6.6	6.0	6.3	5.8
Wholesale and Retail Trade	5.3	-0.4	7.9	5.2	6.2	6.8
Accommodation and Food Services	14.2	-47.7	52.4	13.1	15.7	14.1
Transport and Storage	6.4	-7.8	7.2	5.3	5.5	6.4
Information and Communication	7.6	4.8	8.8	7.9	7.1	7.8
Financial and Insurance	7.0	5.6	12.5	4.6	3.7	4.4
Public Administration	9.9	5.3	5.6	7.2	5.8	7.8
Professional, Admin. and Support Services	6.9	-15	5.6	5.6	6.2	6.2
Real Estate	6.7	4.1	6.7	6.6	6.0	5.4
Education	4.8	-10.8	21.4	6.5	7.1	6.5
Health	6.3	6.7	6.0	6.0	6.6	8.2
Other Services	4.4	-14.2	18.9	4.0	4.8	4.0
Taxes on Products	3.7	-7.9	11.9	5.1	6.1	14.5
GDP at Market Prices	5.0	-0.3	7.5	4.8	5.8	6.2

*Source: KIPPRA Supply Side Model (2022), where * is forecast*

Table 3.3 presents medium-term forecasts for the aggregate demand, taking into account the risks and opportunities discussed. Kenya's economy is estimated to grow by 5.8 per cent in 2022 with an average projected growth of 5.3 per cent in the medium-term. The slow down in economic performance in 2022 is largerly premised on the risks associated with Ukraine-Russia conflict, which is affecting commodity prices, and upcoming general elections that are likely to cause a "wait and see" scenario by investors. In the medium-term, the economy is expected to stabilize, supported by the expected recovery of the global and Sub-Saharan Africa economic activities. Further, inflation rate is expected to remain within the Government's target range of 5±2.5 per cent in the medium-term, with a projected rate of 5.9 per cent in 2022. The elevated inflation is attributed to the rising commodity prices such as fuel prices. Inflationary pressure is expected to ease in the medium-term to an average of 5.4 per cent in 2023 as the Government puts in place measures such as fuel subsidy programme to cushion citizens from the increasing prices. The easing of containment measures and recovery of economic activities boosted households' income in 2021. This is reflected in private consumption, which grew by 6.4 per cent in 2021 compared to a contraction of 3.1 per cent experienced in 2020. Private consumption is expected to continue with a recovery trajectory in the near term averaging 6.0 per cent, reflecting recovery of economic activity from the 2020 slump. The conducive environment created by high quality investment in infrastructure, security and other enablers such as ICT (digitization), energy, among others, is expected to support sustained private consumption and investment in 2022 and beyond. In addition, resumption of full capacity meetings, sports and public transportation pronounced on 11th March 2022 is key towards full recovery of the various sectors.

The low performance of exports and inflationary pressures weakened the Kenya shilling to exchange at an average of Ksh 109.6 in 2021. The Kenya shilling against the dollar is projected to depreciate in 2022 to Ksh 115.2 in the event that the ongoing conflict persists. Nevertheless, with the continued policy support by the Central Bank of Kenya, the shilling is envisaged to appreciate to Ksh 110.2 by 2024. The current account balance is envisaged to remain fairly stable in the medium-term, supported by improvements in financial inflows. In 2022, the current account balance is envisaged to widen slightly to 6.4 per cent compared to 5.5 per cent attained in 2021 as imports outpaced exports due to the rising global commodity prices, especially the energy and food prices.

Table 3.3: Economic outlook for 2021-2024

	2019	2020	2021	2022*	2023*	2024*
Rates (%)						
GDP Growth	5.2	-0.3	7.5	5.8	4.7	5.3
Inflation	5.2	5.4	6.1	5.9	5.4	5.0
Interest Rate	6.9	6.9	7.0	7.4	7.2	7.0
Volume Growth						
Private Consumption	5.0	-2.6	6.4	5.6	6.1	6.3
Government Consumption	5.6	3.0	5.7	5.9	6.5	6.4
Private Investments	8.5	6.5	3.9	3.5	5.6	4.0
Government Investments	18.1	8.7	4.2	4.5	6.3	5.4
Export of Goods and Services	-3.2	-8.8	12.9	4.4	5.7	6.2
Import of Goods and Services	1.8	-9.2	18.9	3.9	4.5	4.4
% of GDP						
Current Account Balance	-5.2	-4.8	-5.5	-6.4	-5.7	-5.4
Index						
Ksh per Dollar	102.1	106.5	109.6	115.2	114.5	113

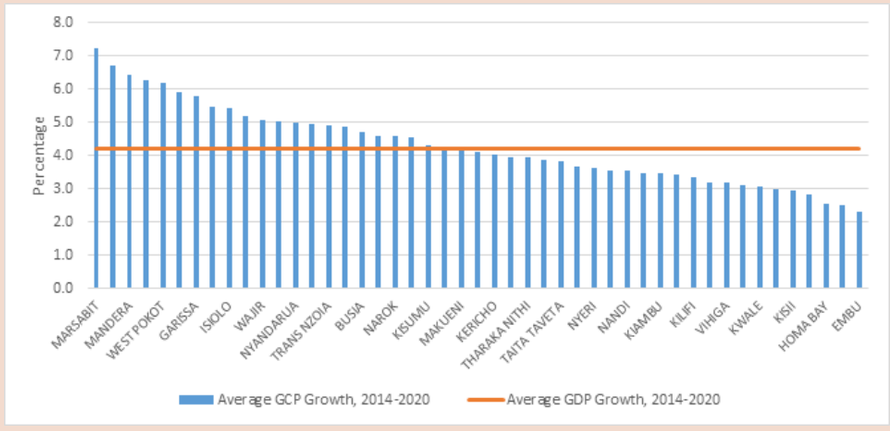
*Source: KIPPRA (2022), KIPPRA Treasury Macroeconomic Model (KTMM) where * is forecast*

3.4 County GCP and Medium-Term Prospects

Counties experienced robust economic growth with real Gross County Product (GCP) averaging 4.3 per cent between 2014 and 2020. The performance was 1.3 percentage points lower than an average of 5.6 per cent registered between 2014 and 2017 when the first GCP report was published. This was mainly attributed to the COVID-19 pandemic experienced in 2020, which slowed down economic activities in all counties.

Over the period 2014-2020, twenty-one (21) counties attained higher growth rate than overall average GDP growth of 4.2 per cent as shown in Figure 3.2. Counties with relatively smaller economies and in Arid and Semi-Arid Lands (ASALs) such as Marsabit, Mandera, Samburu, Garissa, Turkana and Isiolo grew much faster than their counterparts with larger economies (Figure 3.2). During the same period, Marsabit, Elgeyo Marakwet, Mandera, Samburu and West Pokot registered highest average growth rates of 7.2, 6.7, 6.4, 6.3 and 6.2 per cent, respectively.

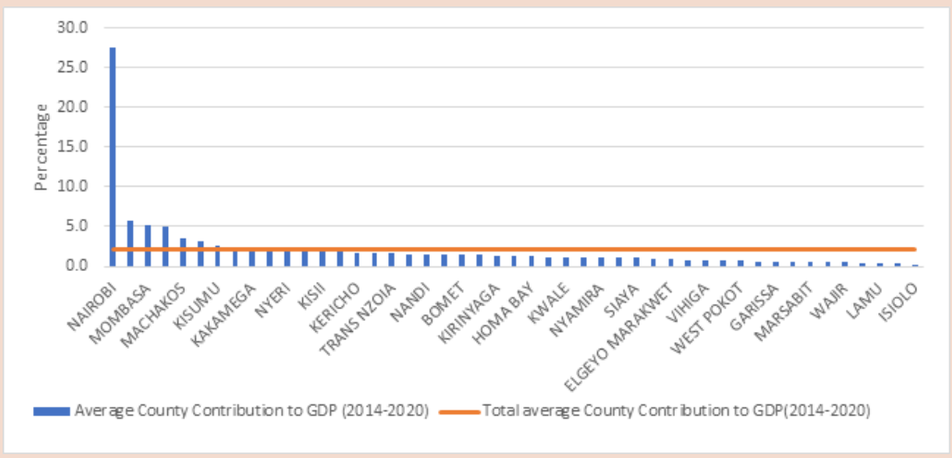
Figure 3.2: Average gross county product (%), 2014-2020



Source: Kenya National Bureau of Statistics (2022)

Analysis of GCP indicates large disparities across counties. The listed top five counties that had highest growth rate of between 6.2 and 7.2 per cent during the period, each contributing less than 1 per cent of Kenya's GDP (Figure 3.3). However, Nairobi County with a growth rate of 5.0 per cent contributed the largest share of 27.5 per cent to GDP. Kiambu (5.8%), Nakuru (5.1%), Mombasa (5.0%) and Machakos (3.4%) counties were the top contributors to the overall economy, notwithstanding their lower economic growth. The disparities are mainly attributed to the base effects, where counties with lower base have a potential for faster growth relative to counties that started at a higher base. As a result, there is a huge potential for many counties with small share to GDP to grow at a faster rate due to the base effect.

Figure 3.3: Average county contribution to GDP (%), 2014-2020



Source: Kenya National Bureau of Statistics (2022)

The estimated GCP was derived using top-down approach where the National estimate (GDP) was allocated to the regions using a distribution key. The choice of specific distribution key was based on reliability and sustainability of their source. The methodology was the most suitable compared to bottom-up approach and mixed approach (alternative approaches) as it entailed identification and validation of suitable indicators that accurately reflect levels of economic activities for the various sectors at the county level. However, the distribution key varied depending on which economic activity was being regionalized, and the existing framework for compilation of national accounts. To generate GCP projections, a simple framework was used based on a number of assumptions.

In the medium-term, the counties are assumed to remain on a recovery path as economic activities countrywide continue to pick up after the COVID-19 pandemic. The projections take into account the risks aforementioned. Notably, the analysis factors in conflict experienced in ASALs. Conflicts in these counties lead to loss of livestock, unfavourable livestock prices, displacement of communities and loss of human life, among others. This affects the economic performance of the affected counties. Nevertheless, County Governments continue to benefit from the support of the National Government in terms of increased funding and passing of necessary legislation. The implementation of the County COVID-19 Social-Economic Re-engineering and Recovery Strategy 2020/21-2022/23 provides an enormous opportunity for County Government economies to continue recovering from the impact of COVID-19 pandemic. Considering the risks faced by County Governments and support from the National Government, Table 3.4 shows the projected GCP growth rates for the counties in the medium-term based on the available GCP data recorded up to 2020.

In the medium-term, counties economic performance is envisaged to remain robust after the slow down experienced in 2020 (Table 3.4). Following the outbreak of COVID-19 pandemic in 2020, seventeen (17) counties registered a contraction in GCP with eleven (11) counties growing by less than 1 per cent. Nevertheless, seven (7) counties remained resilient, experiencing a growth of more than 4 per cent in 2020. These included Murang'a, Tharaka Nithi, Embu and Bomet counties that were cushioned by improved performance in the agriculture sector. Garissa, Mandera and West Pokot experienced significant growth following a lower base registered in 2019. Looking ahead, gradual lifting of containment measures in 2021 resulted in the reopening of various sectors, culminating in improved economic performance.

Table 3.4: Gross county product growth rate prospects (2021-2023)

	2018	2019	2020	2021	2022	2023
Baringo	-1.3	9.7	0.4	4.1	3.2	2.6
Bomet	8.7	-0.3	6.4	7.9	5.4	3.8
Bungoma	4.7	2.5	-0.1	10.5	3.9	5.8
Busia	5.7	11.4	3.2	6.7	5.4	3.8
Elgeyo Marakwet	19.2	7.6	1.5	14.4	8.3	10.0
Embu	8.5	-2.9	5.9	7.3	5.0	4.0
Garissa	9.6	2.2	4.6	4.2	4.4	5.8
Homa Bay	7.3	1.2	-0.6	7.0	4.6	2.3
Isiolo	11.6	8.0	1.8	8.3	4.2	6.3
Kajiado	8.9	7.3	1.5	4.8	5.3	4.6
Kakamega	6.7	4.6	-0.5	5.7	3.7	6.6
Kericho	5.7	2.3	3.9	8.2	5.3	4.2
Kiambu	2.0	5.1	-0.8	9.2	4.6	6.4
Kilifi	3.5	5.7	-2.2	5.9	3.9	5.4
Kirinyaga	-0.9	6.7	-0.5	5.3	4.6	2.3
Kisii	0.4	1.2	0.7	4.6	5.0	3.5
Kisumu	6.6	5.7	1.6	8.6	5.0	5.6
Kitui	8.6	9	-0.7	5.8	5.4	7.0
Kwale	5.1	1.8	2.6	3.9	2.4	6.0
Laikipia	7.0	3.8	0.7	7.8	2.3	6.8

	2018	2019	2020	2021	2022	2023
Lamu	10.2	7.1	-2.1	6.4	4.8	6.3
Machakos	5.8	1.1	0.7	5.7	6.1	5.2
Makueni	9.5	7.6	-3.7	8.4	4.9	7.3
Mandera	12.2	9	10.3	7.9	5.0	7.0
Marsabit	10.7	28.1	2.8	8	5.5	9.4
Meru	2.6	6.2	0.3	8.7	5.2	4.1
Migori	4.8	5.2	-0.7	6.4	5.6	7.2
Mombasa	4.5	4.3	-3.3	8.1	6.6	3.9
Muranga	4.5	2.1	4.1	8.5	4.6	5.5
Nairobi	5.8	6.1	0.0	9.3	6.4	8.3
Nakuru	4.0	6.9	-0.8	9.0	6.1	5.5
Nandi	9.3	-2.4	2.3	7.0	3.8	4.6
Narok	5.7	3.7	0.8	4.5	4.9	3.7
Nyamira	11.5	0.8	3.2	8.8	5.1	7.7
Nyandarua	-2.8	8.6	-2.3	9.5	8.3	7.1
Nyeri	3.2	7.1	2.2	4.9	5.0	4.3
Samburu	6.7	13	-0.7	7.9	5.2	6.8
Siaya	7.6	6.3	0.7	7.5	3.4	4.4
Taita Taveta	5.2	5.0	-0.6	8.2	5.4	4.6
Tana River	6.7	11.8	3.7	5.4	2.8	4.2
Tharaka Nithi	7.1	1.1	4.2	7.7	6.3	5.6
Trans Nzoia	15.5	0.7	3.0	7.2	4.5	5.8
Turkana	12.5	8.2	0.9	8.6	5.4	6.4
Uasin-Gishu	4.8	5.3	-1.3	6.7	6.8	5.4
Vihiga	9.1	4.7	0.7	6.9	5.4	4.3
Wajir	2.8	6.9	0.5	8.1	3.5	4.9
West Pokot	8.5	9.0	7.4	8.3	4.2	5.5
Average	6.7	5.7	1.3	7.3	4.9	5.5

Data Source: Kenya National Bureau of Statistics (2022), GCP 2021 Data

Based on the projections, counties are expected to recover to an average of 5.9 per cent in 2023. Notably, the forecasts show that in 2021, the counties' economies rebounded to an average growth of 7.3 per cent supported by improved performance in all counties. Nairobi, Kiambu and Nakuru counties, whose main source of growth is the services sector, experienced higher growth following the ease of containment measures. Similarly, Elgeyo Marakwet and Bungoma counties registered robust growth derived from its strong performance of the agriculture sector. With the risks, counties economic performance is envisaged to soften and grow at an average rate of 4.9 per cent in 2022 before improving to an average of 5.5 per cent in 2023. Specifically, the upcoming general elections and rising of commodity prices exacerbated by the Ukraine-Russia conflict may slow down the country's economic performance. Going forward, it is expected that the National Government in collaboration with the County Governments will continue supporting initiatives towards a peaceful electioneering period and cushioning citizens against rising commodity prices through subsidies such as the fuel subsidy programme.

3.5 Key Messages and Recommendations

3.5.1 Key messages

1. The recovery of domestic economy continues, even as the dynamics of the pandemic in Kenya and globally remain uncertain. In the medium-term, easing of containment measures, accelerated roll-out of the COVID-19 vaccine and favourable policy support are key in sustaining economic recovery.

2. The COVID-19 pandemic exposed the economic vulnerability of many countries, Kenya included. The Economic Vulnerability Index showed that 31 African countries were classified as more vulnerable in 2020, having surpassed the United Nations Department of Economic and Social Affairs threshold of 36 points. Kenya, with an index of 25 was classified as less vulnerable with an opportunity of improved performance. This underscores the need to enhance economic resilience. Building resilience for economic recovery may require a country to increase its capacity to absorb the shocks and improve its ability to reallocate resources to support the affected sectors for them to recover from the shocks.

3. In the medium-term, Kenya faces downside risks that may slow down the recovery of economic activities. These include risks of continued COVID-19 pandemic, re-introduction of containment measures, drought and the rise in commodity prices such as oil, metal and food prices in the international market especially with the geo-political tension in Europe. Nevertheless, there are also upside risks to the projections that Kenya could leverage on to remain on the recovery path. The concerted efforts to accelerate the roll-out of COVID-19 vaccination could ease mobility restrictions, restore consumer and business confidence and improve economic activities. In addition, digitalization and technological adoption in most sectors of the economy have a potential for economic dividends that could be tapped on.

4. Sectorial forecasts indicate that all sectors save for agriculture are expected to recover gradually in the medium-term following slowed performance in 2020. Notably, accommodation and food services, transport and storage, manufacturing and education activities registered significant improvements in 2021 and are envisaged to remain robust in 2022, and beyond. The agriculture sector is envisaged to grow at the rate of 2.3 per cent in 2022 with an average growth of 3.0 per cent in the medium-term, with significant improvements from a contraction of 0.2 per cent experienced in 2021.

5. Kenya's economy is estimated to grow at 5.8 per cent in 2022, with an average projected growth of 5.3 per cent in the medium-term. The growth is largely premised on the accelerated roll-out of COVID-19 vaccination, policy support and subsequent resumption of economic activities. Notably, the recovery will also be supported by the expected recovery of the global and Sub-Sahara Africa economic activities. Inflation rate was elevated in 2021 as the country experience increase in prices of various commodities. This is expected to ease and average 5.4 per cent in the medium-term.

6. The economic outlook is supported by a rebound and sustained growth of private consumption. For instance, private consumption rebounded strongly in 2021 and is expected to remain robust in the medium-term reflecting recovery of activities from the 2020 slump. The conducive environment created by high quality investment in infrastructure, security and other enablers such as ICT, energy among others would be expected to support sustained private consumption and investment in 2022 and beyond.

3.5.2 Policy recommendations

1. Continue supporting the health sector to consolidate gains in the fight against the pandemic and further strengthen the health system. The improved economic performance following the easing of containment measures signals the importance of opening the economy. As such, it is critical for the government to continue availing resources for the healthcare to mitigate the effects of the pandemic.

2. COVID-19 vaccination remains a key driver to economic recovery. A successful vaccination drive requires coordinated awareness creation by the National and County Governments. Vaccinating a larger portion of the population reduces health risks and loss of life. This would allow budgetary allocation to be directed to economic recovery projects.

3. Concentrated efforts by the National and County Governments is key to promoting peace and political stability during the electioneering period. This will ensure sustained economic recovery in 2022 and beyond.

4. The slowed down performance in the agriculture sector due to drought calls for more investments in irrigation and increased productivity of existing irrigation schemes to reduce over-reliance on rain-fed agriculture.

4

BUILDING A RESILIENT MANUFACTURING SECTOR FOR SUSTAINABLE DEVELOPMENT

While manufacturing provides opportunities for employment, growth of related industries and export earnings, its performance is subject to various negative shocks including droughts, election cycles, global recessions, surge in oil prices, and Kenya shilling depreciation against major currencies such as the US dollar. Positive shocks arise from agricultural output resulting from rainfall abundance, and policy changes that catalyze private sector development. The resilience of manufacturing is compromised by high concentration of MSEs largely operating in the informal sector, dominance of low technology manufacturing, weak innovation ecosystem and technology adoption, skills deficits for technological upgrading, and limited access to affordable financing and quality infrastructure. While low technology activities such as food, beverages, textile, apparel, leather and furniture products are labour-intensive, and therefore ideal for job creation, there are challenges of low R&D investments, innovation and export earnings. The COVID-19 pandemic has revealed latent opportunities in diversifying manufacturing in Kenya, but this needs to be supported with an appropriate innovation ecosystem, including sustainable product markets. Building a resilient manufacturing sector calls for incentives to promote diversification into medium and high technology manufacturing, enhanced access to markets through improved competitiveness and market diversification, incentives for supporting accelerated innovation under shocks and stressors, mainstreaming measures for building resilience within policy documents and adoption of advanced technologies through strategies such as skills development.

4.1 Introduction

Manufacturing is a key driver of industrial activities in Kenya, though its contribution has been marginally declining due to the growth constraints it faces. Its contribution to national GDP has declined from 8.3 per cent in 2017 to 7.2 per cent in 2021 owing to relatively higher growth rates in other sectors such as construction, transport, trade, information and communication technology (ICT), and financial services (Kenya National Bureau of Statistics, 2022). Despite the declining share in GDP, manufacturing still substantially contributes to the overall industrial activities including mining and quarrying, construction, electricity supply, water supply, sewerage and waste management. The Economic Survey 2022 reveals that as of 2021, manufacturing accounted for 47.7 per cent and 54.7 per cent of the formal industrial GDP and employment, respectively (Kenya National Bureau of Statistics, 2022). The contribution of manufacturing to industrial GDP has, however, declined from 50.3 per cent in 2017 to 47.7 per cent in 2021 (Kenya National Bureau of Statistics, 2022). The Economic Survey 2022 further reveals that manufacturing share in the formal employment within the industrial activities declined from 56.5 per cent to 54.7 per cent over the same period. The decline of manufacturing contribution within the industrial activities is due to its slower growth rates compared to construction activities. Within the informal industrial activities, 95.5 per cent of the enterprises and 96.2 per cent of the jobs are in manufacturing (Kenya National Bureau of Statistics, 2020a). The 2016 Micro, Small and Medium Enterprises (MSMEs) survey further reveals that 75.4 per cent of the gross value added within the informal industrial activities is contributed by manufacturing. Manufacturing, therefore, still plays a substantial role within the industrial activities.

Manufacturing supports inclusive development by creating direct and indirect employment opportunities through backward and forward linkages with sectors such as agriculture, livestock, extractives and trade. Various manufacturing sub-sectors ranging from high technology activities such as pharmaceuticals, electronics, and machinery, to medium technology activities such as rubber, plastics, and non-metallic mineral products and low technology activities such as food, beverages, textiles, and leather provide employment opportunities for job seekers of diverse skills levels, including youth and women. For instance, 60.8 per cent, 35.0 per cent and 32.1 per cent of persons employed within the manufacture of chemicals, pharmaceutical products and textiles, respectively, are females (Kenya National Bureau of Statistics, 2019). Manufacturing further provides market for other industrial activities, including utilities and mining and provides input to construction activities such as infrastructure and housing, particularly through supply of cement, iron and steel. For instance, between 2018 and 2021, annual local consumption of cement grew at an average rate of 12.1 per cent, corresponding to growth rates in the construction activities that averaged 7.5 per cent during the same period (Kenya National Bureau of Statistics, 2022). Considering its potential contribution to development of the economy, manufacturing is a priority sector under the economic pillar of the Kenya Vision 2030. The “Big Four” agenda manufacturing activities including agro-processing, textile and leather industries are particularly important in creating employment and income opportunities along the value chains. These industries are labour-intensive, providing developing countries with opportunities to leverage on raw material supply (UNIDO, 2021a).

The policy documents for promoting manufacturing in Kenya; notably, the Kenya Vision 2030, MTP III, Sessional Paper No. 9 of 2012 on the National Industrialization Policy Framework for Kenya 2012-2030, and the *Buy Kenya Build Kenya* strategy, 2017 underscore six priority areas: enhancing contribution of manufacturing to GDP, creating employment, access to domestic and export markets, access to affordable finance, deepening of technology and innovation as well as diversification into medium and high technology activities. Table 4.1 shows the structure of formal manufacturing activities in Kenya in terms of GDP composition, employment and exports. The structure also reveals the extent of diversification of products manufactured and exported. The manufacture of food products, textile and apparel are the sub-sectors with the largest shares of both formal manufacturing employment and GDP. The manufacture of food, textile and apparel and leather and leather products account for 62.8 per cent of manufacturing employment within the formal sector. These statistics reveal that manufacturing in Kenya has strong backward linkages with the agriculture and rural livelihoods, and therefore presenting opportunities for inclusive development. The manufacture of leather and leather products is the third largest sub-sector in terms of employment share but plays a minimal role in terms of contribution to the sector’s GDP, suggesting challenges of low productivity and value addition. For instance, Kenya’s leather is sold in semi-processed form with little design and quality differentiation, with finished leather accounting for only 2 per cent of the value exported (World Bank, 2015). Overall, manufacture of food, textile and apparel,

leather and leather products, non-metallic mineral products, and furniture/wood products account for 81.3 per cent and 77.0 per cent of the formal manufacturing employment and GDP, respectively. While agro-processing such as food, textiles and leather offers linkages with the agriculture sector, it also translates to increased vulnerability to environmental related hazards such as droughts, pests and diseases that constrain agricultural production.

The shares of high technology sub-sectors, including pharmaceuticals, optical and electronic equipment, machinery and transport equipment remain low. These sub-sectors together account for 5.8 per cent and 6.4 per cent of formal manufacturing employment and GDP, respectively. Further, the manufacture of metals including iron, steel, and non-ferrous metals such as copper, aluminium, lead and zinc account for 6.4 per cent and 4.5 per cent of formal manufacturing employment and GDP, respectively. Low diversification of manufacturing into the medium and high technology activities have some implications: First, it increases dependence on imports of these products, which are subject to regional and global shocks such as commodity prices and exchange rate risks. Supply chain disruptions of the global value chains can also be a conduit for shocks, as has been experienced during the COVID-19 pandemic and recently the Russia-Ukraine conflict that has seen the US and part of the European governments impose trade sanctions on Russia. The Industrial Development Report 2022 reveals that high technology manufacturing across various economies remained resilient, with relatively quick recovery to adverse impacts of COVID-19, compared to low technology manufacturing (UNIDO, 2021b).

The key drivers of Kenya's manufacturing exports are food and beverages, textiles and apparel, chemical products, coke and refined petroleum products. As demonstrated by Hausmann et al. (2007), in their research article titled 'what you export matters', they demonstrate that economies that export medium and high technology manufacturing products tend to realize higher economic growth rates even after controlling for other country-specific variables such as initial per capita income and levels of skills development. Such evidence calls for rethinking of a sole focus on comparative advantage arguments that favour production based on resource abundance and lower opportunity costs compared to trading partners, and the importance of policies in promoting diversification, innovation and entrepreneurial growth within medium and high technology manufacturing. Diversification into medium and high technology manufacturing is important for exploiting market opportunities within the regional markets such as the East African Community (EAC), the Common Market for Eastern and Southern Africa (COMESA) and the African Continental Free Trade Area (AfCFTA). This is considering that economies within these trading blocs produce similar products with a high concentration in low technology activities (UNIDO, 2020). The share of medium and high technology manufacturing within the overall manufacturing GDP across the economics in Africa is only 22 per cent, compared to global average of 47 per cent (UNIDO, 2015). Thus, Africa is import dependent beyond low manufacturing activities such as food, beverages, textiles, leather and furniture.

Table 4.1: Manufacturing sector employment and value added by sub-sectors, 2020

Manufacturing sub-sector	Employment		Value added		Exports	
	No. of employed persons	% share	Ksh billion	% share in manufacturing GDP	Ksh billion	% of manufactured exports
Manufacture of food products and beverages (mainly processing of vegetables, fruits, grains, meat, fish, animal oil and fats, dairy products, grains, animal feeds, soft drinks) and tobacco	126,236	39.8	471.1	57.6	278.2	55.4
Manufacture of textile and apparel	36,862	11.6	45.2	5.5	38.7	7.7
Manufacture of leather and leather products	35,975	11.4	14.7	1.8	6.5	1.3
Manufacture of rubber, glass, plastic, cement and other non-metallic mineral products	29,315	9.3	28.2	3.4	6.2	1.2
Manufacture of furniture and other wood products	29,124	9.2	70.9	8.7	8.1	1.6

Manufacturing sub-sector	Employment		Value added		Exports	
	No. of employed persons	% share	Ksh billion	% share in manufacturing GDP	Ksh billion	% of manufactured exports
Manufacture of metals (Including iron and steel, precious and non-ferrous metals, cutlery, hardware and fabricated metal products)	20,218	6.4	36.4	4.5	23.0	4.6
Manufacture of chemical products (include basic chemicals, pesticides and agrochemicals, paints, varnishes, printing inks, mastics, soaps, detergents, toiletries)	15,402	4.9	70.5	8.6	41.5	8.3
Manufacture of machinery and transport equipment (includes general purpose machinery, motor vehicle assemblies, manufacture of parts and accessories for motor vehicles, manufacture of bodies (coachwork) for motor vehicles, manufacture of trailers and semi-trailers, building of ships and floating structures, and other transport equipment)	10,395	3.3	20.7	2.5	14.2	2.8
Manufacture of pharmaceuticals, medicinal chemical and botanical products	5,616	1.8	25.0	3.1	13.8	2.7
Repair and other manufacturing	5,137	1.6	26.5	3.2	20.7	4.1
Manufacture of optical and electronic equipment (includes transformers, electricity distribution and control apparatus, electric motors, generators, batteries and accumulators, electronic and electric wires/cables)	2,375	0.7	6.6	0.8	8.5	1.7
Manufacture of coke and refined petroleum products, including coal, briquette, and natural gas	238	0.1	2.5	0.3	43.3	8.6
Total	**316,893**	**100.0**	**818.3**	**100.0**	**502.7**	**100.0**

Data source: Author's calculations from Kenya National Bureau of Statistics (2021), Statistical Abstract

The growth rates of the various manufacturing sub-sectors during 2017-2020 period varied significantly particularly in 2020 due to the adverse impacts of COVID-19 pandemic, as illustrated in Figure 4.1. The manufacture of pharmaceuticals and chemicals experienced a 'window of opportunity' in 2020 as seen from the positive growth rates of 23.0 per cent and 14.6 per cent, respectively. These manufacturing activities demonstrated transformative resilience by leaping forward in the face of adversities as the demand for products for medical care, and public health hygiene products such as detergents and toiletries increased. The manufacture of food products realized mixed performance due to likely households' budgetary constraints and rationalization, though it still recorded growth in 2020. The processing and preservation of meat, fish, fruits and vegetables experienced a positive growth of between 7.0 and 9.1 per cent while manufacture of dairy products, grain mill products, bakery products, animal feeds, beverages and vegetables and animal fats and oils reported negative growth rates of between 0.6 per cent and 8.5 per cent. The positive growth in manufacture of meat, fish, fruits and vegetables was considering increased public health awareness on the importance of balanced diet as a measure to contain the adverse health implications of COVID-19. The positive performance of these manufacturing activities in Kenya also mirrors those across the world economies as reported in the Industrial Development Report 2022, with positive growth rates of essential products, including pharmaceuticals, chemicals and food products (UNIDO, 2021b). The positive growth of non-metallic mineral products during the pandemic was driven by manufacture of cement due to sustained demand of inputs from the construction sector, including public infrastructure

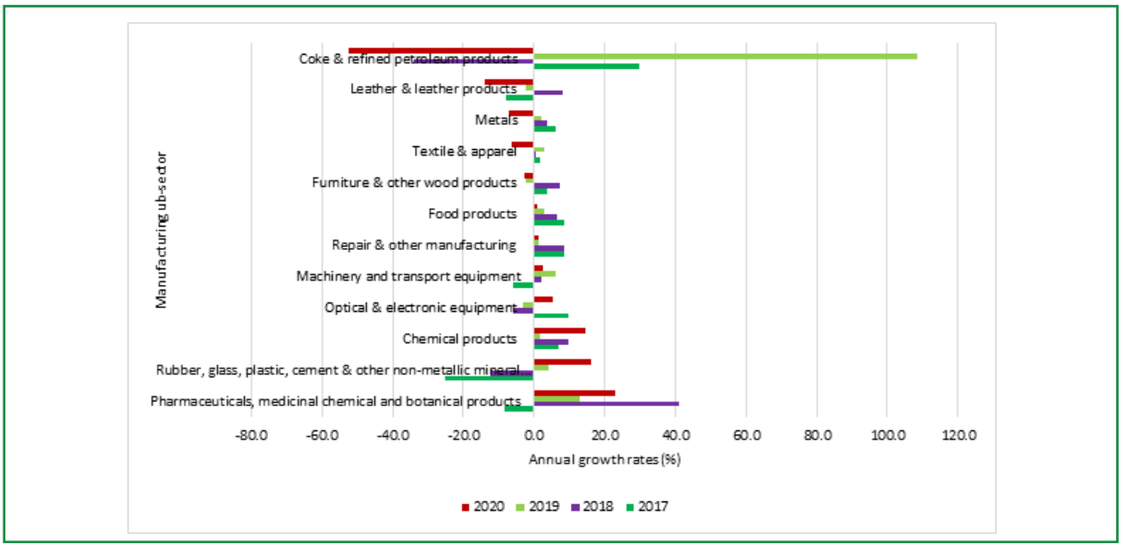
projects, public sector housing projects under the "Big Four" agenda, expansion of learning institutions to facilitate social distancing health protocols to contain the spread of COVID-19, and the private sector construction activities. The annual growth rates of the construction sector increased from 7.2 per cent in 2019 to 10.1 per cent in 2020, before slowing down to 6.6 per cent in 2021, with the overall consumption of cement increasing by 49.2 per cent from 6.1 million tonnes in 2019 to 9.1 million tonnes in 2021 (Kenya National Bureau of Statistics, 2022). Similarly, exports of cement increased by 187.2 per cent from 60.2 metric tonnes to 172.9 metric tonnes over the same period.

Notable manufacturing activities with negative growth rates in 2020 were coke and refined petroleum products, leather and leather products, metals, furniture and wood products. The substantial decline in the manufacture of coke and petroleum products in 2020 was due to transport disruptions as governments globally implemented movement restrictions to contain the COVID-19 pandemic. The positive growth experienced in coke and petroleum products in 2019 was driven by decline in global oil prices, as a result of increased production by the US.

Overall, this analysis reveals that during the COVID-19, households continued to consume essential products such as food, medical and public health-related products while shifting from non-food items such as leather, textiles and furniture. Although the manufacture of furniture and other products of wood recorded negative growth, its decline in performance compared to other activities such as textiles was cushioned by demand for furniture owing to work from home guidelines issued by the government. This was not, however, strong enough to record a growth rate for furniture manufacturing. The change in value added for manufacture of furniture alone recorded a negative growth rate of 1.5 per cent while employment declined substantially by 22.3 per cent in 2020 (Kenya National Bureau of Statistics, 2021b). In 2021, production of pharmaceuticals, furniture, animal fats and oils, fruits and vegetables products recorded slowed growth rates compared to improved growth rates for the manufacture of cement, leather and leather products, motor vehicles and meat products (KNBS, 2022).

The rationalization of household budgets has implications for manufacturing firms to be innovative as survival and growth strategies in the face of shocks and stressors. These strategies were experienced in Kenya as some firms expanded production or diversified product lines for manufacture of masks, detergents and toiletries. For instance, East African Breweries partnered with Haco industries to manufacture hand sanitisers while the Kitui County Textile Centre (KICOTEC) diversified into the manufacture of Personal Protective Equipment (PPEs) and face masks. Within the academia, Kenyatta University developed a prototype ventilator (TibaVent ventilator) with android tablet-enabled remote monitoring capabilities. These innovations reveal the latent capabilities of Kenyan manufacturing and underscores the importance of entrepreneurial policy support as suggested by Hausmann et al. (2007). While these experiences reveal the importance of ability to innovate in adapting to changing demand conditions, it is also a pointer for thinking about measures to sustain their production beyond the COVID-19 pandemic.

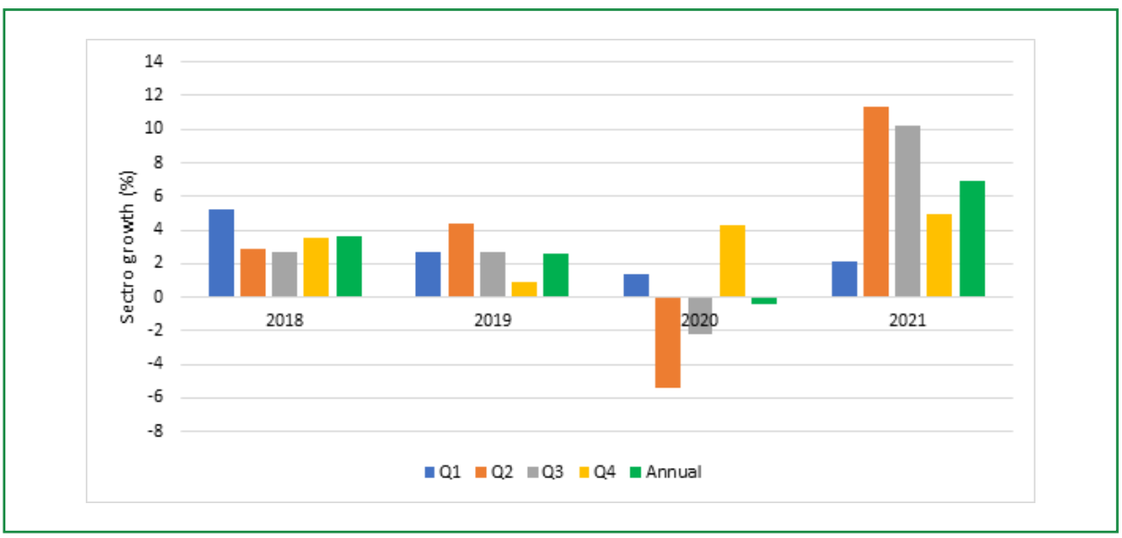
Figure 4.1: Value added growth rates of manufacturing sub-sectors, 2017-2020



Data source: Kenya National Bureau of Statistics (2021), Statistical Abstract

The manufacturing sector, overall, recorded a negative growth of 0.4 per cent in 2020, before realizing a sustained recovery and subsequently recording a positive growth rate of 6.9 per cent in 2021. The negative growth rates of manufacturing in 2020 occurred mainly during the second and third quarters of that year, during which it recorded negative growth rates of 5.7 per cent and 2.2 per cent, respectively (Figure 4.2). These negative growth rates resulted from COVID-19-related containment measures such as partial lockdowns and night curfews, and supply chain disruptions of imports of raw materials and exports of manufactured products. The fourth quarter of 2020 realized a recovery of manufacturing with a growth rate of 4.3 per cent. In 2021, manufacturing continued on a sustained recovery path, recording positive growth rates of 2.1 per cent, 11.3 per cent, 10.2 per cent and 4.9 per cent during the first, second, third and fourth quarters, respectively. The strong positive manufacturing growth rates in 2021 was supported by increased production of beverages, dairy products, meat and meat products, leather, wood and paper products, transport equipment and non-metallic mineral products such as cement and glass (Kenya National Bureau of Statistics, 2022).

Figure 4.2: Manufacturing sector growth



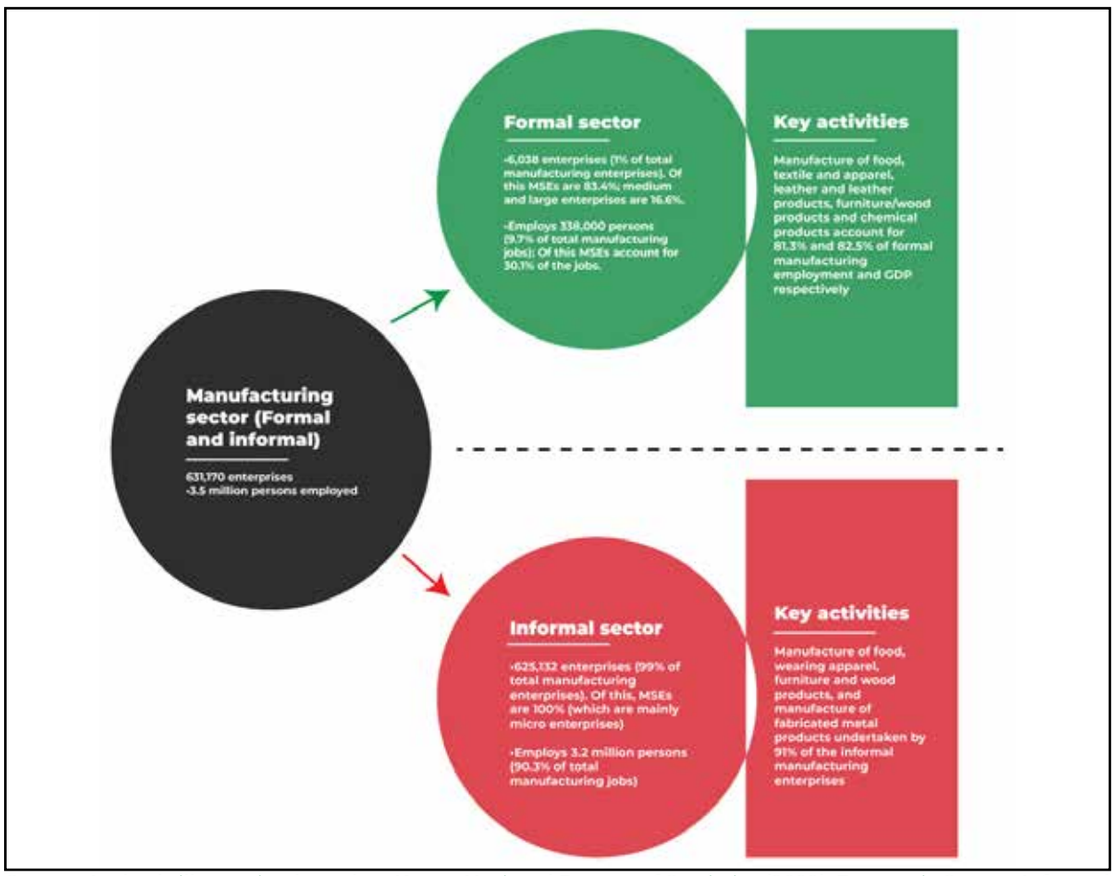
Data source: Kenya National Bureau of Statistics (2022), Economic Survey

A notable feature of the Kenya manufacturing activities is the large share of Micro and Small Enterprises (MSEs), which employ less than 50 persons. Firm size has implications for business resilience through channels such as access to human and material resources, market diversification and access to lifeline infrastructure, including transport facilities and utilities such as electricity, water, telecommunication network and sanitation (Lo et al., 2021). A manufacturing firm level survey by the United Nations Industrial Development Organization (UNIDO) across 44 developing and emerging economies reveals that Micro, Small and Medium Enterprises (MSMEs) were disproportionately affected by COVID-19, compared to large enterprises, considering performance indicators such as sales, profitability and employment (UNIDO, 2021b). For instance, large enterprises (>100 employees) reported sales decline of only two per cent compared to 19 to 29 per cent decline for MSMEs. The impact was more severe among the MSEs. As illustrated in Figure 4.3, within formal manufacturing MSEs account for 83.4 per cent of the 6,038 enterprises but only 30.1 per cent of jobs within the sector. This implies that majority of the manufacturing enterprises are owner-operated, with minimal scale to absorb jobs outside family labour. The analysis from the World Bank Enterprise Survey for Kenya, 2018 reveals that productivity of manufacturing enterprises is lower among MSEs compared to medium and large enterprises. Further, the productivity of formal manufacturing micro enterprises is lower than that of small enterprises by 7.8 per cent, and 12.4 per cent lower than that of medium and large enterprises (based on authors' calculations, with productivity measured as log of sales per employee.

The informal enterprises are usually semi-organized, unregistered and unregulated small-scale activities mostly undertaken by self-employed persons outside farming and pastoral activities. Because of the challenges in access to infrastructure, finance and appropriate skills and technology, the informal manufacturing enterprises, majority of which are micro enterprises, have a lower productivity than enterprises of similar size operating in the formal sector. Based on calculations from the World Bank Enterprise Survey for Kenya 2018 and the 2018 Micro, Small and Medium Enterprises (MSMEs) survey, the productivity in terms of log of sales per employee for informal manufacturing micro enterprises is lower than that of formal micro enterprises by 30.7 per cent while those of informal small enterprises are lower than comparable formal enterprises is lower by 21.7 per cent. Micro enterprises employ less than 10 persons, while small enterprises employ 10 to 50 persons.

The Informal Sector Skills and Occupations Survey 2020 reveals that there are 625,132 informal manufacturing enterprises in Kenya (Kenya National Bureau of Statistics, 2020d). Among these informal enterprises, 91 per cent are engaged in manufacture of food products, wearing apparel, furniture, and manufacture of fabricated metal products such as structural metal products, water reservoirs, cutlery, hand tools, forging and pressing, treatment and coating of metals (Kenya National Bureau of Statistics, 2016). Thus, like the formal manufacturing, the informal manufacturing is dominated by low technology but labour-intensive activities such as agro-processing. The Economic Survey 2022 reveals that there are 3.2 million persons employed within Kenya's informal manufacturing activities, which are basically MSEs (Kenya National Bureau of Statistics, 2022). This analysis demonstrates the structure of manufacturing in Kenya across formal and informal activities as summarized in Figure 4.3.

Figure 4.3: Firm size, employment and key activities within the manufacturing sector



Source: Author's illustration based on Kenya National Bureau of Statistics (2022), Economic Survey, Informal Sector Skills and Occupations Survey (2020) and (2016) MSME Survey

4.2 Manufacturing Sector Policy Framework

The areas of policy focus for development of the manufacturing sector in Kenya are detailed in Table 4.2, with implementation progress and challenges. Further, progress with the Kenya Vision 2030 flagship programmes for the manufacturing sector are detailed in Table 4.3. The review underscores the need for enhanced complementary interventions through financing, R&D investments and technology transfer, market access, and supportive legal and regulatory framework. Further, there are gaps in monitoring framework, particularly with regard to timely updating of progress on policy initiatives and flagship programmes.

The policy focus areas detailed in Table 4.2 mirror the three composite dimensions used in UNIDO's Competitive Industrial Performance (CIP) index used for ranking 152 economies (UNIDO, 2021b): Capacity to produce and export manufactured goods; technology deepening and upgrading, and the world impact. The capacity to produce and export is assessed through manufacturing GDP per capita and manufacturing exports per capita. Technology deepening and upgrading is and exports quality. Industrialization intensity is measured by the share of medium and high technology manufacturing in manufacturing GDP and share of manufacturing in national GDP. The export quality is measured by the share of medium and high technology manufacturing in the overall manufactured exports and share of manufacturing exports in the overall exports of a country. The dimension on world impact is assessed from a country's share in global manufacturing GDP and manufactured exports. The CIP 2022 ranks Kenya at position 112. The CIP rankings underscore not only manufacturing production capacity but its quality and reflected in the share of medium and high technology activities in the sector's GDP and exports. An emerging issue during the COVID-19 pandemic was resilience and hastened recovery of medium and high technology manufacturing (UNIDO, 2021b). A key lesson for countries such as Kenya is to link parameters such as exports targets to key elements of the CIP index, including composition of medium and high technology manufacturing. While CIP index is outcome-oriented. It provides opportunities for policies to influence the processes that affect manufacturing production and quality, including elements of business environment and innovation ecosystem for technology upgrading.

Table 4.2: Issues for policy focus

POLICY AREA	POLICY TARGETS AND MEASURES	STATUS/PROGRESS	CHALLENGES
Enhancing contributions to GDP	Manufacturing value addition is envisaged to annually grow at 10 per cent, with contributions to the national GDP expected to reach 15 per cent by 2022. Key policy measures for reaching this target include establishment of Special Economic Zones (SEZs), access to affordable finance by MSMEs, and improved business environment.	The manufacturing sector growth rates averaged 2.7 per cent over the last five years (2017-2021). Manufacturing contribution to GDP has marginally declined from 8.7 per cent in 2017 to 7.2 per cent in 2021. While manufacturing GDP has been growing in absolute terms, increasing from Ksh 712.8 billion in 2017 to Ksh 807.0 billion in 2021, its growth rate is lower than those for construction, transportation, information and communication technology, financial activities and real estate.	Manufacturing is vulnerable to costs of business environment, particularly electricity, financing, and costs of logistics such as roads and ports. Further, majority of the manufacturing enterprises are MSEs with constrained productivity given they are disproportionately affected by the challenges facing the sector.
Creating Employment	The medium-term target of the sector is to create one million jobs within the formal manufacturing between 2018 and 2022. These are to be realized through the “Big Four” agenda priorities, including manufacture of textiles and apparel, leather and agro-processing.	The sector created an average of 3,000 jobs in 2018 and 2019, before losing 36,300 jobs in 2020 due to the negative impacts of COVID-19. Owing to economic recoveries, employment in the sector increased by about 21,000 jobs in 2021. The key activities driving employment are the manufacture of bakery products, textiles and apparel, which are among the “Big Four” agenda priorities.	While the policies target labour-intensive activities such as the manufacture of leather, textiles and other agro-processing, the flagship projects are lagging completion. As reported in the Industrial Development Report 2022 (UNIDO, 2021), employment in these manufacturing activities are vulnerable to shocks.
Access to domestic and export markets	Regarding access to domestic markets, public entities are required to allocate at least 40 per cent of their procurement budget to locally produced goods and services. Other measures include interventions targeted at increasing competitiveness and consumption of locally produced goods and services.	The public procurement allocation to locally manufactured goods averaged 18 per cent over the three financial years; 2018/19-2020/21. This is below the target of 40 per cent articulated in the Buy Kenya Build Kenya Strategy, and the Presidential directive. The Ministry of Industrialization and Enterprise Development developed a Master Roll of locally manufactured goods for preferential treatment, based on local capacity to produce the identified goods for preferential treatment. The Master Roll (published July 2020) identifies 334 products for preferential procurement, including those related to the manufacture of pharmaceuticals, metals and allied (machinery), automotive accessories, paper and paperboard, furniture, construction equipment and products, food and beverages, leather and footwear, textiles and apparels, plastic and rubber, electrical and electronics, plastic and rubber, and chemicals.	Within the domestic market, the key challenges include high costs of production against cheaper imports, imports of second-hand products such as mitumba clothes, shoes and second-hand vehicles. Further, access to domestic markets, particularly preferential public procurement for MSEs, is hampered by low capacity to produce. This is coupled with low awareness of the initiative. There are also challenges related to enforcement monitoring regarding implementation of the 40 public procurement of locally manufactured goods.

POLICY AREA	POLICY TARGETS AND MEASURES	STATUS/PROGRESS	CHALLENGES
	Regarding access to export markets (exports growth), a key Kenya Vision 2030 target is to increase exports to the EAC market from 7 per cent to 15 per cent.	The export of manufactured products to the EAC market is yet to realize substantial growth. The manufactured exports value increased from US$ 282.3 million (≈ Ksh 19.5 billion) in 2008 to US$ 397.8 (≈Ksh 43.7 billion) million in 2021 (International Trade Centre, 2021a), partly due to unstained growth and competition from low-cost imports to the region from other economies such as China and India.	The key challenges to export markets include low capacity and conformity to product quality and standards. There are also challenges exporting to the EAC market due to increasing competitiveness in the EAC economies, particularly Tanzania and Uganda; and cheaper imports from China and India. Kenya and other EAC markets produce similar products that fall within low technology activities. Firms operating within the Export Processing Zones (EPZs) are constrained by the cap to export only 20 per cent of their sales to domestic markets (Export Processing Zones Authority, 2020). Under the EAC's Customs Union Protocol, the EAC economies are considered domestic market and the 20 per cent cap on sales is a key impediment given that exceeding the limit attracts third country tariffs even when raw materials are from within EAC (Export Processing Zones Authority, 2020).

POLICY AREA	POLICY TARGETS AND MEASURES	STATUS/PROGRESS	CHALLENGES
Access to affordable finance	Key policy measures targeted include expanding access to finance by MSMEs. This is considering that access to affordable finance is a key constraint to manufacturing enterprises in both formal and informal sectors. A key target is to establish an industrial development fund with a minimum of Ksh 10 billion for financing of manufacturing enterprises as articulated in Sessional Paper No. 9 of 2012 on the National Industrialization Policy Framework for Kenya 2012-2030. Further, the MSEs Act No. 55 of 2012 provides for establishment of the Micro and Small Enterprises Development Fund to facilitate MSEs access to affordable credit, and for financing activities for development of MSEs through capacity building, research, development, innovation and transfer of technology.	Draft MSEs Fund Regulations, 2020 were developed, but are yet to be gazetted. The industrial development fund is also yet to be operationalized. The government, however, developed the Public Finance Management (Credit Guarantee Scheme) Regulations, 2020 for purposes of operationalizing credit guarantee schemes aimed at enhancing access to affordable finance by MSMEs. The National Treasury signed an agreement with seven commercial banks, who will participate in the arrangement (Kenya Commercial Bank, Cooperative Bank, Diamond Trust Bank, NCBA, ABSA, Credit Bank and Stanbic Bank). Other measures include continued provision of credit to MSMEs through the Kenya Industrial Estate (KIE), Kenya Development Corporation - KDC (Kenya Development Corporation (KDC) resulted from a merger of Industrial and Commercial Development Corporation (ICDC), IDB Capital Ltd and Tourism Finance Corporation (TFC) in 2020), and Development Bank of Kenya. These three development finance institutions cumulatively financed 1,576 manufacturing projects between 2017 and 2021, for a cumulative loan amount of Ksh 6.8 billion (Kenya National Bureau of Statistics, 2022). The main activities financed were the manufacture of food, textiles and apparel, wood and products of wood, and machinery and equipment, reflecting the “Big Four” agenda priorities. Over the same period, commercial banks cumulatively advanced Ksh 1.9 trillion for financing manufacturing activities, representing 99.6 per cent of financing during the period. The development budget for industrial development reports a large deficit of Ksh 11.6 billion over the medium term 2022/23-2024/25 (Government of Kenya, 2021a).	Inadequate financing through public institutions remains a challenge, especially for financing of the Kenya Vision 2030 flagship programmes. Access to finance by MSEs remains a significant challenge, with 56.8 per cent of informal manufacturing enterprises citing it as the major constraint faced (Kenya National Bureau of Statistics, 2020d). Within the formal sector the World Bank Enterprise Survey for Kenya 2018 reveals that 27.9 per cent of manufacturing enterprises cite access to credit as a major obstacle, with a higher statistic among the MSEs. Key challenges linked to accessing finance include collateral inadequacies and high costs of credit
Deepening of technology and innovation	The key policy measures include building strategic alliances between the industry and institutions of higher learning and R&D for acquisition of knowledge and deepening of innovation. Other measures include promoting joint research through collaboration of State Department for Industrialization, research institutions, and universities. These policy interventions are particularly envisaged in Sessional Paper No. 9 of 2012 on the National Industrialization Policy Framework for Kenya 2012-2030.	The World Bank Enterprise Survey for Kenya 2018 reveals that only 23.5 per cent of manufacturing firms report to undertake R&D investments, which is an important input to innovation and technology upgrading. It also reveals that majority of the manufacturing firms rely on alternative sources of knowledge input such as interactions with customers (24.6%), Internet search (21.5%) and interactions through business associations (14.1%) as the most important source of information and ideas for innovation technology upgrading. However, formal avenues such as strategic alliances, and collaboration and co-development as avenues for innovation remained low, with only a fifth of the innovating manufacturing reporting to have used them.	The World Bank Enterprise Survey for Kenya 2018 reveals the key challenges impeding innovation and technology upgrading to include limited access to affordable finance, availability of skilled labour and technological incompatibility. Successes with accelerated innovation during the COVID-19 pandemic reveal the importance of strategic alliances and collaboration among the enterprises. These avenues for innovation are, however, yet to be fully emulated in Kenya.

POLICY AREA	POLICY TARGETS AND MEASURES	STATUS/PROGRESS	CHALLENGES
Diversification of manufacturing activities	Manufacturing diversification has two dimensions. First, it relates to range of products, and second to range of product sophistications as measured by technological intensity linked to R&D content.	In terms of product range, over 40 per cent of the manufacturing GDP is in food and beverages, which increased to over 50 per cent in 2020 due to implications of COVID-19 and owing to depressed production of non-essential goods. The manufacture of food, textile and apparel, leather and leather products, non-metallic mineral products, and furniture/wood products account for 77.0 per cent of the manufacturing sector's GDP as of 2020. In terms of technology intensity dimension, 75 per cent of manufacturing GDP is in low technology activities, with medium and high technology activities at 10 per cent and 15 per cent, respectively.	Diversification into medium and high technology manufacturing requires supportive ecosystems, including infrastructure and fiscal incentives. Supportive infrastructure, particularly for MSEs are limited. Differentiated fiscal incentives for R&D investments and prototypes development in frontier manufacturing in high technology areas also remains weak.

Source: Authors' compilations based on review of policy documents; Kenya Vision 2030, MTP III, Sessional Paper No. 9 of 2012 on the National Industrialization Policy Framework for Kenya 2012-2030, and the Buy Kenya-Build Kenya Strategy, 2017. Additional information in the columns for 'status/progress' and 'challenges' were referenced from the Report on General Economic and Commercial Affairs (GECA) Sector for the Medium-Term Expenditure Framework (MTEF) 2022/23-2024/25, unless otherwise stated.

Table 4.3: Progress in implementation of the Kenya Vision 2030 flagship programmes

FLAGSHIP PROGRAMME	MTP I	MTP II	MTP III	CHALLENGES
Establishment of Special Economic Zones (SEZs)	The Cabinet approved the SEZ concept, policy and Bill. Land for establishing SEZs was identified in Dongo Kundu (Mombasa) and Lamu. An agreement was entered to with the Government of Singapore for development of SEZ master plan.	• Enacted the Special Economic Zones Act, 2015. This also paved way for establishment of SEZ Authority (SEZA). • SEZ Regulations were developed to operationalize the SEZ Act, 2015. • Master planning and pre-feasibility study undertaken for Dongo Kundu (Mombasa) SEZ. • SEZ licensed three SEZ enterprises.	• SEZA 40% operationalized. • Dongo Kundu SEZ is 7.2 per cent complete; while Naivasha SEZ is 5.6 per cent complete (as of June 2021) • 11 special economic zones gazetted.	• Slow progress in operationalisation of SEZA. • COVID-19 slowed down the investor activities. • Inadequate funding. • Delayed resettlement and compensation of persons affected by Dongo Kundu SEZ.
Development of Small and Medium Enterprises (SMEs) industrial parks	• Development of master plans and structural designs was initiated for establishment of SME parks in Nairobi, Mombasa, Nakuru, Kisumu and Eldoret. • Land for SMEs industrial parks was identified in Eldoret (135 acres) and Taita Taveta (20 acres).	• Master plans and structural designs for SME industrial parks were finalized.	• Kinanie Leather Industrial Park advanced with construction of Common Effluent Treatment Plant (CETP), with completion rate at 35 per cent. • 37 Constituency Industrial Development Centres were upgraded. • Operationalization of Kariobangi MSE Centre of Excellence, at 90 per cent completion.	Limited budgetary allocations.

FLAGSHIP PROGRAMME	MTP I	MTP II	MTP III	CHALLENGES
Development of Integrated Iron and Steel Mill/ Transformation of the Numerical Machining Complex (NMC)	• Cabinet approved a concept paper on development of iron and steel mill. • Strategy paper for promoting iron and steel industry was developed. • Iron and Steel Bill, 2012 was drafted. • Memorandum of understanding was signed with a South Korean investor for development of an iron and steel mill.	• Feasibility study on establishment of an integrated iron and steel mill was completed. • Scrap Metal Act, 2015 was enacted for regulation of dealings in scrap metal and establishment of the Scrap Metal Council.	Modernization of Numerical Machining Complex (NMCs) foundry plant and Computer Numerical Control (CNC) fabrication workshop was at 31 per cent as of June 2021, with a cumulative investment of Ksh 556.6 million out of the estimated cost of Ksh 1.79 billion.	Limited budgetary allocations. Iron and steel policy envisaged in MTP III is yet to be developed.
Transformation of KIRDI into a world class research institution	Transformation of KIRDI as a flagship programme was recognized, considering the need to undertake industrial research, technology transfer and innovation.	• Completed construction of the Kisumu Industrial Research, Technology and Innovation Laboratory. The leather laboratory was equipped. • Completed 60 per cent of the KIRDI Research, Technology and Innovation Laboratory in South B, Nairobi.	• Industrial research laboratories at KIRDI, Nairobi (South B) is 76.5 per cent complete while one in Kisumu is complete. • Upgraded common manufacturing facilities at KIRDI, Nairobi and equipped KIRDI, Kisumu with modern equipment (Leather, food, energy, and natural products facilities).	• Limited funding

Source: Authors' compilations from the Kenya Vision 2030 MTPs. Additional information on progress and challenges were referenced from the Report on General Economic and Commercial Affairs (GECA) Sector for the Medium-Term Expenditure Framework 2022/23–2024/25, unless otherwise stated

4.3 Assessments of Shocks Experienced in the Manufacturing Sector

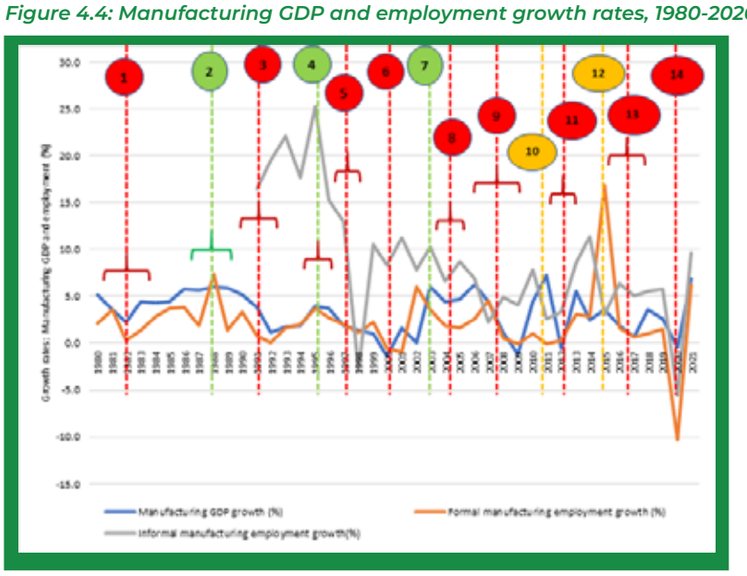
The historical analysis of shocks and stressors are assessed from manufacturing GDP growth rates and manufacturing formal and informal employment, mapping key hazards at the points of downturns (negative shocks/stressors) and upturns (positive shocks/stressors). Reference was then made to prior research, such as policy reports and academic publications, and economic surveys published by KNBS on likely shocks and stressors and their implications around the points of downturns and upturns. For the informal sector employment, the statistics became available only after the first comprehensive survey of MSMEs was carried out in 1993. The previous surveys of informal activities were carried out only in urban areas. The mapping in Figure 4.4 reveals 15 key points that guide mapping of key shocks and stressors since 1980, as subsequently elaborated in Table 4.4.

These analyses reveal that performance of the manufacturing sector is vulnerable to shocks and stressors originating from both domestic and external markets. Negative shocks related to domestic market mainly emanate from drought and election cycles while those emanating from external markets are linked to global recessions, surge in oil prices, and Kenya shilling depreciation against major currencies such as the US dollar. While droughts result from global activities contributing to climate change, such as greenhouse gas emissions, it directly affects domestic economy; for example, through water shortages, high costs of energy and depressed agricultural outputs that are a major supply of raw materials for agro-processing industries.

The World Bank Enterprise Surveys for Kenya 2018 reveal that political uncertainty is the third ranked obstacle to operations of manufacturing firms in Kenya (coming only after informal sector competition and access to finance) and is cited by 26.6 per cent of the surveyed manufacturing enterprises. Faced with political uncertainties during electioneering years, the enterprises reduce production and postpone capital investments owing to 'wait and see' decisions. Positive shocks arise from agricultural output resulting from rainfall abundance, and policy changes that catalyze private sector development, for instance the late 1980s Structural Adjustment Programmes (SAPs) and the Economic Recovery Strategy for Wealth and Employment Creation (ERSWEC) 2003-2007.

Three observations emerge from the employment trends in Figure 4.4. First, the employment growth rates have been on a downward trend since market liberalization in the early 1990s, which reflects the stress experienced from international competitive pressures. Second, the growth rates of informal employment were quite high in early 1990s, but there has been convergence over time between formal and informal employment growth rates. The higher growth rates for informal employment in the early 1990s can be explained by absorption of the labour force who exited from formal activities as the economy was being opened to international competition. Third, except for the impacts of COVID-19 in 2020, the growth rates of formal and informal employment tend to diverge during the other years, and this suggests possibility of exclusion hypothesis of informality, which suggests that limited opportunities in the formal activities drive growth of the informal sector (Perry et al., 2007).

Figure 4.4: Manufacturing GDP and employment growth rates, 1980-2020



The light green mirrors positive shocks

The red mirrors negative shocks

The orange mirrors updating of statistics based on periodic national surveys or census of enterprises by KNBS.

NB:

The sustained growth in manufacturing GDP and employment in 2000 to 2003 follows commencement of the African Growth and Opportunity Act (AGOA) preferential exports to the US markets. Exports to the US under AGOA increased from US$110.2 million in 2000 to US$249.3 million in 2003.

www.agoa.info/profiles/kenya.html

Data source: Kenya National Bureau of Statistics (Various), Economic Surveys

Table 4.4: Explanations of shocks and stressors faced by the manufacturing sector

SHOCK #	YEAR(S)	SHOCK/STRESSOR	IMPLICATIONS FOR MANUFACTURING SECTOR PERFORMANCE
1	1982-1984	Foreign exchange crisis/ oil price shocks; followed by prolonged drought of 1983-1984	Manufacturing GDP growth rate declined from 3.6 per cent in 1981 to 2.3 per cent in 1982 while formal manufacturing employment growth declined from 3.5 per cent to 0.3 per cent over the same period. The sector GDP growth averaged 4.4 per cent during 1983-1985 before recovering to 5.8 per cent in 1986. Formal manufacturing employment growth averaged 2.9 per cent over the same period before recovering to 7.3 per cent in 1988. The world merchandize trade declined by 2 per cent in 1982, with oil prices declining substantially, which saw developing countries affected through exchange rate crisis that resulted from sharp decline in exports (Kenya National Bureau of Statistics, 1983).
2	1986-1990	Structural Adjustment Programmes (SAPs)	This was a period of economic policy changes of privatizing public-owned entities as a condition for receiving additional loans and debt relief from the World Bank and the International Monetary Fund. Manufacturing GDP growth rates averaged 5.7 per cent during 1986-1990, with manufacturing formal employment growth rates averaging 5.0 per cent. The positive growth rates resulted from increased roles of the private sector owing to removal of market restrictions.
3	1991-1993	Severe, prolonged drought; and market liberalization.	The year 1991 to 1992 experienced severe droughts in Kenya that affected 2.7 million people in the country (Centre for Research on the Epidemiology of Disasters, 2021). Manufacturing sector GDP growth rates averaged 2.5 per cent during the 1991-1992 period, from an average of 5.7 per cent experienced during 1988-1990 period. Similarly, formal manufacturing employment growth rates declined to 0.4 per cent during 1991-1992 compared to 4.0 per cent experienced during the 1988-1990 period. There was, however, a growth of informal sector employment during this period, as those laid off from the formal sector or those finding difficulties in getting employment in the formal sector resorting to informal sector. The informal sector generally comprises semi-organized, unregistered and unregulated small-scale activities, predominantly undertaken by self-employed persons outside farming and pastoral activities.
4	1995-1996	Rainfall boost – adequate rainfall during the long rains season in most parts of the country	Increased agricultural output boosted agro-processing industries through increased supply of raw materials, particularly coffee, tea, wheat, horticulture, sugar cane and milk. Other developments included removal of bureaucratic bottlenecks, availability of foreign exchange/stability of the Kenya shilling and export-oriented incentives, which boosted resilience against import pressure. Manufacturing GDP growth rate averaged 3.8 per cent over 1995-1996 (an improvement from an average of 1.7 per cent recorded during 1990-1994. The informal manufacturing employment recorded highest growth rates as competitive pressure within the formal sector during the earlier period (particularly 1991-1993) pushed labour force into self-employment.

SHOCK #	YEAR(S)	SHOCK/STRESSOR	IMPLICATIONS FOR MANUFACTURING SECTOR PERFORMANCE
5	1997-1998	General elections in 1997; the El nino rainfall between May 1997 and February 1998; and strict enforcement of local authority by-laws and regulations in 1998.	The manufacturing sector GDP growth rate declined from an average of 3.8 per cent in 1995-1996 period to an average of 1.7 per cent during the 1997-1998 period. Similarly, the sector's formal employment growth declined from an average of 3.2 per cent to 1.5 per cent over the same period. The stricter enforcement of the local authority by-laws and regulations in 1998 followed the reforms introduced in administration of local authorities, including enactment of the Local Authorities Transfer Fund (LAFT) Act No. 8 of 1998 that required improved efficiency in qualifying for the LATF fund constituting transfer of 5 per cent of the national income tax from the then central government. Key among the qualifying requirements was development of a Local Authority Service Delivery Action Plan (LASDAP) and incremental growth of locally generated revenue. The El Nino rainfall contributed to infrastructure damages, thus weakened supply chains and costs of doing business within the economy.
6	2000	Prolonged drought that spilled over from 1999.	Manufacturing grew by an average of -0.2 per cent over the 1999/2000 period, with formal sector employment growing by 0.9 per cent over the same period. In contrast, informal manufacturing employment grew by 9.5 per cent, suggesting exclusion hypothesis of informality, which constrained opportunities in the formal sector drive activities and employment in the informal sector (Perry et al., 2007).
7	2003	Change of political administration and policy reforms.	The 2002 general elections marked a transition from the Kenya African National Union (KANU) government administration to the National Rainbow Coalition (NARC) administration, with commencement of policy reforms under the Economic Recovery Strategy for Wealth and Employment Creation (ERSWEC) 2003-2007. The political and policy changes boosted investor optimism and private sector led growth. Manufacturing GDP growth rate rose from 0.1 per cent in 2002 to 6.0 per cent in 2003.
8	2004-2005	Drought particularly May – September 2004 and fourth quarter of 2005; and rise in oil prices.	The high oil prices occasioned imported inflation, which was further compounded by food inflation emanating from droughts of May-September 2004. The average retail price of petroleum products increased by Ksh 10 in 2004, which was triggered by a surge in global demand (occasioned by global economic expansion especially China, Brazil, India and USA) and geopolitical risks/instability in oil producing countries such as Russia, Iraq and Venezuela, and damage of the US production by a series of hurricanes between June 2005 to January 2006.
9	2007-2009/10	Global financial crisis of 2007- 2008 2007 general elections; and 2007/2008 post-election violence.	The financial crisis commenced in the US and other developed economies before trickling to developing and emerging economies through reduced trade, investment channels and reduced remittances from developed to developing countries. There was also tightening of credit flows to the private sector. Consequently, manufacturing GDP growth in Kenya grew by 1.1 per cent in 2007 and -1.1 per cent in 2008 compared to an average of 5.5 per cent during the preceding two years. The employment growth particularly within the formal manufacturing also slowed down.
10	2011	Census of Industrial Production 2010 revised formal employment numbers.	The growth of formal manufacturing employment was positive 7.2 per cent as a result of revised numbers following the 2010 Census of Industrial Production; essentially this was not a shock. The revised numbers mirror the evolving structure of the economy that is established through census of industrial enterprises, including manufacturing. This reflects growth in manufacturing that was not factored into the statistics during the previous years.
11	2011-2012	Prolonged drought that spilled over from 2009 through 2011; high cost of fuel and weakening of Kenya shilling.	The prolonged drought dampened recovery from the global financial crisis of 2007-2009 as it lowered supply of raw materials for agro-processing industries. Manufacturing was further negatively affected by high costs of fuel and weakening of the Kenya shilling, which increased costs of production through higher costs of imported raw materials.

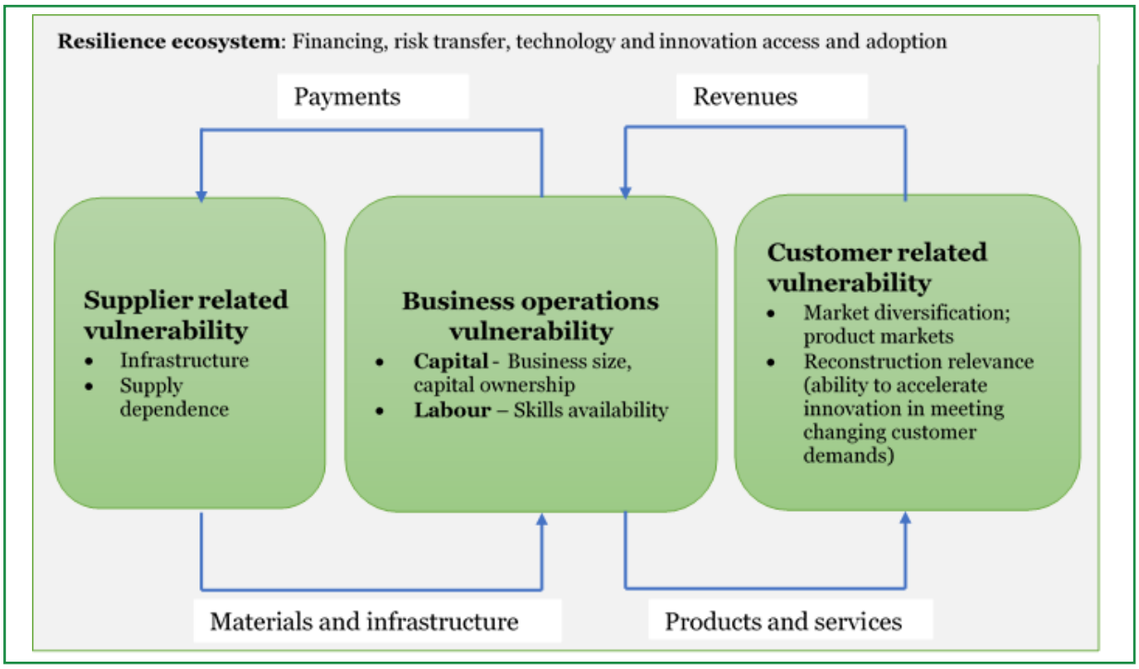
SHOCK #	YEAR(S)	SHOCK/STRESSOR	IMPLICATIONS FOR MANUFACTURING SECTOR PERFORMANCE
12	2015	Census of Industrial Production 2018 revised formal employment numbers.	The spike observed for 2015 resulted from updating of industrial structure data, based on the 2018 Census of Industrial Production and Construction by KNBS; essentially this was not a shock. This reflects growth in manufacturing that was not factored into the statistics during the previous years.
13	2016-2017	2017 general elections; and prolonged drought characterized by below average rainfall from 2014 through 2016.	The annual rainfall averaged 691mm during 2014 to 2016, a decline from an average of 762mm experienced in 2012 and 2013.
14	2020-2021	COVID-19 pandemic	This has been one of the severe shocks experienced, with manufacturing GDP recording a negative growth rate of -0.4 per cent in 2020, subsequently recovering to a growth rate of 6.9 per cent in 2021. Further, formal and informal manufacturing employment recorded negative growth rates -10.3 per cent and -5.6 per cent, respectively. The adverse impacts resulted from global supply chain disruptions, temporary restrictions on inter-county movements, reduced working hours due to night curfews, and social distancing directives in line with public health guidelines.
15	2022	Russia-Ukraine conflict	Although data on impact of the conflict on Kenya's economy is not yet available, the Russia-Ukraine conflict has implications for development of manufacturing through various channels such as energy prices (particularly oil and coal), supply chain disruptions and increased costs of logistics. Manufacturing, particularly agro-processing, is expected to be adversely affected owing to disruptions of imports of copper, wheat, fertilizer, iron and steel, aluminium and paper/paper products from Russia. The imports of these six products from Russia in 2020 was worth US$ 345.6 million (Ksh 36.8 billion). According to the International Trade Centre (2021a) in 2020, Kenya imported 27.0 per cent of copper, 18.0 per cent of wheat, 16.0 per cent of fertilizers, 13.0 per cent of iron and steel, and 7.0 per cent of aluminium from Russia. Thus, Kenya's industrial sector substantially depends on Russia for critical supplies.

Source: Authors' compilations based on KNBS (Various), Economic surveys; literature and climate data portals: World Bank's Climate Change Knowledge Portal (CCKP) (https://climateknowledgeportal.worldbank.org/download-data) and the Em-Dat's International Disaster Database (https://www.emdat.be/).

4.4 Manufacturing Sector Resilience Assessments

The adverse socio-economic impacts of COVID-19 underscore the importance of building resilience at the firm level, considering increasing frequencies of shocks and stressors emanating from climate change risks, economic downturns, pandemics, investor apathy related to election cycles, and nationalist policies adopted by trading partners such as recently experienced with the US and the UK. Resilience building is essential to build capacity of firms to absorb shocks and stressors, recover critical functionality and operate in altered circumstance or what has recently been termed as the 'new normal'. The resilience of industrial firms particularly in the context of manufacturing sector are important for a few reasons (World Bank, 2020b; Zhang et al., 2009; Lo et al., 2021): First, to minimize damages, losses and recovery costs, which translates into enhanced industry competitiveness; second, to promote continuity and growth in the face of shocks and stressors; and third, to enhance business reputation by being less vulnerable to shocks and stressors, which attracts external financing opportunities and lower costs of insurance. Resilience assessment at the firm level is undertaken using a conceptual model proposed by Zhang et al. (2009) that identifies three areas of vulnerabilities/weaknesses: supplier-related vulnerabilities, business operations vulnerabilities, and customer-related vulnerabilities (Figure 4.5). The vulnerabilities related to the three areas can be lessened by having a conducive ecosystem for financing, risk-transfer mechanisms, technology and innovation access and adoption for responding to, and cushioning business operations against adverse impacts of shocks and stressors. Thus, the conceptual model by Zhang et al. (2009) is extended by integrating resilience ecosystem as shown in Figure 4.5.

Figure 4.5: Enterprise level vulnerability dimensions



Source: Adapted from Zhang et al. (2009)

a) Supplier-related vulnerability

The supplier vulnerabilities include utilities and critical infrastructure that supports business resilience. These include electricity, water, transportation, communication, sanitation and waste disposal management. Businesses can also be affected indirectly when other businesses they depend on for input and services are affected through supply chain disruptions (Zhang et al., 2009; Lo et al., 2021). This implies that businesses with supply chain concentrated in one geographical area prone to shocks tend to be more vulnerable.

Manufacturing enterprises operating within the formal sector face infrastructure vulnerabilities related to electricity, water and transport. The World Bank Enterprise Survey for Kenya 2018 reveals challenges related to infrastructure vulnerabilities within the formal manufacturing sector in Kenya: 89.5 per cent of the enterprises reported facing electricity outages, with a typical outage averaging 6.4 hours. Consequently, 32.0 per cent of the manufacturing firms report supply and costs of electricity as a major constraint to their operations compared to other obstacles

faced. Medium and large enterprises are generally electricity-intensive, and their performance is affected by cost and quality of energy supply. Access to water is also a key challenge, with 32.8 per cent of the formal manufacturing firms reporting to experience water insufficiencies in a typical month. The World Bank Enterprise Survey 2018 further reveals that the highest proportion of firms facing water insufficiencies are involved in manufacture of chemicals, plastic and rubber at 47.0 per cent, and food manufacture at 37.2 per cent. An average number of 3.3 water insufficiencies are experienced by manufacturing firms in a typical month. Further, transport infrastructure is reported by 20.4 per cent of the formal manufacturing enterprises as a major challenge, with a higher rate among the food manufacturers at 26.8 per cent.

Infrastructure vulnerabilities within the informal sector mainly relate to utilities (electricity and water), roads for accessing worksites, drainage, waste disposal facilities, access to social amenities and adequacy of shared facilities for MSEs, as revealed in KIPPRA's report on the County Business Environment for Micro and Small Enterprises in Kenya (Musamali et al., 2019). The 2016 MSME survey reveals that while 81.6 per cent of the manufacturing MSEs mostly operating within the informal sector report to have access to electricity, a lower proportion (74.0%) report to be actually connected; the main constraints being high costs of electricity, perceived inefficiencies of electricity supply, and cumbersome connection processes (Kenya National Bureau of Statistics, 2016). Further, 56.8 per cent of the manufacturing MSEs report to access water through piped water, with the remaining 43.2 per cent accessing through other avenues such as water vendors, ponds/dams, lake, streams, and rainwater harvesting (Kenya National Bureau of Statistics, 2016). The 2016 MSME Survey further reveals that only 31.5 per cent of the manufacturing MSEs operating mainly within the informal sector rate roads for accessing the worksites as 'good', with those rating it as 'fair' or 'bad' at 37.9 per cent and 30.6 per cent, respectively. An above average proportion (56.4%) of these enterprises, however, report that the roads for accessing their worksites are either tarmacked or graded/gravelled, while those with earth, murram and foot paths being 25.6 per cent, 16.1 per cent, and 1.6 per cent, respectively. Within the informal sector, there are challenges related to drainage and waste disposal, shared manufacturing facilities, and access to social amenities (Musamali et al., 2019). The 2016 MSME Survey shows that 51.7 per cent of the manufacturing MSEs, mostly operating in the informal sector use burning and dumping as means of solid waste disposal, with only 45.8 per cent reporting collection by county governments or private companies. Further, 28.4 per cent report to use open space for effluent disposal. These infrastructure challenges increase incidences of hazards such as disease outbreaks, fire and floods owing to clogging of waterways. These adversities also constrain access to customers through spillover effects, given majority of informal enterprises depend on direct person-to-person interactions in their transactions.

Supplier vulnerabilities of manufacturing enterprises can also emanate through sources of raw materials. About 63.0 per cent of the Kenya manufacturing enterprises report to import raw materials (World Bank, 2019). The proportion of enterprises importing raw materials is higher among those manufacturing chemicals, plastic and rubber (82.0%), and textiles and garments (64.0%) but lower for manufacture of food products (39.0%) that dominate the sector. This implies that manufacture of food products is more vulnerable to local shocks and stressors while manufacture of chemicals, plastics, rubber, textiles and garments are prone to regional and global shocks that disrupt the supply chains or production in source markets. Further, 62.0 per cent of MSEs import raw materials compared to 71.0 per cent for medium and large enterprises, implying that MSEs have more exposure to local shocks and stressors than medium and larger firms that are more exposed to regional and global supply chain disruptions.

High technology manufacturing is relatively dependent on imported materials compared to medium and low technology manufacturing (World Bank, 2019). For low technology manufacturing enterprises, only 30 per cent of expenditures on raw materials was on imports, compared to medium and high technology manufacturing at over 45 per cent. This means that local value chain is under-developed for high technology manufacturing. Consequently, high technology manufacturing in Kenya is expected to be vulnerable to external shocks that affect global supply chains of raw materials compared to low technology manufacturing that tends to source raw materials from domestic markets. Regarding infrastructure challenges, a higher proportion of manufacturing enterprises in medium technology activities cite it to be of more constraint compared to high and low technology manufacturing. This implies that challenges of physical infrastructure create vulnerabilities among the medium technology manufacturing compared to high and low technology manufacturing.

b) Business operations vulnerability

As aforementioned, manufacturing in Kenya is predominantly characterized by MSEs, majority of which operate informally. The large share of informal enterprises and the associated informal employment reveals vulnerabilities on various fronts. Foremost, the informal sector is characterized by weak social protection, inferior working conditions and occupational risks that are magnified during shocks such as the COVID-19 (International Labour Organization, 2021). Besides the environmental challenges, key hazards associated with informal manufacturers result from inadequate workspaces, and insufficient safety gears such as boots, helmets and hand gloves (Musamali et al., 2019). Among all the workers in the informal manufacturing enterprises, 72.3 per cent are owners/self-employed persons while wage employees are 27.7 per cent (Kenya National Bureau of Statistics, 2016). Further, among the persons working within the informal manufacturing enterprises, only 4.7 per cent and 36.6 per cent make contributions to the National Social Security Fund (NSFF) and the National Hospital Insurance Fund (NHIF), respectively (Kenya National Bureau of Statistics, 2020d). These statistics reveal the magnitude of vulnerabilities of persons working within informal manufacturing.

Capital vulnerabilities imply that businesses that depend on leased or rental assets are more vulnerable to shocks and stressors compared to those who own such assets, as liquidity becomes depressed in the face of shocks and stressors, partly due to the need to meet creditors' obligations. The MSEs, particularly those operating informally, have challenges of ownership/user rights to the worksites and are vulnerable to evictions either due to planned development by the government or private sector developers' repossession of the land (Musamali et al., 2019). Businesses facing these vulnerabilities are further constrained to borrow in meeting financial obligations; first to avoid further burden of debt, and secondly exclusion by lenders. Larger enterprises are generally less vulnerable, since they have better capacity for investments in resilience measures, diversified business activities and access to financial instruments such as credit and insurance markets (Zhang et al., 2009). Insurance promotes resilience of enterprises through transfer of business risks, with secondary benefits such as credit market development by reducing borrower risks (Thom et al., 2019). These features would promote investments, business continuity and growth.

Gender disparities can also have implications for resilience of businesses through capital and other channels such as entrepreneurial skills, access to resources including finance, and spillover of gender roles at the household level. As experienced during the COVID-19 pandemic, women disproportionately bear the burden of shocks and stressors as care givers to the elderly, the sick and the children, which tends to compete with entrepreneurial activities and paid work. Further, when economic conditions worsen financial institutions are more risk-sensitive, and women-owned enterprises are disproportionately affected in accessing credit due to low collateral base. A study by the International Finance Corporation (IFC) across 13 Sub-Saharan African economies reveals that women-owned MSMEs faced a higher sales decline and increased operating costs compared to men-owned MSMEs (International Finance Corporation, 2021). The economies covered include: Kenya, Ethiopia, Rwanda, Tanzania, Uganda, Democratic Republic of Congo, Cameroon, Ghana, Nigeria, Senegal, Madagascar, South Africa and Zambia. The World Bank Enterprise Survey for Kenya reveals that even before the COVID-19 pandemic, 34.0 per cent of enterprises having female-top-managers identify access to finance as a major constraint compared to 28.0 per cent for firms having male-top-managers.

The World Bank Enterprise Survey for Kenya, 2018 reveals that 76.7 per cent of medium and large enterprises own the land where they operate from, compared to 48.3 per cent for MSEs. The 2016 MSME survey reveals a comparable picture for the manufacturing MSEs, with 49.1 per cent owning the land from which they operate.

Labour vulnerabilities result from disruption of labour supply; for example, through illness, relocation, logistics disruptions. Further, labour vulnerabilities emanate from ease of its replacement, and it can be severe for businesses that depend on specialized skills that would require relatively longer to be replaced. Skills for technological upgrading is a more severe

constraint compared to the general skills requirements among Kenyan manufacturing firms. A larger proportion, 36.3 per cent, of the manufacturing firms rank constraints related to technological upgrading as moderate to very severe, compared to constraints related to general skills requirements in form of inadequately educated workforce at 26.7 per cent on the same scales (World Bank, 2019). The skills for technological upgrading are particularly severe among MSEs compared to medium and large enterprises, cited by 38.2 per cent and 32.9 per cent of the enterprises, respectively, on a scale of moderate to very severe obstacle. In contrast, general skills requirements in form of inadequately educated workforce is reported by 24.9 per cent of the manufacturing MSEs as moderate to very severe obstacle, compared to 29.5 per cent for medium and large enterprises.

Across the technology intensity dimension, a higher proportion of high technology manufacturing enterprises report that both general skills and skills for technology upgrading are of moderate to severe constraints (World Bank, 2019): 40.2 per cent and 48.8 per cent of high technology manufacturing enterprises report general skills and skills for technology upgrading as moderate to severe constraints, respectively, compared to low technology manufacturing enterprises at 24.1 per cent and 34.2 per cent on the same ratings. The proportion of medium technology manufacturing enterprises reporting general skills and skills for technology upgrading were 18.35 per cent and 34.2 per cent, respectively. Overall, it is evident that skills for technology upgrading of a more severe constraint, particularly among the high technology manufacturing enterprises.

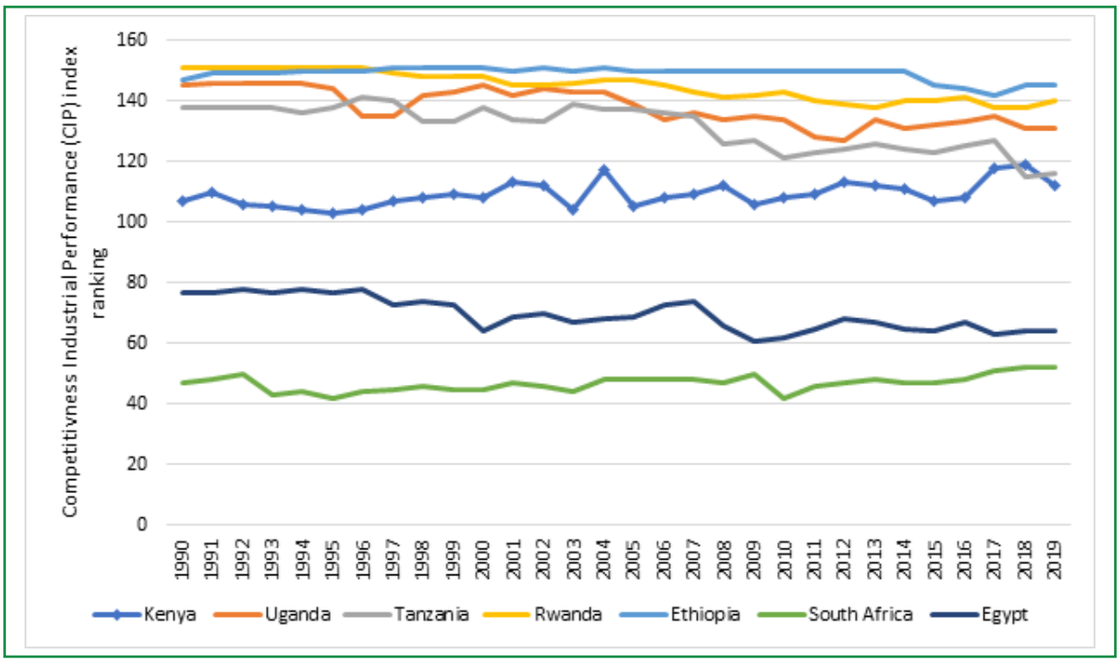
c) Customer-related vulnerability

When customers are faced with shocks and stressors, their preferences and choices can change owing to affordability and changes in contexts or environment. Thus, ability of businesses to innovate and adapt to such changes is imperative. Concentration of product markets can also increase vulnerabilities when the principal market is affected (Lo et al., 2021). The 2016 MSME survey reveals that product markets for MSEs are concentrated among individual consumers and other MSEs within the domestic economy, with limited linkages with medium and large enterprises and export markets. This is considering that 89.2 per cent of the manufacturing MSEs sell their products to individual consumers, 8.0 per cent sell to other MSMEs, 1.8 per cent sell to large enterprises and 0.2 per cent engage in export markets. Within the formal sector, the World Bank Enterprise Survey for Kenya 2018 reveals that 20.5 per cent of the Kenyan manufacturing firms' sales are exported, compared to 79.5 per cent that is sold to the domestic market. Larger proportions of exporters are in the manufacture of food (44.3%), textile and garments (39.4%) and chemicals, plastics and rubber (38.1%).

The MSEs, particularly those operating informally, have amplified challenges in accessing domestic and export markets (Musamali et al., 2019), resulting from weak technical capacity for quality, standardization and certification of products, and information asymmetry for exploiting Access to Government Procurement Opportunities (AGPO). The information asymmetry in accessing AGPO by MSEs results from awareness challenges, procedures for prequalification and compliance documentation such as business registration and tax compliance (Musamali et al., 2019).

Industrial competitiveness is a key indicator of capacity to access markets and nurture resilience to international competition. For instance, Kenya's manufactured exports to the East African Community (EAC) market has declined in recent years owing to cheaper imports from countries such as China and India, and improved competitiveness among the EAC economies such as Tanzania and Uganda. Figure 4.6 illustrates trends in the Competitiveness Industrial Performance (CIP) index rankings compiled by the United Nations Industrial Development Organization (UNIDO). Lower rank towards 1 corresponds with a higher competitiveness. The competitive industrial performance index 2020 provides competitive of the countries from 1 to 152. The CIP index measures how well the manufacturing sector of an economy contributes to development, including through the capacity to produce and export and technological deepening (UNIDO, 2020). Kenya's industrial competitiveness has been marginally deteriorating while those for neighbouring countries, including Tanzania and Uganda and competitors such as Egypt have been marginally improving over the years.

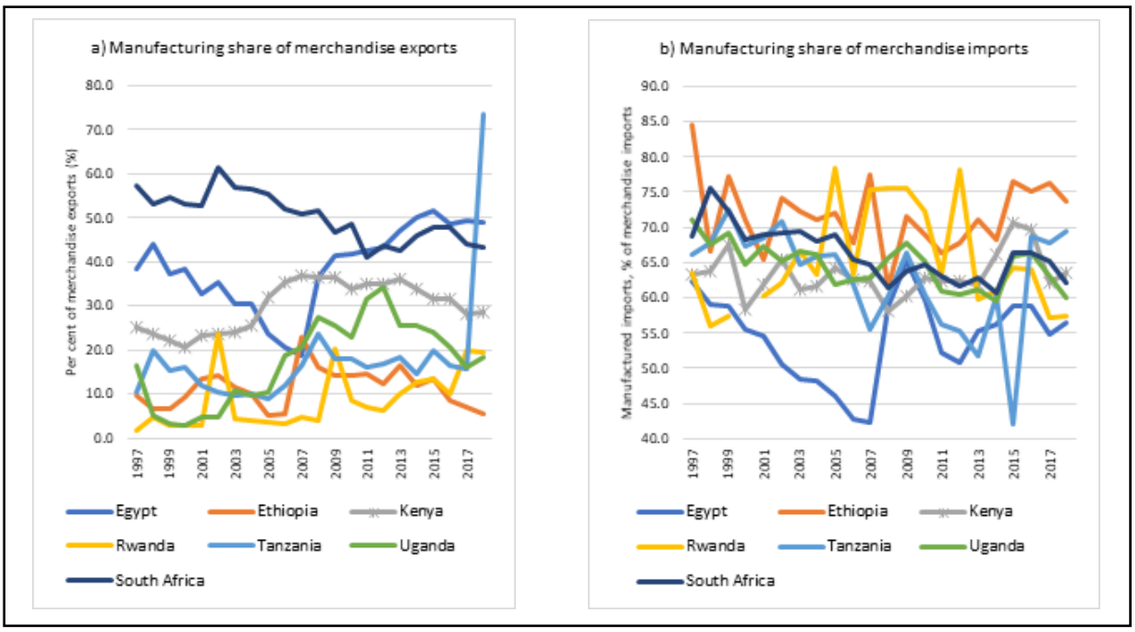
Figure 4.6: Comparative performance of competitive industrial performance rankings, 1990-2019



Data source: UNIDO (2021c)

The weakening of the manufacturing sector competitiveness has contributed to increased share of imports, but lower share in merchandise exports as shown in Figure 4.7. While the share of manufacturing in merchandise exports shows declining tendency for Kenya, the share in merchandise imports is relatively volatile, though between 2008 and 2015 it was on an upward trend. The declining share of manufacturing in merchandise exports signals that Kenya is increasingly exporting raw materials relative to processed products. This can be due to costs of production that either favour export of raw materials or simply low activities within the manufacturing sector. The increasing share of manufacturing in merchandise imports and the declining share in merchandise exports signals lower wealth creation opportunities within the domestic economy to support employment and incomes for development.

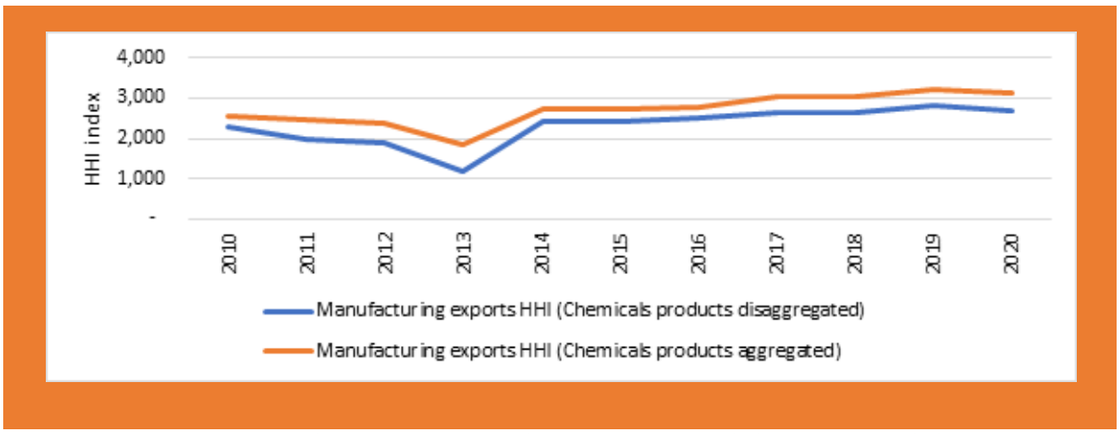
Figure 4.7: Comparative manufacturing share in merchandise imports and exports



Data source: World Bank (2021c)

The diversification of export products demonstrates the ability to minimize risks associated with concentration in few products. As of 2020, exports of chemicals, leather and footwear, textile, machinery and transport equipment, paper and printed matter accounted for about 51.4 per cent of the domestically manufactured exports. The concentration index (Figure 4.8) using the Herfindahl-Hirschman Index (HHI) reveals that the share of manufacturing exports structure has been narrowing. The range of HHI is generally between 1 (least concentrated) to 10,000 (for most concentration). The trends in Figure 4.8 reveal that the HHI within the last decade was lowest in 2013 and has been increasing since then, with a marginal decline in 2020. This implies that the value of exports of manufactured products is increasingly being concentrated in few products. When chemical products are aggregated, the concentration is higher by 16.1 per percent in 2020. The trend in HHI index for manufactured exports, therefore, reveals increasing concentration of product ranges, attributed to growth of chemical products such as detergents, toiletries, agrochemicals and paints. The share of chemical products in manufacturing GDP has increased from 5.4 per cent in 2005 to 8.5 per cent as of 2019 (UNIDO, 2021d).

Figure 4.8: Concentration of manufactured export products, 2010-2020



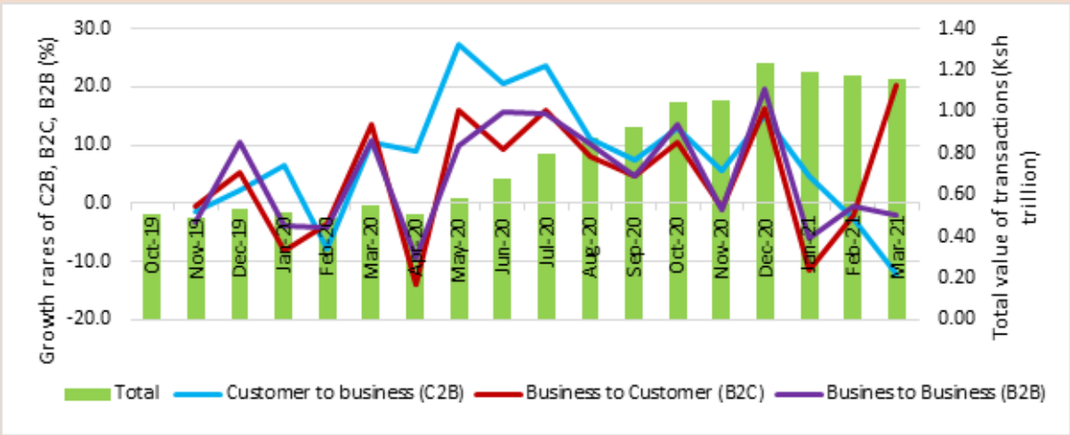
Data source: Author's calculations from Kenya National Bureau of Statistics (2021b), Statistical Abstract

The Industrial Development Report 2022 reveals stronger resilience to the impact of COVID-19 among manufacturing enterprises in medium and high technology industries compared to those in labour-intensive but low technology manufacturing (UNIDO, 2021b). The share of medium and high technology manufactured exports in total manufactured exports for Kenya remains low at 23.6 per cent compared to competitor economies including China (60.3%), India (36.7%), South Africa (46.0%) and Egypt (32.0%) (UNIDO, 2021e). At firm level, a substantial proportion of sales for high technology manufacturing enterprises are directly exported (15.6%) compared to those of medium technology manufacturing enterprises (5.1%) and low technology manufacturing enterprises at 13.4 per cent (World Bank, 2019). Thus, diversification into high technology manufacturing can serve the twin roles of building resilience and exports growth.

d) Resilience ecosystem

The ecosystems in which businesses operate, including technology, innovation and financing opportunities are vital for supporting business continuity, supply chain management and competitiveness across the three levers of vulnerabilities shown in Figure 4.5. As experienced during the COVID-19 pandemic, innovation and technology adoption is vital for businesses resilience (UNIDO, 2021b). Firms with advanced digital technologies were resilient in performance indicators such as employment, sales and profitability. As illustrated in Figure 4.9, technology-based transactions can be of immense support to businesses during shocks. At the onset of COVID-19 and the accompanying government restrictions such as inter-county movements, there was a surge of mobile commerce of various business models: Customer to Business (C2B), Business to Customer (B2C) and Business to Business (B2B). The total value mobile commerce increased from Ksh 0.55 trillion in March 2020, the month in which COVID-19 was reported in Kenya, reaching Ksh 1.24 trillion in December 2020 before experiencing a downward trend.

*Figure 4.9: Value of mobile commerce by type of business model**



*Data source: Communications Authority of Kenya (2021b); *Due to lack of sector-specific disaggregate data, the data illustrated is for all businesses in different sectors*

Low technology sub-sectors are less intensive in innovation input such as R&D investment and this constrains capabilities to adapt to shocks and establishment of defensive shields against competitive pressure. The structure of Kenya's manufacturing GDP based on technological classification is as follows (Table 4.5): Low technology sub-sectors (74.9%); medium technology sub-sectors (9.8%); and medium high and high technology sub-sectors (15.3%). The last column of Table 4.5 shows that innovation input (R&D intensity and employee innovation-related training) and innovation outcomes as indicated by process and product innovations are generally higher among high technology sub-sectors and lower among low technology sub-sectors. These statistics suggest that for Kenya to diversify into medium and high technology manufacturing, considerations of innovation ecosystem such as R&D infrastructure, avenues for knowledge flows through collaboration of the industry, academia and research institutions, and incentives for prototype development are vital.

Table 4.5: Kenya's manufacturing sub-sectors technological intensity structure, 2020

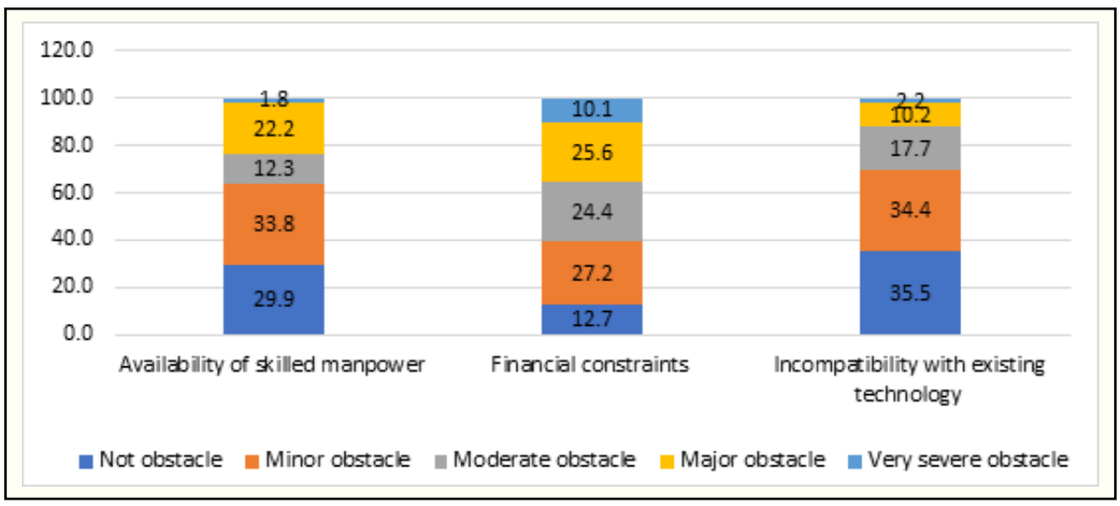
Manufacturing technology classification	Share in manufacturing GDP	Sub-components and composition within cluster (%)			Innovation input and outputs
		Sub-sectors	Value added Ksh millions	%	
Medium high and high technology	15.3	Chemicals and chemical products	73,006	58.3	**Per cent of firms doing:** • R&D: 34.1% • Employee training for innovation: 55.4% • Product innovation: 56.5% • Process innovation: 35.9%
		Pharmaceuticals	24,966	19.9	
		Electrical equipment	6,624	5.3	
		Machinery and equipment n.e.c.	4,622	3.7	
		Other transport equipment, except ships and boats	16,104	12.9	
		Sub-total	**125,332**	**100.0**	

Manufacturing technology classification	Share in manufacturing GDP	Sub-components and composition within cluster (%)			Innovation input and outputs
		Sub-sectors	Value added Ksh millions	%	
Medium technology	9.8	Rubber and plastic products	9,544	11.9	**Per cent of firms doing:** • R&D: 26.2% • Employee training for innovation: 55.4% • Product innovation: 53.0% • Process innovation: 34.9%
		Other non-metallic mineral products	18,634	23.3	
		Basic metals	25,394	31.7	
		Other manufacturing except medical and dental instruments	10,396	13.0	
		Repair and installation of machinery and equipment	16,102	20.1	
		Sub-total	**80,070**	**100.0**	
Low technology	74.9	Food and food products	365,637	59.7	**Per cent of firms doing:** • R&D: 17.1% • Employee training for innovation: 46.0% • Product innovation: 45.3% • Process innovation: 24.6%
		Beverages	103,242	16.8	
		Tobacco	2,182	0.4	
		Textile	16,471	2.7	
		Wearing apparel	28,778	4.7	
		Leather and related products	14,682	2.4	
		Wood, wood products and cork	6,101	1.0	
		Paper and paper products	31,702	5.2	
		Printing and reproduction of recorded media	18,258	3.0	
		Fabricated metal products	11,039	1.8	
		Furniture	14,868	2.4	
		Sub-total	**612,690**	**100.0**	
Total			**818,352**		

Data source: Kenya National Bureau of Statistics (2020b); The clustering is based on UNIDO's classification of manufacturing sectors by technological intensity. n.e.c. means 'not elsewhere classified'. Innovation inputs and outputs are calculated from World Bank Enterprise Survey for Kenya, 2018

Manufacturing firms in Kenya face various constraints to technological upgrading, notably those relating to financing of which 60.1 per cent of the enterprises cited it to be a moderate to very severe obstacle (Figure 4.10). This is followed by constraints related to the availability of skills and incompatibility with existing technology, for which 36.3 per cent and 30.1 per cent of the enterprises cited moderate to severe constraints, respectively.

Figure 4.10: Constraints to technological upgrading



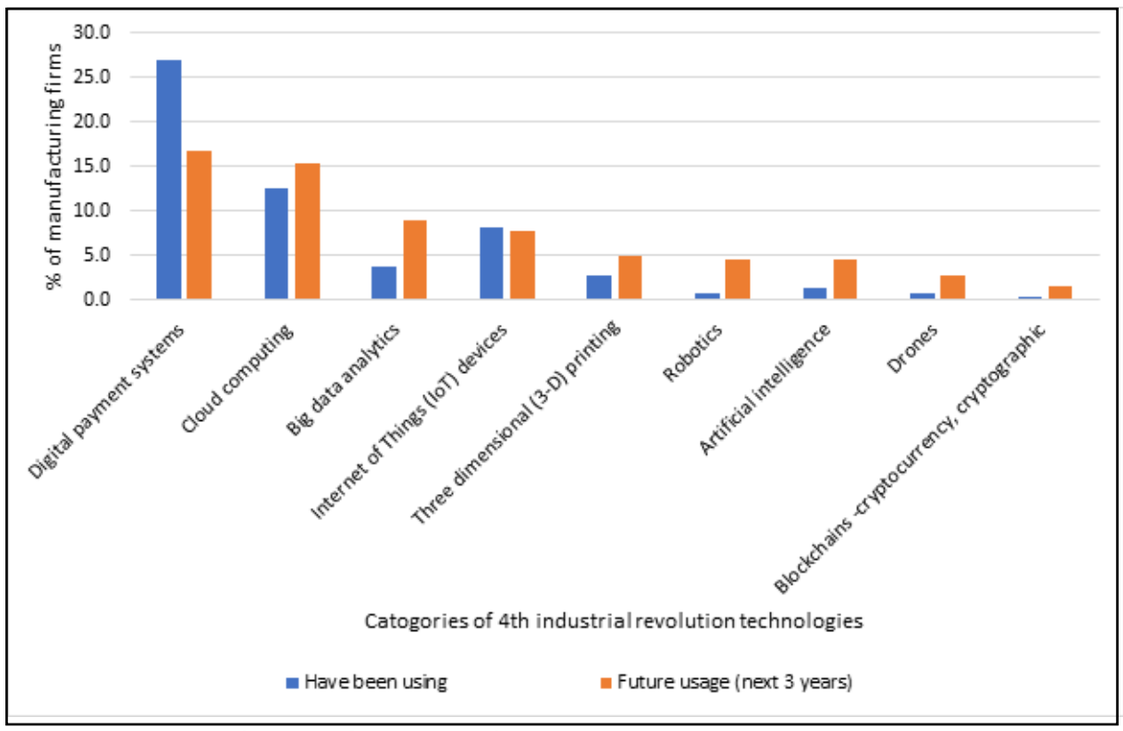
Data source: World Bank (2019), Enterprise Survey for Kenya 2018

Another challenge related to technological upgrading is low Foreign Direct Investment (FDI) inflows to the manufacturing sector, resulting to low technology transfer. The Foreign Investment Survey 2020 reveals that manufacturing accounts for 14.8 per cent of FDI stock compared to other sectors such as finance and insurance (33.2%), information and communication (16.1%), and wholesale and retail trade at 15.4 per cent (Kenya National Bureau of Statistics, 2020c).

Adoption of the fourth industrial revolution (industry 4.0 or the 'smart factory'), which entails investments in digital technologies for production processes and supply chain management is proving vital in promoting business resilience (UNIDO, 2021b). The fourth industrial revolution is characterized by complementarity and convergence of emerging technologies, including advanced digital production technologies, Internet of Things (IoT), artificial intelligence (AI), advanced robotics, big data analytics and additive manufacturing (also known as 3D printing), among others. The key channels of resilience are realized through industry 4.0, including rapid prototyping at lower costs, adoption of new business models, workplace safety, reduced operating costs, flexibility in customization to changing customer preferences, and overall employee experiences. Uptake of industry 4.0 technologies is also associated with advanced manufacturing activities, particularly those in medium and high technology manufacturing such as pharmaceuticals, electronics and machinery.

There are, however, constraints to adoption of industry 4.0 particularly within developing economies, including skills deficit-related to Science, Technology, Engineering and Mathematics (STEM) courses; infrastructure deficit, digital incompatibility (new versus old technologies); and access and affordability (UNIDO, 2019). A combination of these challenges implies that even when countries in developing countries such as Kenya tend to embrace industry 4.0, dependence on providers of software and hardware in developed economies remains high, thus increasing supplier-related vulnerabilities. Figure 4.11 details uptake of various industry 4.0 technologies among Kenyan manufacturing enterprises. Compared to the existing usage, more enterprises reported they are willing to embrace these technologies in the medium-term. A larger share of enterprises report uptake in digital payment systems, cloud computing and Internet of Things (IoT). Those lagging in the uptake include big data analytics, robotics and artificial intelligence, yet these technologies are particularly of importance to building resilience of manufacturing enterprises (UNIDO, 2021b). Low uptake of industry 4.0 in Kenya reflects the realities across developing and emerging economies (UNIDO, 2021b): In Africa, 36.0 per cent of firms are characterized as analogue. Further, only 1.2 per cent of firms in Africa and Latin America are characterized as adopting industry 4.0 compared to 1.9 per cent for Asia.

Figure 4.11: Adoption of industry 4.0 technologies by manufacturing firms



Source: Kenya National Bureau of Statistics and Communications Authority of Kenya (2016), Enterprise ICT Survey 2016

Other indicators reveal that technology uptake in Kenya is higher among the medium and large enterprises compared to MSEs (Table 4.6). These include technology for supporting operational transactions such as pay bill accounts and till/ merchant accounts and those that facilitate interconnectivity such as website, Internet and extranet.

Table 4.6: Other technology-related indicators among manufacturing firms in Kenya

	Micro	Small	Medium	Large	All
Enterprises with pay bill account	13.5	23.9	35.0	37.6	28.6
Enterprises with till/merchant accounts	9.5	11.9	13.8	18.3	13.4
Enterprises using mobile banking	23.0	30.8	33.8	28.0	30.0
Enterprises with internet	67.6	94.3	99.4	100.0	93.0
Enterprises with intranet	27.0	35.2	55.0	63.4	45.9
Enterprises with extranet	6.8	13.8	25.0	30.1	19.5
Enterprises with website	32.4	45.3	63.8	74.2	54.9
Enterprises that lost data through virus attacks	27.0	30.2	30.0	25.8	28.8

Source: Kenya National Bureau of Statistics and Communciations Authority of Kenya (2016), Enterprise ICT Survey 2016

Other key elements of resilience ecosystem are access to affordable finance. Financial instruments are required for investments in emerging opportunities such as accelerated innovation and to facilitate risk transfer across economic units and time. Thus, finance serves both as a 'robustness' tool for absorbing shocks and stressors and 'readiness' tool for transformation, recovery, and initiating strategic changes in business operations (UNIDO, 2021b). The vital elements of financial instruments are credit and insurance markets. According to the business vulnerability dimensions by Zhang et al. (2009), enterprises that have limited access to affordable financial instruments are predicted to be more vulnerable to shocks and stressors resulting from various hazards. While the firms in both formal and informal sectors face constraints in access to financial services, the later are disproportionately affected. The firms in the informal sector face multiple challenges such as assets ownership and record keeping, which make them less attractive to financing. Within the formal sector, the World Bank Enterprise Survey for Kenya 2018 reveals that only 27.0 per cent of MSEs have access to bank loan compared to medium and large enterprises at 44.8 per cent and 58.9 per cent, respectively (World Bank, 2019). Within the informal sector, the Informal Sector Skills and Occupations Survey (Kenya National Bureau of Statistics, 2020d) reveals that access to credit is the most severe obstacle, cited by 56.8 per cent of firms. Indeed, a survey of policy makers across 44 developing and emerging economies reveal that the key measures used by governments to support resilience of firms during COVI-19 pandemic included (UNIDO, 2021b): deferral of interests on loans (73.0%), access to credit (67.0%), and tax exemptions or reductions (65.0%).

Another element of business resilience ecosystem is access to affordable risk management instruments. The impacts of COVID-19 through supply chain disruptions and downsizing or temporary closure of businesses related to public health protocols elicited debates on who should bear the costs and avenues for promoting resilience of firms. Weak or absence of sufficient risk management instruments increases vulnerabilities of enterprises and their employees. An emerging financial instrument that is gaining policy attention is the business interruption insurance, designed for compensating businesses for damages to property, temporary downsizing or suspension of operations (OECD, 2021). Business interruption insurance serves to provide income replacement but would also include property damages and liability. In the absence of business interruption insurance, losses such as those that resulted from COVID-19 are wholly bone by businesses. Development of business interruption insurance is already gaining policy interests across the world particularly in the US, France, Germany and South Africa. For instance, in the German State of Bavaria, insurance companies voluntarily agreed to compensate 10-15% of the normal daily cost of business interruption, while within some jurisdictions in the US such as the State of California, legislative proposals were initiated to allow insurers make voluntary compensation for COVID-19-related business interruptions, which is then to be reimbursed by the government (OECD, 2021). As longer-term policy interventions to pandemic-like shocks, policy stakeholders in various jurisdictions are considering loss-sharing business interruption insurance programmes to lower the burden of mass compensation that may fall on insurance companies (OECD, 2021). Critical policy questions, however, still remain, for instance pricing such risks, the extent of compensation and the need to cushion insurance companies against losses in compensations that involved catastrophic events.

4.5 Key Messages

1. While manufacturing propels development through forward and backward linkages with other sectors, its growth and contribution to the economy is constrained by the challenges it faces. These include provision of infrastructural services, access to affordable finance, access and costs of utilities particularly electricity and water. Further, solid waste disposal systems remain a key challenge for Micro and Small Enterprises (MSEs), majority of which operate within the informal sector. Between 2016 and 2020, the manufacturing sector contribution to national GDP declined by 1.7 percentage points while the contribution to the industrial sector GDP declined by 3.5 percentage points.

2. Manufacturing in Kenya is concentrated in low technology activities, which are labour-intensive but have limited contribution to GDP and export earnings. The main activities within these low technology activities include manufacture of food, beverages, textile, apparel, leather and furniture products. While these activities are labour intensive, accounting for over 80 per cent of manufacturing jobs in Kenya, there are challenges related to exports growth and increasing the sector's contribution to GDP to at least 15 per cent. Medium and high technology manufacturing are more dependent on R&D, financial capital investments, and advanced skills compared to low technology manufacturing.

3. The realization of the Kenya Vision 2030 manufacturing targets and flagship programmes is constrained by inadequate public funding and weakening competitiveness relative to manufacturing in other economies including Tanzania, Rwanda, South Africa, Egypt, China and India. Moreover, exports to EAC for enterprises operating in EPZs are constrained by the 20 per cent cap on sales to domestic markets. Given EAC is categorized as a domestic market under the EAC's Customs Union Protocol, this has constrained opportunities provided by this regional market. This is an obstacle to the Kenya Vision 2030 target of increasing Kenya's share of manufacturing exports to the EAC market from 7 per cent to 15 per cent.

4. COVID-19 has exposed latent opportunities for exploitation, particularly within the manufacture of pharmaceuticals, medical ventilators, chemicals (hand sanitizers) and textiles and apparel regarding the manufacture of Personal Protective Equipment (PPEs). Tapping into these opportunities will require appropriate innovation ecosystems to exploit windows of opportunities through accelerated innovation that leverages on avenues such as strategic alliances and collaborations. Other important lessons include bolstering avenues for promoting commercialization of innovation and sustainability of the market/ demand post-occurrence of shocks. Without sustainable and promising markets, investors can remain passive despite the windows of opportunities to commit investments in innovation and new product lines.

5. Manufacturing faces both positive and negative shocks, which affect its growth and contributions to employment. Negative shocks include droughts, election-cycles, global recessions, surge in oil prices, and the Kenya shilling depreciation. Positive shocks arise from rainfall abundance that boosts agricultural production, and policy reforms that catalyze private sector development. Notable policy reforms that previously supported private sector development include the Structural Adjustment Programmes (SAPs) of the late 1980s, and implementation of the Economic Recovery Strategy for Wealth and Employment Creation 2003-2007, which was succeeded by the Kenya Vision 2030. Market liberalization in early 1990s realized mixed performance of manufacturing owing to opening of the economy to international competition.

6. The exposure and vulnerabilities of manufacturing enterprises vary by firm size, whether they operate in the formal or informal sector and level of technological intensity. Medium and large enterprises are relatively vulnerable to shocks emanating from external markets, while MSEs are more vulnerable to shocks originating from domestic markets. MSEs source their inputs mainly from the domestic market, and their product markets are also predominantly domestic, targeting mainly other MSEs or individual consumers. In contrast, medium and large enterprises are relatively dependent on imported inputs and participate more in export markets. The MSEs operating within the informal sector have amplified vulnerabilities owing to weak capital, limited access to affordable finance, poor infrastructure and worksites, and low technology and skills. There are also weak supply chain linkages between MSEs and medium and large enterprises, which would otherwise support technology transfer and help moderate vulnerabilities for MSEs. Experiences from COVID-19 reveal that save for manufacture of food products, which is a low technology activity and a basic need, other activities that were either resilient or showed positive transformation are the manufacture of chemical products, pharmaceuticals, optical and electronic equipment, which largely fall within medium and high technology manufacturing. These experiences mirror that of developing and emerging economies (UNIDO, 2021b). Despite this positive outlook, growth of medium and high technology manufacturing is constrained by a weak domestic value chain (implying high vulnerabilities to external shocks) and limited skills base for technology upgrading.

7. Technology transfer and adoption and a conducive innovation ecosystem are a key avenue for manufacturing firms' resilience. Notably, industry 4.0 is a promising avenue for business operational efficiency, accelerated innovation, flexibility to meeting changing customer preferences, and enhancing resilience. Adoption of industry 4.0 such as Internet of Things (IoT), artificial intelligence (AI), advanced robotics, big data analytics and additive manufacturing (3D printing) are, however, constrained by technology incompatibility, inadequate supportive infrastructure and skills deficit, particularly related to Science, Technology, Engineering and Mathematics (STEM) courses.

4.6 Recommendations

1. Incentivise manufacturing diversification into medium and high technology activities. This can be achieved through use of fiscal incentives for R&D investments, particularly for development of prototypes in medium and high technology manufacturing. Further, this recommendation can be achieved through promoting private sector financing of R&D. In particular, there is need to consider reviewing implementation status and challenges associated with opportunities offered under the second schedule of the Income Tax Act Cap. 470, which provides for tax deductibility of expenditures on scientific research and contributions to universities and research institutes that undertake scientific research in related industry. This intervention can also serve as an avenue for financing institutions such as KIRDI, and Numerical Machining Complex (NMC), among others, towards advancing industrial technology development particularly among MSMEs.

2. Facilitate access to markets through enhanced competitiveness and market diversification. This can be achieved through diversification of manufacturing exports outside the EAC market; considering EAC is categorized as part of the domestic market for enterprises operating in EPZs, thus limiting their annual sales to the 20 per cent capping under the Customs Union Protocol. An alternative or complementary approach is to seek review of the Customs Union Protocol to raise the capping at above the 20 per cent that has been in place. Expanding access to the local, EAC and other regional or global markets also calls for sustained measures to enhance manufacturing competitiveness through investments in utilities such as electricity and water, and access to affordable financing.

3. Adopt measures for supporting accelerated innovation under shocks and stressors. This can be achieved through commercialization of incentives such as sustainable markets through public procurement preferences and export markets promotion. Further, fiscal incentives can be provided to compensate investors for risks assumed in investing in innovation within frontier manufacturing activities, such as pharmaceuticals.

4. Mainstream within manufacturing policy measures for building resilience to the identified shocks and stressors, including droughts, global economic shocks linked to oil prices, economic downturns, exchange rate risks and supply chain disruptions. There is need for articulated interventions at the sectoral and firm levels on ways to manoeuvre through such challenges. The interventions can be tailored to features of the sector such as firm size, informality, and other sub-sector peculiarities including technology characteristics. Specific interventions can include risk reduction and mitigation plans, and mechanisms for early identification of hazards. It is particularly imperative to fast-track implementation of Sessional Paper No. 5 of 2020 on MSEs Policy, which provides for measures for development of MSEs, including skills upgrading, infrastructure, financing, technology and innovation essential for building resilience.

5. Support adoption of industry 4.0 through supportive infrastructure and skills development, particularly those related to Science, Technology, Engineering and Mathematics (STEM) courses. Measures to promote financing of transition to industry 4.0 such as Internet of Things (IoT), artificial intelligence (AI), advanced robotics, and big data analytics are also imperative.

5

5 TRADE

BUILDING A RESILIENT ECONOMY THROUGH TRADE

Trade is a key channel for building economic resilience for a sustainable economy. Despite the disruptions of the global economy by the COVID-19 pandemic since January 2020, trade has been central to mitigating the impact of the pandemic and resuscitating economic recovery. Trade has contributed to growth and re-engineering of economic activities to achieve national development goals. The performance of exports from Kenya remained stable despite being below its potential while imports dampened due to supply-side effects. However, the reduction in imports was not enough to strengthen the trade balance. Domestic trade remained important in accelerating economic growth, but it is highly sensitive to internal and external shocks to the sector. Moreover, international trade and supply of inputs has been critical to the local economy. The Africa Continental Free Trade Area (AfCTA) offers a potentially large market to improve revenue, create employment and enhance welfare. To take advantage of the agreement, Kenya needs to exploit the under-utilized 72 per cent of this market and deepen its trade with the rest of the continent. Free trade agreements are central to advancing Kenya's trade interests, because 60 per cent of the signed agreements are in favour of Kenya. For Kenya to scale up its trade revenue, there is need to enhance market and product access and reduce the concentration to a few markets and products that are susceptible to shocks. Further, meeting the objectives of the Medium-Term Plan (MTP) I–III will accelerate activities in both domestic and international trade, and intra-county trade.

5.1 Introduction

The relevance of the trade sector is premised on its contribution to GDP and linkage to other sectors such as manufacturing, agriculture and financial, among others. At the country level, trade plays an important role of improving resource allocation, enhancing greater specialization, leveraging economies of scale and stimulating competitiveness while creating employment opportunities. Although the COVID-19 pandemic has impacted negatively on the global economy and Kenya in particular, it should serve as an opportunity for redirecting public policy in trade to enhance inclusivity and build a sustainable future. In this regard, trade will be central to the recovery effort aimed at building a fair and sustainable economy.

To meet the national development goals, Kenya has underpinned the role of the trade sector in attaining a 10 per cent growth rate as outlined in the Kenya Vision 2030. Similarly, the sector is expected to facilitate the achievement of the objectives of the "Big Four" agenda. Therefore, being cognisant of the sector's role in enhancing the national development goals, Kenya has entered into several free trade agreements (FTAs), such as the Common Market for Eastern and Southern Africa (COMESA), East Africa Community (EAC), Africa Continental Free Trade Area (AfCFTA), among others. All these FTAs are geared towards advancing trade penetration to enhance trade revenue and market access at preferential rates. Despite, the entry to these FTAs, Kenya's trade performance faces significant challenges and remains exposed to global shocks that affect revenue flow and increase the country's economic uncertainty.

Domestic trade makes a significant contribution to GDP growth and job creation. In 2021, domestic trade in Kenya contributed 7.9 per cent to GDP growth despite the negative effect of COVID-19 (Government of Kenya, 2021). The sector played an important role in sustaining economic activities in 2020 and 2021, with continued opening of retail and wholesale malls. Uptake of e-commerce with Business-to-Business (B2B) transactions averaged 53 per cent between 2019 and 2021. The increase in B2B transactions is expected to scale up domestic trade and intra-county trade activities.

While global trade of goods and services reduced, the e-commerce share in retail trade increased from 14 per cent in 2019 to 17 per cent in 2020 (UNCTAD, 2020). This increase signals the positive effect of digital transformation in accelerating trade and building resilience in the global economy. Kenya could scale up its efforts to enhance e-commerce as a channel for increased trade. The country's performance on the e-commerce index is far below that of South Africa and Ghana in Sub-Saharan Africa. Moreover, Internet usage, which is central to accelerating trade, is still low relative to the country's comparator countries. For example, Kenya has Internet access of 30 per cent of the population compared to Nigeria and South Africa at 33.6 per cent and 68.2 per cent, respectively, in 2020 (World Bank, 2022 and ITU, 2022).

5.2 Trade Performance in Kenya

This section looks at the general trade performance for the period 1971-2021 and its impact on current account balance. Similarly, the section discusses the various factors that have affected trade, and their impact on the economy. Figure 5.1(a) shows that export growth has been erratic due to several shocks.

Kenya has experienced negative shocks over the years, which have reduced export revenue. The oil embargo of 1973 brought about by the decision by Middle East countries to stop oil exports led to increase in oil prices from US$ 3 in 1973 to US$ 12 per barrel in 1974. The high oil prices pushed the cost of transportation and production in Kenya, thus affecting the sectors that were dependent on oil, such as agriculture and manufacturing. In the subsequent years, the oil shocks during the Gulf War in 1990 led to a price hike of 53 per cent. The oil supply cuts by the Oil Producing and Exporting Countries (OPEC) in 1999, and 2003-2008, and the Arab Spring crisis increased oil prices by 77 per cent, 145 per cent and 35 per cent, respectively. The increase in prices was followed by reduction in exports in the period under discussion as the cost of production increased.

Kenya has also experienced positive shocks that have enhanced export performance. In the late 1960s and early 1970s, Kenya implemented land reforms geared towards land acquisition and utilization. The main objective was to ensure that the acquired land is put to productive use for increased export revenue. Further, the coffee sub-sector experienced a price boom during the period 1975-1977. The increase in coffee auction prices improved export revenue, but this was not enough to dampen the increasing current account deficit, although it helped strengthen the trade balance (Figure 5.1b).

The post-election violence witnessed in urban and rural areas between 2007 and 2008 negatively affected productivity, thus reducing exports. During the post-election period, productive regions such as Rift Valley, Western, Nyanza and Coast were negatively affected. The reduced production led to increase in prices of food stuffs in retail outlets. Between 2014 and 2016, export growth remained muted, with recovery in 2018 as the political situation stabilized.

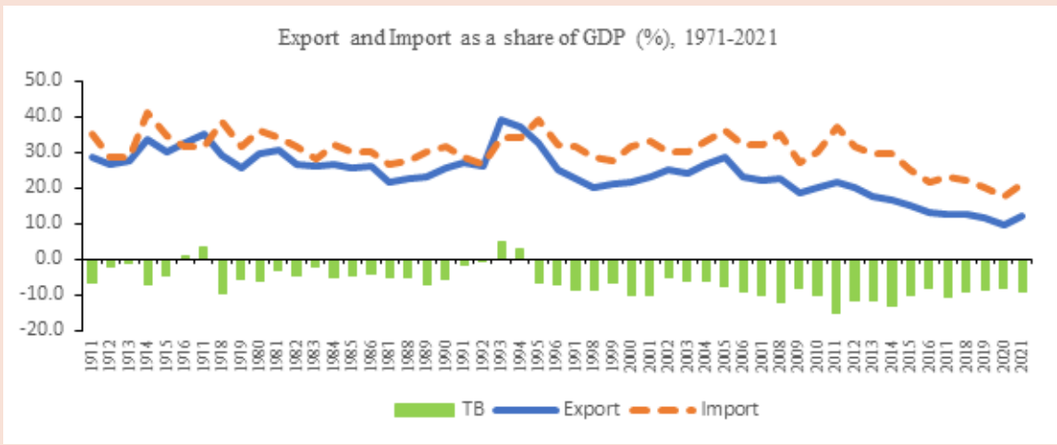
Droughts have also negatively affected trade, and the effects have been differentiated across time. The drought of 1974-75 negatively affected the agricultural sector, with 80 per cent loss in livestock. The 1979-80 drought affected several productive regions of Eastern, Western, Central and Coastal parts of Kenya. The drought led to low crop production and water shortages in these regions. Additionally, the drought of 1983-84 was widespread and led to migration of people especially in arid and semi-arid areas. The drought also led to a large food deficit, with high consumption of yellow maize, thus increasing the price of normal maize by more than 200 per cent. Kenya also experienced intensified drought in 2011, which was experienced by other regional countries such as Ethiopia and Somalia.

At the regional level, the dissolution of the East Africa Community in 1977 reduced Kenya's export revenue. Regional instabilities have also contributed to reduction in trade activities. The increased instability in Uganda in the late 1970s and early 1980s reduced Kenya trade activities to the country because of insecurity. This also affected exports to Rwanda and Burundi, as Uganda is the main transport corridor to these countries. Further, the increasing insecurity in Somalia led to a reduction in exports of tobacco products and edible fruits.

Kenya has implemented trade reforms, including pursuing exported-oriented strategy and setting up Export Processing Zones (EPZs). This has led to favourable response of Kenya exports, strengthening the current account balance from -2.85 per cent of GDP in 1991 to 5.6 per cent of GDP in 1993. The 2000s period also ushered in further policy reforms that expanded agriculture, financial and services sectors, thus contributing to growth in exports. Importantly, this is the period during which export growth remained in the positive territory for eight years relative to other periods, before falling between 2008 and 2009 due to post-election violence.

The analysis in the next sections shows that negative shocks have a widespread effect on the economy. In particular, the oil price shocks negatively affected the cost of production, making Kenyan exports less competitive in the global market. The drought shocks have widespread effect, affecting the welfare of households. Additionally, the drought shock especially for 2011 affected export revenue through reduction of agricultural produce. This negatively affects Kenya's imports due to reduced export revenue.

Figure 5.1: Profile of export and import in Kenya



Source: World Bank (Various), World Development Indicators

5.3 Policy Interventions to Enhance Domestic and International Trade

The Kenya Vision 2030 has outlined sector flagship projects as part of policy interventions to accelerate development. The implementation of flagship projects proposed in the Kenya Vision 2030 was done through Medium-Term Prospects (MTP I-III). This provided a clear framework for enabling the Government to track development of projects in line with the national development goals. The proposed trade policy interventions for MTP I development of 10 market hubs, export development fund, the e-trade policy, formation of producer business groups, and development of Kenya National Electronic Single Window. Under MTP II, the flagship projects for trade included establishment of Kenya Credit Guarantee Scheme and Savings, Credit, Cooperative Organizations (SACCOs). MTP III was to establish the Kenya National Multi-Commodity Exchange (KOMEX), and construction of Dongo Kundu free trade port.

The MTP I identified the development of 10 wholesale hubs and 10 tier one retail markets as crucial for enhancing domestic trade in Kenya. During the MTP I implementation, a concept note was developed and pieces of land (20 acres for wholesale and 50 acres for retail market) identified in Maragua and Athi River, respectively, for the pilot project. In both pilot projects, preliminary designs were developed, but the projects have not proceeded as planned due to inadequate budgetary allocation.

To undertake the trade-related activities, establishment of an export development fund was identified as a flagship project. The name of the flagship project was later revised to Export Guarantee Scheme. This project was identified as a vehicle for trade financing for export promotion. To implement the project, a draft bill was prepared with a proposal for Kenya Credit Guarantee Scheme Authority and Kenya Credit Guarantee Fund, with express authority to support traders involved in exports. The project implementation is in progress, and its achievement will provide a platform to boost MSMEs' credit access and export revenue.

The creation of producer business groups was identified under MTP I as a channel to boost domestic and international trade. This was identified as a channel for access to trade information and credit facilities to boost producers' trade revenue. Implementation of this flagship project has been successful with formation of 1,320 producer business groups in Maragua out of the proposed 1,000-1,500. The creation of producer business groups is an important channel for creating an inclusive supply chain critical in both domestic and international trade. The satisfactory implementation of the project signals the ability to replicate it in other counties to empower producers.

The Kenya national electronic single window was proposed to eliminate challenges related to processing of exports and imports cargo documentation to enhance trade competitiveness. This flagship project implementation started during MTP I with the development of the electronic single window. The system brings together over 42 stakeholders and over 10,000 registered users, and it is linked to financial institutions, the Kenya Revenue Authority (through iTax) and e-citizen platform. This integration of trade functionalities reduces transactional costs on exports and imports.

The development of e-trade policy was identified under MTP I to facilitate trade activities and reduce transactional costs in Kenya. The e-trade policy has been crucial in providing information on export and import requirements through the Kenya trade portal and infotrade portal. Implementation of the e-trade policy was carried on to MTP II, and it has improved access to information.

The development of the Kenya Credit Guarantee Scheme/Fund under MTP II started with the drafting of a bill during MTP I. The bill was legislated and submitted to the Cabinet for consideration in MTP II. It required the formation of the Kenya Credit Guarantee Scheme Authority, and Kenya Credit Guarantee Fund. These two formations proposed in the bill were to ensure available resources to facilitate trade for exports and imports in Kenya.

The formation of Savings, Credit, Cooperative Organizations (SACCOs) was identified as a key channel for resource mobilization and financing to facilitate intra-county trade and international trade. During MTP II, 24 youth SACCOs were formed and operationalized. Going forward, public and private participation will be critical to ensure sustainability of SACCOs and meeting the objects of the Kenya Vision 2030 under MTP II.

The Kenya National Multi-Commodity Exchange (KOMEX) is a flagship project under MTP III and is still under implementation. The KOMEX provides a framework of establishing physical warehouses for commodities and the services are offered to farmers and farm cooperatives. KOMEX provides a platform where commodities, futures and derivatives are traded, and it will be regulated by the Capital Markets Authority. The registration and development of a financing plan has been completed. It is expected that full implementation will be achieved during MTP III.

The Dongo Kundu project was proposed in MTP III and launched in 2017. The Dongo Kundu will play an important role of job creation and trade facilitation with reduced transactional costs. It is expected that the Dongo Kundu will act as a source for foreign investment within the coastal region.

Despite the importance of the flagship projects supporting trade outlined in MTP I-III, their implementation has faced significant challenges. Inadequate budgetary allocation has hampered the implementation of some projects, for example, for development of wholesale and retail markets in the proposed areas. While land was identified and designs developed, limited budgetary allocation held back the completion of this project. Further, change in project scope remains a challenge in completion of the flagship projects for MTP I, MTP II and MTP III. Additionally, capacity building is a key challenge holding back private sector players in the MSMEs sub-sector.

Table 5.1: Trade flagship projects under MTP I, MTP II and MTP III framework

Medium Term Prospects I			
Pillar	**Project**	**Achievements**	**Remarks**
Trade and infrastructure (Kenya Vision 2030)	Build on free trade port in Mombasa	The project has not taken off and it remains unsatisfactory	Requires budgetary allocation to initiate the project
Improve supply chain effectiveness and formal trade (Kenya Vision 2030, “Big Four” agenda)	Build at least 10 tier one markets	Land identified and designs completed. Construction not started due to lack of budgetary allocation	Allocation of funds will aid in completion of the project. The project has potential to create employment and enhance formal trade
To improve supply chain and formal trade activities	Development of wholesale hubs	20 acres of land allocated in Murangá town for construction. The designs for the projected are completed. Project stalled due to lack of budgetary allocation	There is need to allocated funds or a partnership framework established between the County Government and the private sector. The project has potential to enhance delivery of “Big Four” agenda and create jobs
Business groups to enhance formal trade, create jobs and knowledge sharing	Create 1,000-1,500 Producer Business Groups: Maragua pilot project	Over 1,320 Producer Business Groups were initiated	The successful completion of phase one of the projects shows potential to replicate in other counties across the country

Medium Term Prospects I			
Pillar	**Project**	**Achievements**	**Remarks**
Kenya tradenet to facilitate international trade and reduce transactional costs	Kenya National Electronic Single Window (KNESW)	The construction of the Kenya National Electronic Single Window was initiated and completed in MTP II	The performance of the project in MTP I was satisfactory. Consideration for sustainability of the project be done. It has the potential to improve on trade facilitation and reduce trade transactions costs
Improve trade through credit guarantee to exporters. This enhances trade (Kenya Vision 2030 and the "Big Four" agenda	Export Credit Guarantee Scheme	A draft bill was prepared for formation of Kenya Credit Guarantee Scheme Authority and Kenya Credit Guarantee Fund	Data infrastructure on MSMEs is crucial to determine the level of credit guarantee funds. There is need to build capacity for MSMEs to enhance returns. Mapping should be undertaken with available data to establish financial guarantee support required
Improve access to export and import markets through financial guarantees ("Big Four" and Kenya Vision 2030)	Establishment of Kenya Credit Guarantee Scheme Authority, and Kenya Credit Guarantee Fund	The draft bill was prepared for formation of Kenya Credit Guarantee Scheme Authority, and Kenya Credit Guarantee Fund	Mapping should be undertaken with available data to establish financial guarantee support required
Improve resource mobilization and access to credit by traders (Kenya Vision 2030)	Establish and strengthen informal trader's association to form SACCOs	24 youth SACCOs created by 2013 and financial support offered to create more across the counties	More SACCOs that are targeted to specific groups such as the disabled, women and youths be created
E-trade to help expand domestic and international trade	Develop the E-Trade policy and integrate in PP sector institutions of higher learning and tertiary colleges	Launched in 2017 and being integrated with other sectors such as agriculture	Sectoral collaboration in implementation of the e-trade policy between sectors such agriculture will enhance trade and job creation
Enhance formal trade in agricultural produce and improve returns	Establish the Kenya National Multi-Commodities Exchange (KOMEX)	Registration of KOMEX as a private entity done and capitalization plan developed	Awareness of the KOMEX should be scaled to increase participation and resource mobilization
Improve trade and coordination and sharing of information between partners	Second Generation Single Window System Implementation	20 modules for use developed, 36 County Governments involved, has over 120,000 registered users	Integration with various government agencies will improve service delivery. It will also create employment opportunities
To enhance domestic and international trade by hosting wholesale and retail markets	Dongo Kumi Free Trade Port Construction	The launch and construction was done in 2019. It is expected to be completed by 2023	There is need to strengthen the bond between private sector and public to increase investments. Completion of the project will enhance job creation and improve efficiency in trade transactions

5.4 Domestic Trade

The phenomenal contribution of the retail sector is underscored in the Kenya Vision 2030 of increasing its contribution to GDP from 5 per cent in 2007 to 30 per cent by 2012 under the MTP I. The sub-sector of domestic trade plays an important role in creation of employment and improving the welfare of citizens. The wholesale and retail trade, which forms part of domestic trade, is a key driver of the services sector and GDP growth. Wholesale and retail trade contribution to GDP has averaged 8.1 per cent for the period 2016-2021, with a marginal decline to 7.9 per cent in 2021 (Figure 5.2). This is attributable to the effect of COVID-19 pandemic, which led to closure of firms. Despite the sectors decline in 2021, its prominence to the economy has been felt through creation of employment as shown in Table 5.2. Further, the decline in wholesale and retail trade in 2021 was more prominent in quarters one and three at 7.4 per cent and 6.9 per cent, respectively (Government of Kenya, 2021). This was attributed to the COVID-19 containment measures. Furthermore, persons working in the informal sector within the wholesale and retail trade increased by 18.4 per cent from 7.6 million in 2016 to 9.0 million in 2019 before reducing to 8.9 million in 2020 before increasing to 9.4 million in 2021. The reduction in 2020 is attributed to containment measures leading to closure of firms, especially those operating in the informal sector.

While domestic trade has significantly contributed to GDP growth, the sector remains sensitive to negative shocks and stressors. In the period between 2003 tand 2010, the wholesale and retail industry experienced significant expansion through financial borrowing and increased retail outlets for supermarkets such as Uchumi, Nakumatt Holdings, among others. This expansion elevated financial stress for the affected retailers between 2014 and 2016, with significant closures occurring in 2015 (Cynton (2021), Kenya Retail Sector Performance Report).

As the wholesale and retail trade continued to suffer from financial distress, debts to suppliers accumulated, leading to many litigations.

The post-election violence following the election of 2007 resulted to a decline of the sector's contribution to GDP from 11 per cent in 2007 to 4.8 per cent in 2008 (Government of Kenya, 2017). This was again experienced during the elections of 2017, which led to significant civil unrest, thus contributing to a reduction in the wholesale and retail trade contribution to GDP from 8.4 per cent to 8.2 per cent between 2017 and 2018, respectively. During this period, several businesses across the country remained closed, with a significant number of job losses.

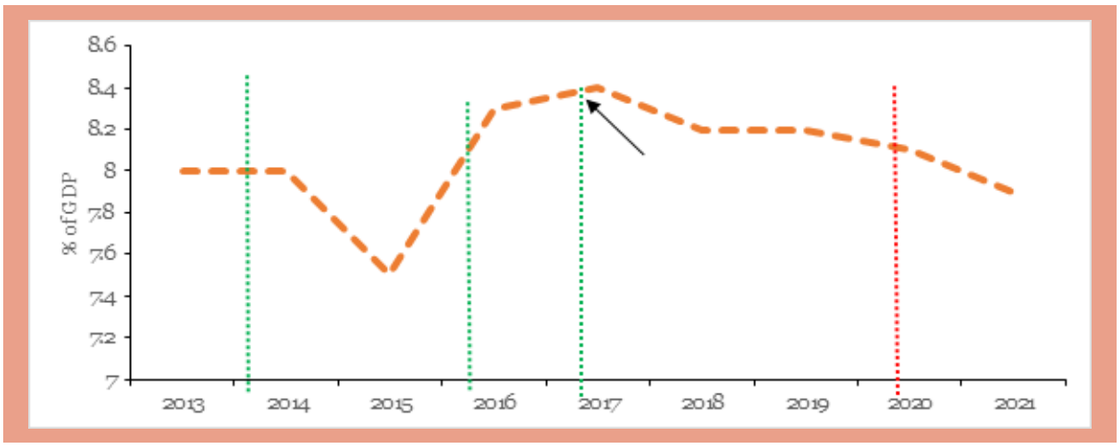
From 2020 to 2021, the COVID-19 pandemic negatively affected the wholesale and retail trade sub-sector. As a result, wholesale and retail trade was unable to maintain an upward trajectory to GDP contributions in periods of uncertainty. This scenario is buttressed by the low movement of persons to retail and recreation areas, grocery and pharmacy shops as shown in Figure 5.4.

Table 5.2: Contribution of wholesale and retail trade to GDP and employment (2016-2020)

Year	2016	2017	2018	2019	2020	2021
Contribution to GDP	8.3	8.4	8.2	8.2	8.1	7.9
Person employed in informal sector	7,612.5	8,111.3	8,557.1	9,005.6	8,681.8	9,366.1
Wage employment private sector (thousand)	238.5	249.3	258.9	267.7	249.7	256.3
Wage employment public sector (Thousand)	1.3	1.5	2.0	2.0	2.2	2.2

Source: Kenya National Bureau of Statistics (2021), Economic Survey

Figure 5.2: Contribution of wholesale and retail trade on GDP in Kenya



Source: Kenya National Bureau of Statistics (2022), Economic Survey

Box 5.1: Role of e-commerce in domestic trade

The e-commerce sub-sector is playing an important role in enhancing trade in Kenya. Different types of e-commerce transactions prevail in the country, and they include customer to business (C2B), business to customer (B2C), business to business (B2B) and Citizen to Government (C2G). This e-commerce transactions are facilitated by mobile money providers such as Safaricom, Airtel and Telcom Kenya. Safaricom dominates the different types of e-commerce as it serves 99% of the Kenyan market.

The B2B dominates the e-commerce transactions in Kenya with a share of 53% for the period between October 2019 and March 2021. Despite the negative effects of COVID-19, the B2B e-commerce transactions remained resilient in the country (Figure 5.3), and this is attributed to increased business transactions between business players. Importantly, during this period, supply chain demands were scaled up, thus resulting to increased transactions between manufacturers and wholesalers or retailers, such as procurement of raw materials, business communications and collaborations. Similarly, C2B and B2C also contribute substantially to the e-commerce industry as they averaged 25% and 21%, respectively.

The growth in e-commerce has been affected by the COVID-19, with significant reductions in transactions. The C2B had the highest transaction growth averaging 7.8% for the period October 2019 to March 2021 (Figure 5.4). This was followed by B2B and B2C e-commerce transactions that averaged 4.8% and 4.6%, respectively, during the same period. The growth in C2B transactions picked from April 2020 after the Government of Kenya introduced stimulus packages such as reduction on mobile transactions charges for customer transactions.

Figure 5.3: Mobile money in e-commerce transactions

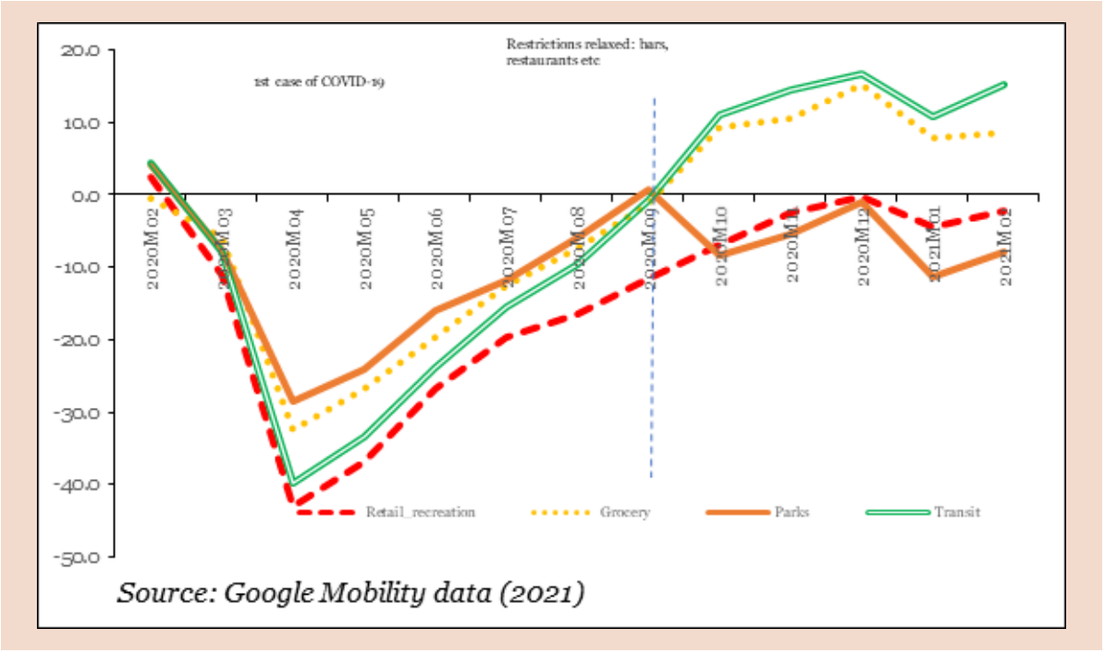
Source: Communications Authority of Kenya (2021b)

5.4.1 The effect of COVID-19 on domestic trade performance

The COVID-19 pandemic played a significant role in affecting the various sectors, as the number of infected cases in Kenya increased. This led to the Government in conjunction with the World Health Organization to devise ways to mitigate the negative effects of the pandemic. After the discovery of the first COVID-19 case in Kenya on 13th March 2020, the Government of Kenya responded by implementing measures such as closure of learning institutions, social distancing and lockdown of movement across counties. To supplement these measures, the government deployed more fiscal and monetary measures aimed at improving economic activities and smoothing consumption and government operations. Measures such removal of mobile money fees for transactions below Ksh 1,000 and use of Lipa na M-Pesa supported domestic trade activities. This enabled households, especially the poor ones, to access food, medicine and other consumable goods from retail shops and pharmacy outlets.

In this chapter, we use Google mobility data to demonstrate the movement of persons to grocery and pharmacy shops, restaurants and recreational facilities, shopping malls, among others, to demonstrate the pandemic effect on trade in Kenya. Figure 5.4 reports the relationship movement of persons to grocery and pharmacy areas, and restaurants and recreational areas. The announcement of presence of COVID-19 in March 2020 and the restrictions that followed led to a decline in trade activities. During this period, working from home was emphasized, except for special services in health and transport sectors. Restrictions also included visits to malls that required strict observance of social distancing and provision of water and soap to hand washing. All movements shown in Figure 5.4 experienced a reduction, but the effect was higher on retail and transit (transport) sub-sectors. This is due to these sub-sectors huge role in domestic trade activities, where they provided daily consumable goods such as foodstuffs and movement of persons from one region to another.

Figure 5.4: Domestic trade during COVID-19



Source: Google Mobility data (2021)

The announcement of cessation of movement on 6th April slowed the pace of movement of persons to trading facilities. In July 2020, with the extension of cessation of movement in and out of Nairobi Metropolitan, Mombasa and Mandera counties, the movement of persons continued to improve, and this can be explained by the adjustment to the existing mitigation measures that had prevailed since March 2020. From September 2020, there was significant improvement in transit and visit to grocery outlets with the relaxation of movement between counties. Although the retail and recreation and visits to parks have improved, they remained negative up to 2021.

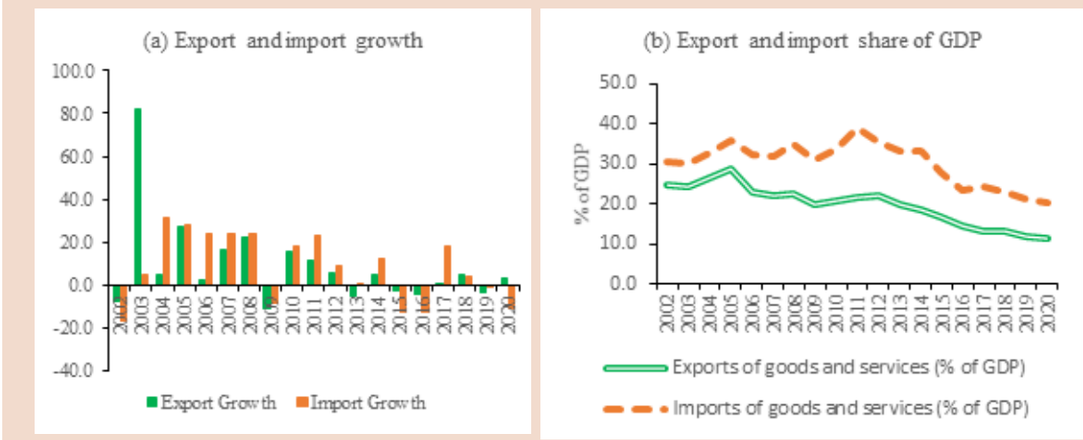
5.5 Performance of Kenya's International Trade

Export growth in Kenya grew at a higher rate of 82 per cent relative to imports in 2003 with a contraction of 10.7 per cent in 2009 before settling at 3.2 per cent and 3.1 per cent in 2020 and 2021, respectively (Figure 5.7a). The increase in export growth in 2003 was supported by favourable export policies and stability in international trade markets. Some of the policy interventions during this period included creation of more export processing zones (EPZs). The adoption of EPZs increased the volume of manufactured products, thus improving export growth in 2003. During the period, coffee, tea, horticulture and apparels were crucial to increasing Kenya's export revenue (Wanjala and Kiringai , 2007).

However, the share of exports to GDP has reduced from a high of 25 per cent to 11 per cent and 9 per cent in 2020 and 2021, respectively, which is against the target of the Kenya Vision 2030 of 20 per cent annually.

Import growth has remained erratic, with a low of negative 17 per cent in 2002 and a high of 31 per cent in 2004, before settling at 10.5 per cent and 12.1 per cent in 2020 and 2021. In the subsequent years, imports grew at a higher rate than exports, widening the balance of trade deficit. The share of imports has reduced from a high of 39 per cent in 2011 to 20 per cent in 2020. However, it has remained above 20 per cent from 2002 up to 2020. This has been attributed to increased imports of intermediate products that are used in the manufacturing sector and for re-export products.

Figure 5.5: Export and import profile in Kenya, 2000-2021

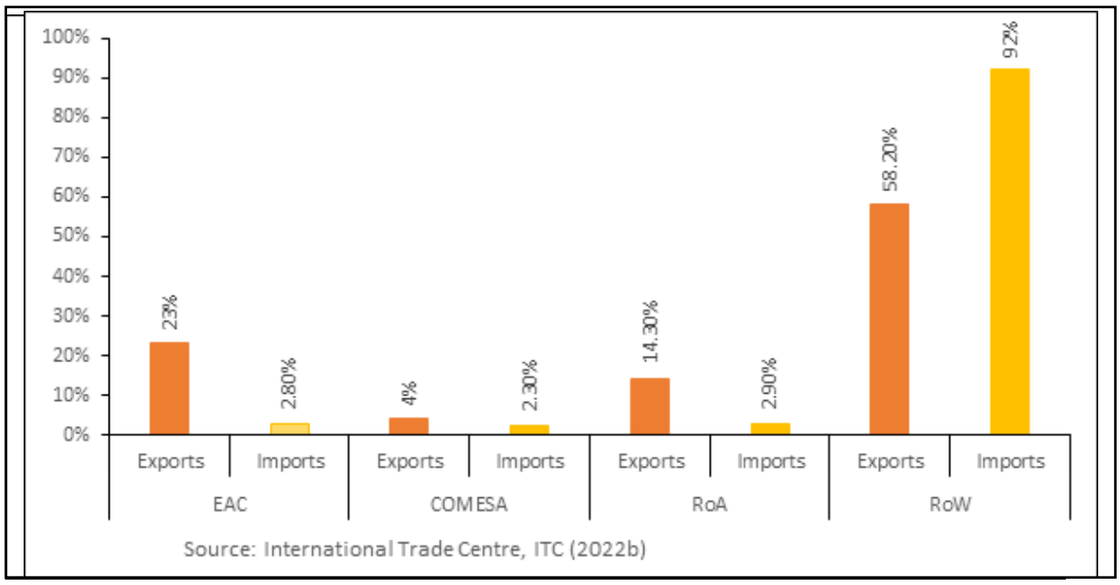


Source: World Bank (2022b), World Development Indicators

5.5.1 Trade performance across the regions

Decomposition of Kenya's trade to various destinations reveals interesting findings. Both the exports and imports are concentrated to specific regional markets. For the EAC market, exports had an average of 23 per cent of total exports for the period 2011-2020 (Figure 5.6). Decomposing to a five-year period, Kenya's exports had a high of 27 per cent in 2003-2007 before reducing to 25 per cent and 22 per cent in 2008-2012 and 2013-2017, respectively. During the period 2018-2020, EAC exports reduced further to 20.4 per cent. The reduction in exports is attributed to competition because of producing similar products to regional countries. The EAC market is dominated by Uganda and Tanzania.

Figure 5.6: Trade performance of Kenya for the period 2011-2021



On the import side, Kenyan imports to EAC accounted for 2.8 per cent for the period 2011-2020. Imports increased from 1 per cent in 2003-2007 to 2.5 per cent for the period 2013-2017 before settling at 3.6 per cent in 2018-2021.

For the COMESA (excluding EAC countries) region, exports increased from 5.8 per cent in 2003-2007 to 6.9 per cent in 2008-2013 before reducing to 4.2 per cent and 3.5 per cent in 2013-2017 and 2018-2021, respectively. The reduction of exports to the EAC is attributed to increased competition in the COMESA market, and Kenya's diversification to other markets such as Asia and the European markets. The COMESA market is dominated by Egypt.

The imports from the COMESA region averaged 2.3 per cent between 2011 and 2021. They oscillated between 2.1 per cent in 2003-2007 to 2 per cent in 2008-2013 before increasing marginally to 2.1 and 2.9 per cent for the period 2013-2017, 2018-2021, respectively. The low uptake of imports from the COMESA region is due to Kenya's import structure, which is mainly made up of machinery and crude oil products.

Kenya's exports to the rest of Africa averaged 14 per cent for the period 2011-2020. However, they reduced from 12 per cent in 2003-2007 to a high of 15.9 per cent in 2013-2017 before settling at 13 per cent in 2018-2021. The reduction in the period 2018-2021 is attributed to low exports in 2021 due to the COVID-19 effects.

Imports to rest of Africa reduced from 7.2 per cent in 2003-2007 to 7.7 per cent in 2008-2012 before settling at 5.4 per cent between 2013 and 2021. Additionally, imports averaged 2.9 per cent for the period 2011-2021 due to COVID-19 effects and Kenya's import structure.

The rest of the world (RoW) accounts for 58 per cent and 92 per cent of Kenyan exports and imports, respectively. In this chapter, the Rest of the World (RoW) refers to international trade market that excludes goods and services traded in the Africa regional market.

Exports increased from 54.8 per cent in 2003-2007 to 57.8 per cent in 2013-2017 before settling at 63 per cent in 2018-2021. Exports to the RoW market is concentrated in countries that consume Kenyan tea, coffee, horticulture and apparels, such as the United Kingdom (UK), the United States of America (USA), Pakistan, the Netherlands and Japan, among others.

As noted earlier, imports are concentrated to the RoW, accounting for 92 per cent with 8 per cent coming from Africa. This is attributable to the structure of imports of goods and services sourced, as they are majorly found in countries outside Africa. The imports to Kenya comprise of industrial supplies, machinery and petroleum oils, among others (Figure 5.10). Part of the imports

are also used as intermediate products that are later exported to the EAC and other COMESA member countries. It is illustrative to note that imports are concentrated to industrial supplies, machinery and petroleum oils. The key markets for Kenya imports outside Africa are China, the UK, the USA and Japan, among others. The concentration of import origin markets exposes Kenya to negative exogenous shocks, thus affecting smooth consumption of these products.

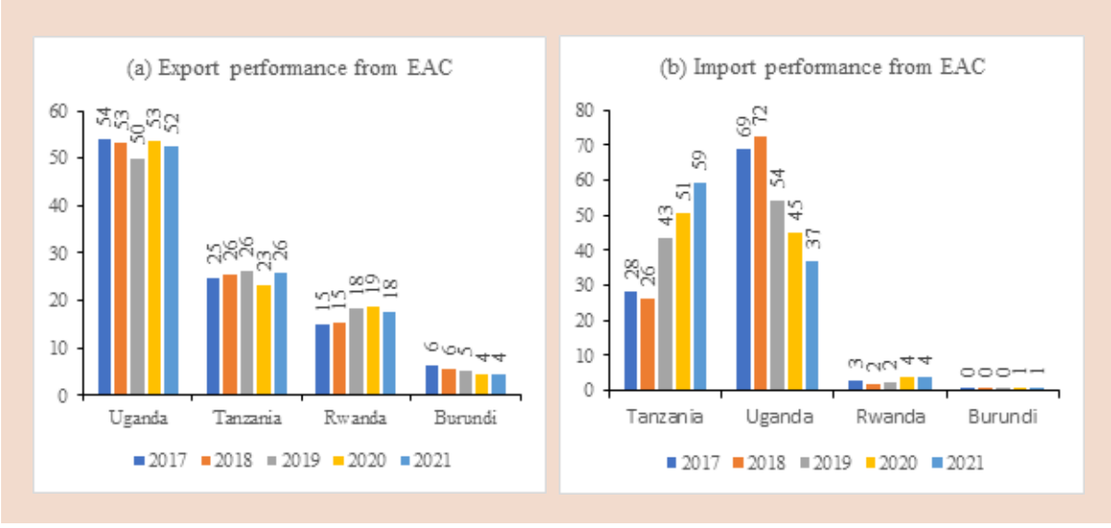
a) Trade performance in the East Africa Community

The East Africa Community (EAC) is an important market for Kenyan goods and services. The EAC is composed of six (6) countries: Kenya, Uganda, Tanzania, Burundi, Rwanda and South Sudan, with a population of 180 million. The EAC member countries have deepened their integration efforts with a common customs market, and member States are working towards a common political and monetary union. Kenya has the highest average integration score of 0.79 followed by Uganda with a score of 0.72 while South Sudan has the lowest score of 0.13 (Africa Regional Integration Index (2022).

Uganda has the highest trade integration score of 0.83 followed by Kenya with a score of 0.63. These countries enjoy improved trade facilitation, which has enabled the member States to continue with trade activities despite the COVID-19 pandemic from 2020 to date. Exports to the region are varied and concentrated to a few products. Uganda is the largest market destination for Kenyan exports followed by Tanzania with an average of 51 per cent and 24 per cent of total exports to the EAC between 2017 and 2021 (Figure 5.11). Burundi and South Sudan are the lowest export destinations for Kenyan products. The main exports to Uganda in 2021 were animal and vegetable fats, salt, sulphur and cement. In Tanzania and Rwanda, the main exports from Kenya are soap and organic, and iron and steel.

On average, Uganda is the major import origin market for Kenya with 60 per cent of total imports from the EAC region market for the period 2017-2021 (Figure 5.11). However, Tanzania has become the major source of imports, standing at between 51 per cent and 59 per cent in 2020 and 2021 compared to Uganda at 45 per cent and 37 per cent during the same period. Additionally, imports from the EAC market are concentrated in a few products. While Uganda has been the highest import origin market, the imports reduced from 72 per cent in 2018 to 45 per cent in 2020. This reduction of imports from Uganda is attributed to COVID-19 closures in 2020, and trade facilitations during the same period. Tanzania is second with an average of 35 per cent imports from the EAC. Burundi and South Sudan offer the lowest import origins among EAC member countries.

Figure 5.7: Exports and imports of goods to East Africa Community



Source: International Trade Centre, ITC (2022)

b) Trade performance in the COMESA region

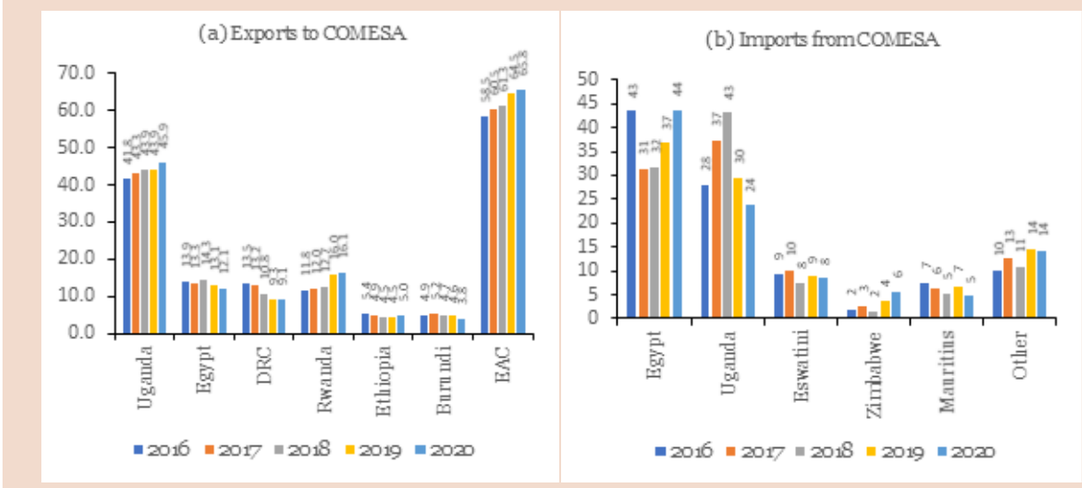
The Common Market for Eastern and Southern Africa (COMESA) is comprised of 21 member states with a population of 583 million. The rate of integration in the COMESA region is low, with trade integration being the highest performing indicator. At the country level, Kenya has the highest overall integration rate with a score of 0.6 followed by Rwanda and Zambia at 0.56 and 0.52, respectively (ARII, 2021). In the COMESA region, Zambia has the highest trade integration score of 0.95 while Kenya has a score of 0.57.

Trade in the COMESA region is dominated by EAC member countries. On average, Kenya exports to EAC countries under the COMESA framework averaged 62 per cent for the period 2016-2021, which is way above the non-EAC member States in COMESA region. At the country level, Uganda is the highest export market for Kenyan products within the COMESA region with an average of 41 per cent between 2016 and 2021. The highest exports to COMESA for the non-EAC country is Egypt with an average of 13 per cent of total exports to the region. The dominance of exports to EAC within the COMESA regional bloc is due to the countries proximity with Kenya, which allows faster movement of goods and services.

The import front of products to Kenya is dominated by Egypt with an average of 37 per cent followed by Uganda at 32 per cent for the period 2016-2020. Further, while imports from Egypt have been increasing from a low of 32 per cent in 2017 to 42 per cent in 2021, they have reduced in Uganda from 43 per cent to 24 per cent during the same period. The main imports in 2020 from Uganda and Egypt are dairy products and paper and paperboards, respectively.

The COMESA region is an important regional market for Kenya to explore. From the above analysis, after removing EAC member countries, Kenyan exports to non-EAC countries accounted for 38 per cent, and imports are low and concentrated to Egypt, Eswatini and Mauritius (Figure 5.8). Further, the trade balance in COMESA (after removing EAC) is unfavourable. Despite the unfavourable trade balance, the region offers Kenya a significant platform to export its services in the financial sector, transport, and travel, and improve the quality of goods to take advantage of the 580 million population in COMESA.

Figure 5.8: Exports and imports from COMESA, 2016-2021



Source: International Trade Centre, ITC (2022)

c) Trade performance in Rest of Africa

The Africa regional market is made up of 54 countries with a population of 1.4 billion (IMF, 2022). The formation of the Africa Continental Free Trade Area (AfCFTA) presents an avenue that can champion for intra-Africa trade, which has remained below 15 per cent compared to Europe and Americas at 67 per cent and 60 per cent, respectively (Mold and Chowdhury, 2021).

To take advantage of the African market, Kenya was among the first countries to ratify the AfCFTA

agreement. The AfCFTA came into operation in July 2020, allowing for liberalization of trade and countries to trade together. Prior to these efforts, Kenya has over the years traded with Africa countries under the EAC and COMESA frameworks. To this end, for the period between 2016 and 2021, Kenyan exports and imports were concentrated to a few countries, and to a few selected products.

Table 5.3: Export and import performance in rest of Africa as a percentage of the total

Panel (a) Kenya's export performance to the RoA, 2016-2021						
	2016	2017	2018	2019	2020	2021
Nigeria	1.1	1.2	1.0	1.3	1.7	1.4
South Africa	1.8	1.2	2.0	1.5	1.4	1.6
Ghana	0.2	0.2	0.6	0.3	0.4	0.5
Morocco	0.2	0.1	0.1	0.2	0.2	0.3
Côte d'Ivoire	0.1	0.1	0.1	0.2	0.2	0.4
Sierra Leone	0.0	0.0	0.0	0.0	0.1	0.1
Senegal	0.1	0.1	0.1	0.1	0.1	0.2
Panel (b) Kenya's Import performance from RoA, 2016-2020						
	2016	2017	2018	2019	2020	2021
South Africa	35.6	30.9	31.5	31.6	25.1	19.3
Morocco	2.9	0.7	0.6	0.3	1.2	1.3
Tunisia	0.0	0.0	0.1	0.1	0.3	0.5
Ghana	0.1	0.1	0.1	0.1	0.1	0.2
Nigeria	0.3	0.2	0.3	0.5	0.1	0.2
Central African Republic	0.0	0.0	0.0	0.0	0.0	0.1
Cameroon	0.0	0.0	0.0	0.1	0.0	0.1
Source: ITC (2022) **Notes: The exports and imports are taken as a share of total exports and imports to Africa**						

Between 2016 and 2021, as reported in Table 5.3 panel (a), exports to the RoA averaged less than 1 per cent for each of the countries outside the EAC and COMESA trading blocs. During this period, South Africa and Nigeria had the highest exports from Kenya with an average of 1.6 per cent.

Kenyan imports from the RoA have also varied over time as reported in Table 5.3 panel (b). South Africa is the dominant market for imports outside the EAC and COMESA trading blocs. It accounts for an average of 27.2 per cent for the period 2016-2021. The highest imports from South Africa are iron and steel, where Kenya imported 9.1 per cent of the total product requirement in 2020, with a reduction in 2021 to 2.6 per cent due to a price surge of the product in the global market. Salt is the highest import product from Egypt, accounting for 41 per cent of total import of the product in 2021.

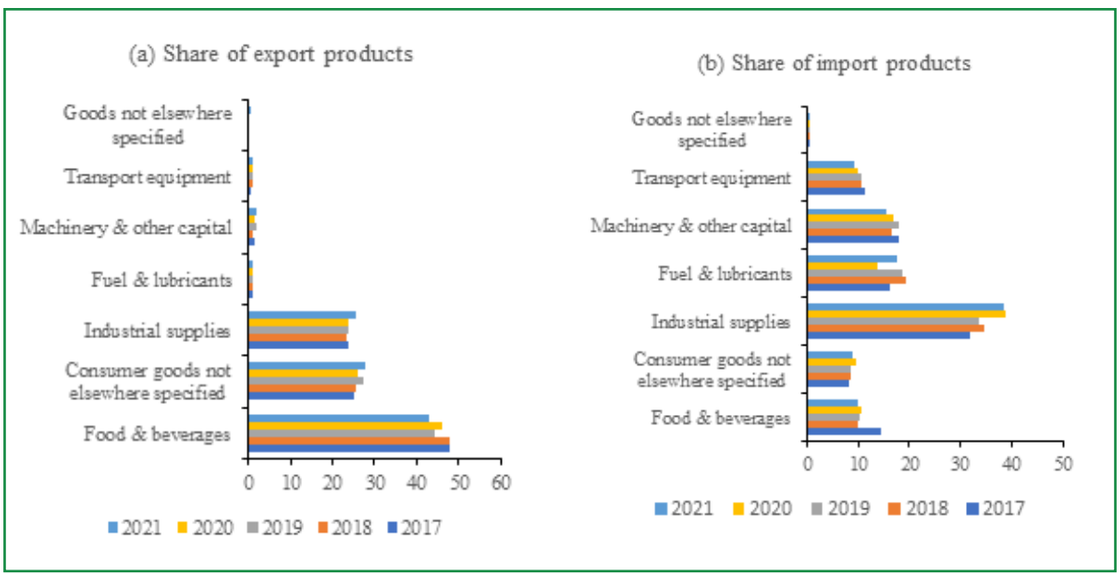
5.6 Structure of Exports and Imports in Kenya

The share of exports was steady between 2017 and 2021. Food and beverages increased marginally from 47.6 per cent in 2017 to 43 per cent in 2021. The food and beverages products are dominated by coffee and tea, which account for the highest contribution of this category of products. These products remained resilient even during the COVID-19 period in 2021. This was followed by consumer goods not specified, which increased from 25.1 per cent in 2017 to 27.2 per cent in 2021. Transport equipment, machinery and fuel, and lubricants remained marginally low during the period 2016-2020. The export of machinery and fuel, and lubricant products

concentrated on the EAC market, which imports its products via the Kenyan route.

The share of imports varied significantly between different categories of products. Industrial supplies dominated the imports bill, increasing from 36 per cent in 2017 to 38.9 per cent in 2021. Although machinery and fuel and lubricants were second in import share, they declined from 21.7 per cent and 16.3 per cent in 2017 to 17 per cent and 13.7 per cent, respectively, during the same period. The decline in machinery and fuel and lubricants is attributed to the COVID-19 containment measures. In early 2020, countries closed their borders to contain the spread of COVID-19 before cargo transport was opened in the first quarter of 2021.

Figure 5.9: Share of total exports and imports



Source: Kenya National Bureau of Statistics (2022), Economic Survey

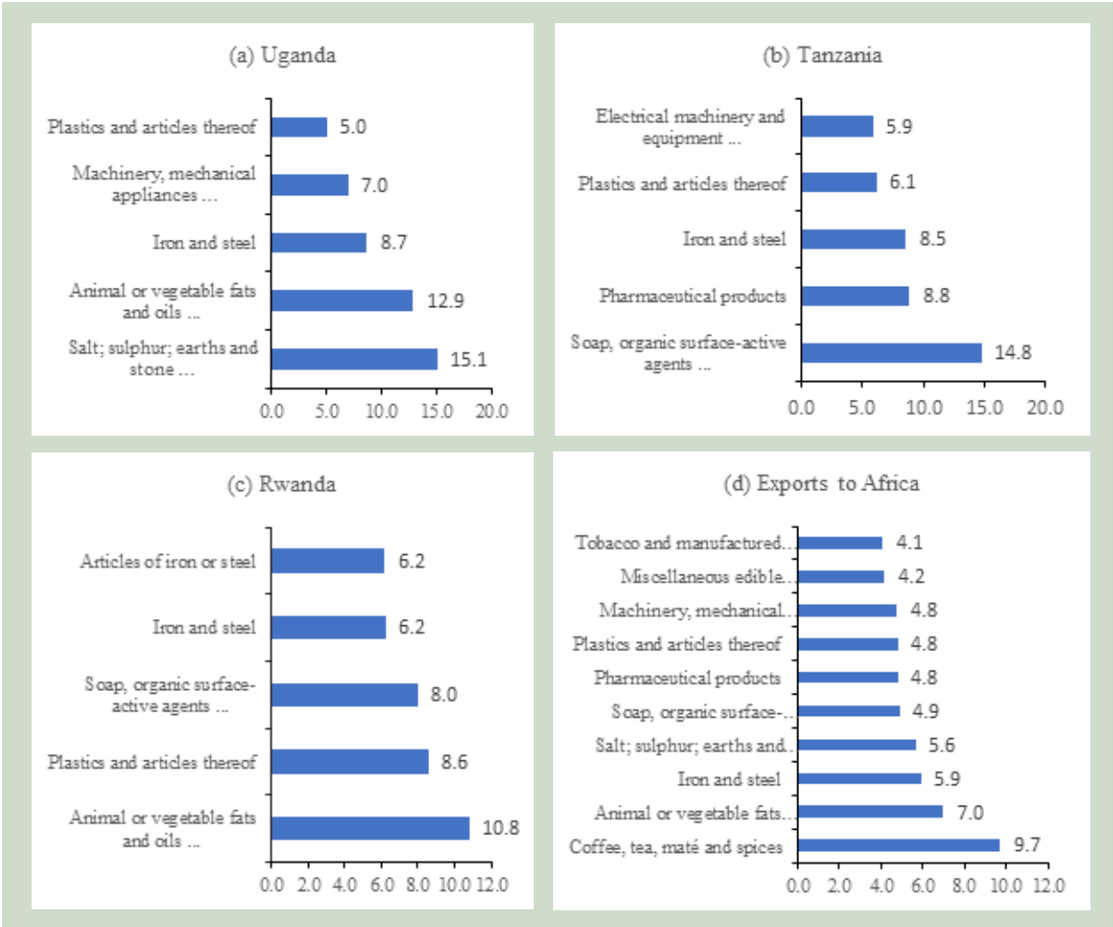
On the import front, petroleum oil dominates the volume of products imported to Kenya, with an average of 16 per cent between 2019 and 2020. The quantity of petroleum products imported to Kenya increased from 3.692 million tonnes in 2007 to 6.114 million tonnes in 2018, which is an increase of 65.6 per cent (EPRA, 2019). This is driven by increase in consumption patterns, especially in the manufacturing and transport sectors, among other sectors. Further, palm oil and medicaments are the major import products to Kenya. The main import destination for palm oil is Indonesia (62.8%) and Malaysia (29.3%).

5.6.1 Structure of exports and imports in EAC

Kenya's exports are dominated by primary agricultural products with a few manufacture and re-export products. In the EAC member States, animal and vegetable fats is the main export to Uganda (Figure 5.12a) while soap and organic surface agents are the main export products to Tanzania and Rwanda (Figures 5.15 b and c). Salt, pharmaceutical products and iron and steel form a reasonable export proportion to Uganda, Tanzania and Rwanda, respectively. On the African front, vegetable textile, coffee and tea (Figure 5.12d) form the largest export products to the continent. Given the role played by coffee and tea in revenue generation from the international market, their prominence in Africa signals their relevance, thus the need to increase and sustain the African market.

As noted earlier, Kenya has enjoyed a favourable trade balance in the EAC market, and this remained resilient during the COVID-19 period. Despite this positive picture, the export structure of Kenya is dominated with agricultural products and is dependent on weather conditions and other factors. For Kenya to remain competitive and maintain the market share in the EAC, there is need to improve the quality of produce and diversify the number of products. Furthermore, to maintain the market share, there is need to increase uptake of the services sector exports, which Kenya dominates in the EAC region. The export of financial services such as mobile services and banking services will ensure increased export volumes to the region. Additionally, the pharmaceutical products that Kenya produces and exports remain a key product to exports to the EAC market as regional countries import these products outside Africa.

Figure 5.10: Export structure to Africa and selected countries in 2021



Source: Trademap ITC (2022)

5.6.2 Structure of Kenyan exports and imports to Africa from 2016-2021

The Africa Continental Free Trade Agreement (AfCFTA) presents an opportune avenue for Kenya to enhance its product and market access within the African continent. This will also enhance the country's foothold and revenue returns. While the AfCFTA with a population of over 1.4 billion is a significant market, Kenya has not exploited this market structure. Between 2016 and 2021, Kenya only exported to 28 per cent of the 54 countries in Africa. Of the 72 per cent countries with zero exports, they have a population of about 0.574 billion people.

Table 5.4 reports African countries with zero exports from Kenya and products produced in Kenya but are imported by these countries from other markets. The 39 countries with no exports from Kenya import similar products outside Africa. While coffee and tea are export products from Kenya, the 39 countries (72%) import these products from markets outside Africa. Similarly, products such as cereals consisting of maize, rice and wheat are produced in Kenya and imported by the selected countries' markets outside Africa. The articles of apparel production, which is a source of manufactured products from Kenya, has not penetrated the 39 countries for which it has not been trading with. These products carry value addition and can generate more revenue. Kenya supplies 0.38 per cent of the global market for apparels, thus access to this group of African countries may increase its market share and offer sustainable sources of trade revenue. Additionally, export of pharmaceutical products does not access these markets. To increase Kenya's market access in Africa, there is need to take advantage of the Africa Continental Free Trade Agreement and ensure increased uptake of Kenyan products in the member States.

While Kenya has not been exporting to 39 identified countries, it has received imports from several of these countries, ranging between 0.1 per cent to 4.7 per cent. The main import products

from the 39 countries in Table 5.3 include sugar, paper and paperboard, fertilizers and edible fruits, among others. The import of these products is attributed to filling the demand deficit of sugar (from Eswatini, Zimbabwe and Madagascar) and meeting farm inputs such as fertilizer from Morocco used in the agriculture sector.

Table 5. 4: Kenyan exports to and imports from Africa as a share (%) of total

	Period	Kenyan exports related goods		Period	Kenyan imports
Country	2016 – 2021 < 1%	Goods produced in Kenya and Imported from other markets	Import origin of (c)	2016 – 2021 %	Goods imported from (a)
(a)	(b)	(c)	(d)	(e)	(f)
Lesotho	0	Articles and Apparels, Cotton	S/Africa, China	0	
Tunisia	0	Articles and Apparels, coffee	Italy, Brazil	0.1	Paper & paperboard
Equatorial Guinea	0	Coffee, tea and cereals	Spain, China and Turkey	0	
Guinea-Bissau	0	Beverages, salt	Portugal, Pakistan	0	
Cabo Verde	0	Cereals, dairy produce	Argentina and Portugal	0	
Sao Tome	0	Beverages, cereals	Portugal	0	
Mauritius	0.3	Plastics and Articles, cereals	China and India	3.3	Sugar products
Zimbabwe	0.3	Cereals, plastics and Articles	South Africa	1.7	Sugar products
Lesotho	0	Articles and Apparels, Cotton	S/Africa, China	0	
Tunisia	0	Articles and Apparels, coffee	Italy, Brazil	0.1	Paper & paperboard
Equatorial Guinea	0	Coffee, tea and cereals	Spain, China and Turkey	0	
Guinea-Bissau	0	Beverages, salt	Portugal, Pakistan	0	
Cabo Verde	0	Cereals, dairy produce	Argentina and Portugal	0	
Sao Tome	0	Beverages, cereals	Portugal	0	
Mauritius	0.3	Plastics and Articles, cereals	China and India	3.3	Sugar products
Zimbabwe	0.3	Cereals, plastics and Articles	South Africa	1.7	Sugar products
Ghana	0	Plastics and Articles	China and Vietnam	0.1	Cocoa
Mozambique	0.4	Cereals, Pharmaceutical products	Pakistan and India	1.4	Edible fruits
Djibouti	0	Animal vegetable fats and oil	France and India	0	
Morocco	0	Other vegetables, cereals, salt	France and Canada	1.1	Fertilizers, plastics
Côte d'Ivoire	0	Cereals, plastics and articles	Vietnam and India	0	
Sierra Leone	0	Cereals and Pharmaceutical	Pakistan and China	0	
Senegal	0	Cereals and Pharmaceutical	India	0	

	Period	Kenyan exports related goods		Period	Kenyan imports
Country	2016 – 2021 < 1%	Goods produced in Kenya and Imported from other markets	Import origin of (c)	2016 – 2021 %	Goods imported from (a)
(a)	(b)	(c)	(d)	(e)	(f)
CAR	0	Pharmaceutical cereals	Cameroon and France	0	
Botswana	0	Cereals and Cotton	South Africa	0	
Madagascar	0	Cereals and Pharmaceutical	China and India	0.7	Sugar products
Namibia	0	Plastics and articles, pharmaceutical	South Africa and India	0	
Chad	0	Pharmaceutical	India and south Africa	0	
Seychelles	0	Cereals, salt	Brazil and Turkey	0	
Burkina Faso	0	Pharmaceutical salt	France and Togo	0	
Mali	0	Pharmaceutical cotton	France and China	0	
Angola	0	Cereals, plastics and articles	Thailand and China	0.1	Miscellaneous edibles
Congo	0	Meat and edibles, cereals	USA and Russia	0	
Comoros	0	Meat and edibles, cereals	Poland and Pakistan	0	
Mauritania	0	Cereals and sugar	France and Brazil	0	
Togo	0	Cereals, plastics and articles	S. Arabia and India	0	
Niger	0	Cereals and Pharmaceutical	Thailand and Belgium	0.1	Plastics & articles
Eritrea	0	Cereals, plastics and articles	S. Arabia	0	
Eswatini	0	Cereals, plastics and articles	South Africa	4.7	Essential oils, sugar products
Cameroon	0	Cereals, plastics and articles	Thailand & China	0	
Guinea	0	Cereals, plastics and articles	India & S. Arabia	0.1	Other made-up textile
Libya	0	Cereals and Tobacco	Ukraine & UAE	0	
Benin	0	Cereals and Pharmaceutical ..	India & France	0	
Algeria	0	Cereals, plastics and articles	Argentina & S. Arabia	0	
Gabon	0	Meat and edibles, cereals	Brazil & India	0	
Gambia	0	Cereals, salt	Brazil & Turkey	0	
Liberia	0	Cereals, plastics and articles	India & Saudi Arabia	0	
Average	**0.0**			**0.4**	

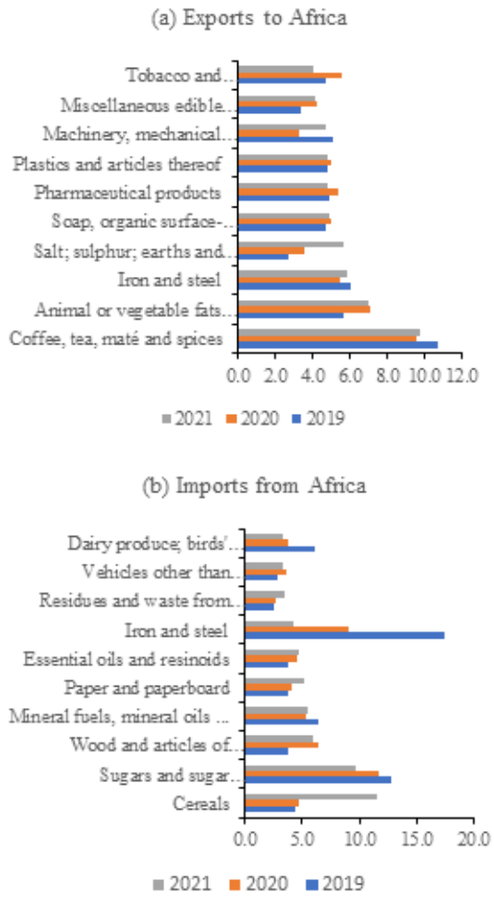
Source: International Trade Centre, ITC (2022)

Notes: Goods in column (c) and (e) are based on the top top exports and imports from countries listed in column (a).

The export and import structure of products from Africa is dominated by a few products as reported in Figure 5.13. Coffee and tea, with an average of 9.7 per cent, are the main export products to Africa followed by animal and vegetable fats (6.8%) and iron and steel (6.0%). The main export destinations of coffee in Africa is Egypt (69%) followed by Sudan (16%) and Nigeria (4.7%) of total exports to Africa for the period 2018-2020. For soap and organic, the main export markets are Tanzania (38.7%), Uganda (18.5%) and Rwanda (16.4%), on average, during the same period.

On the import side, cereals, sugars and sugar confectionery and iron and steel are the main import products from the African market with an average of 11-17 per cent for the period 2019-2021. The import origin for sugar in Kenya is Egypt, with an average of 32 per cent of total sugar imports from Africa between 2019 and 2021. This is followed by Mauritius (25%), Zimbabwe (18%) and Uganda (17%) during the same period. This high import of sugar products from this group of countries is attributable to the COMESA arrangement on trade for member countries. The dairy imports are also a main product dominated by Uganda at 97 per cent for 2019-2021. This is attributable to existing market access under the EAC and COMESA framework, and proximity to Kenya. Essential oil products are dominated by imports from Eswatini at 77 per cent of total imports from Africa followed by South Africa and Madagascar at 10 per cent and 5 per cent, respectively. The dominance of essential oil products is attributed to increased market access under the existing bilateral trade agreements between Kenya and this group of Southern Africa region.

Figure 5.11: Exports and imports from Africa



Source: International Trade Centre, ITC (2022)

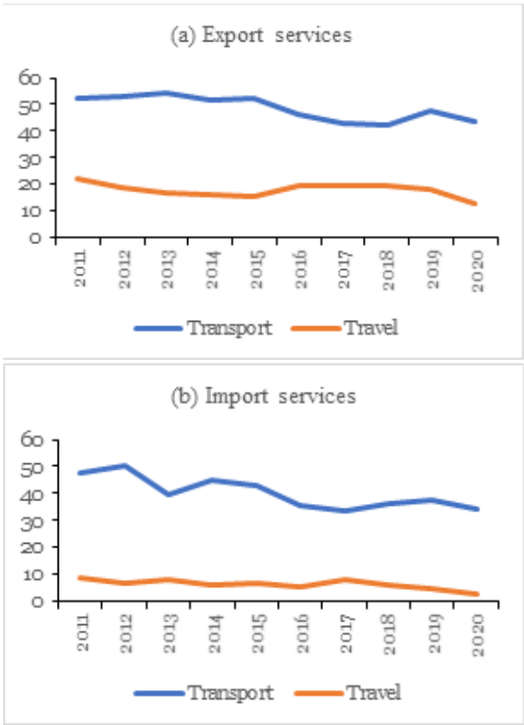
5.7 Export and Import in Services

The services sector in Kenya is composed of commercial services, transport and travel services, construction, financial technical and other business services, and government services. In 2019, export of services were driven by transport services (39.1%) followed by travel (17.9%), government services (17.3%), ICT (11.2%) and financial services (8.5%). In 2020, transport services and travel accounted for 36 per cent and 13 per cent of total service exports, respectively. The reduction in transport and travel services in 2020 is attributed to the negative effect of COVID-19 and the containment measures implemented by countries across the world. Kenya exports of services reduced from US$ 122.1 million in 2019 to US$ 79.5 million in 2020. The major export destinations in Africa include Egypt (20%), Morocco (16%) and Ghana (9%). At the global stage, the USA (14%), UK (6.5%) and German (5.5%) are the main export destinations during the same period. The reduction in services exports in 2020 is attributed to the containment measures put in place by the countries to mitigate the COVID-19 effects.

In 2019, Kenya's import volumes in services were driven and concentrated in transport (37.6%), technical and other business services (24.8%), construction services (10.4%), government services (6.7%) and financial services (5.7%). The import of services is concentrated in specific markets such as the USA, UK and Germany, among others. The total services imports reduced from US$ 5,794.6 in 2019 to US$ 4,574.6 in 2020. This was largely attributed to the COVID-19 effects that negatively affected the import origin markets. In Africa, the import origins are composed of Nigeria (15%), Egypt (14%) and Ghana (9.7%) of total imports from the region. Import of services from the global market is led by the USA (10%) followed by China (8.3%) and Germany (6.7%) for the period 2019 and 2020.

The services sector in Kenya remains unexploited, with concentration in a few products and markets. In 2020, Kenya exported US$ 3.659 billion and imported US$ 3.573 billion across different services products. Africa imported US$ 128.8 billion worth of services across different products. This shows that Kenya has the opportunity to scale up its services sector in travel (tourism), transport and financial services to generate more revenue.

Figure 5.12: Export and import of services

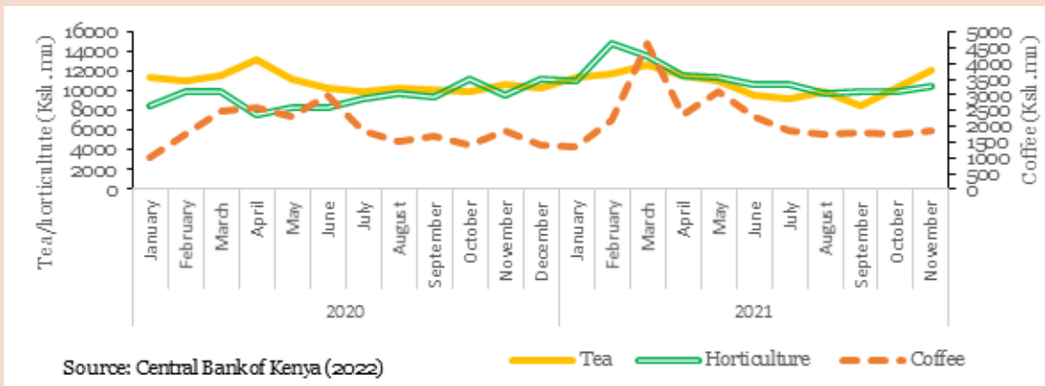


Source: International Trade Centre, ITC (2022)

5.8 International Trade Performance during COVID-19 and Emerging Issues

The outbreak of COVID-19 and the subsequent closures of borders led to a decline in trade activities. Using coffee, tea and horticulture to assess Kenya's export reaction to COVID-19 shows that from January 2020, the three products were on an upward trajectory. For horticulture, the reduction in exports was immediate while coffee and tea declined from the month of April 2020 (Figure 5.14). The average coffee and horticulture revenue increased from Ksh 1,915 million and Ksh 9,432 million in 2020 to Ksh 2,289 and Ksh 11,251 million in 2021. Tea export revenue remained the same with an average of Ksh 10,855 million during the same period.

Figure 5.13: Selected export products 2020-2021



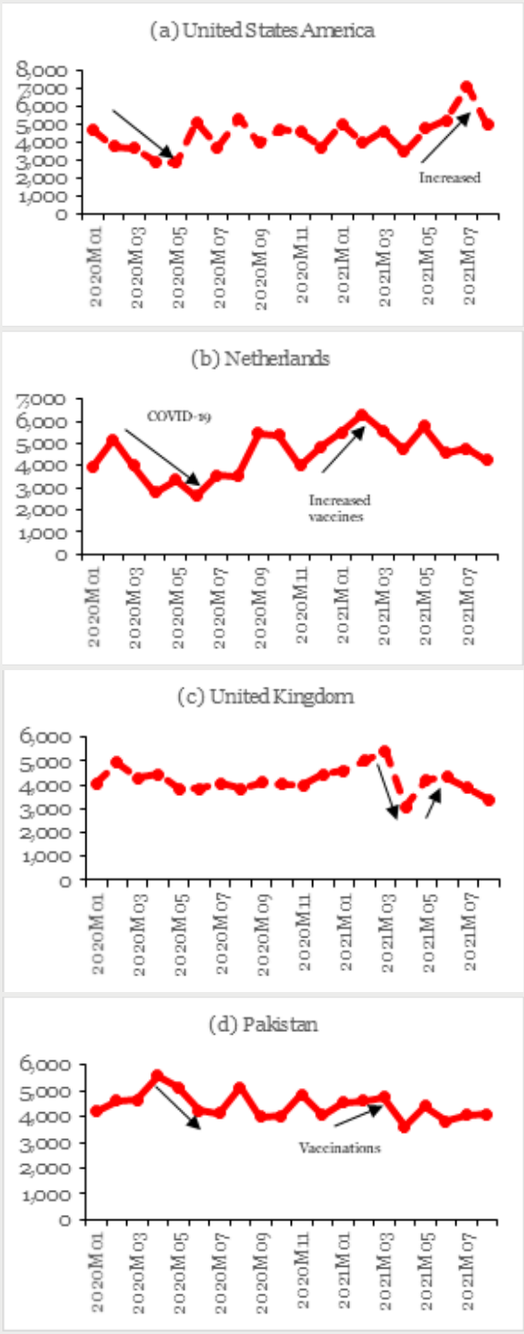
Source: Central Bank of Kenya (2022)

The main exports from Kenya include tea, coffee and cutflowers. As such, the major export destinations over the years are concentrated in countries that consume these products, thus exposing the exports to negative exogeneous shocks. During the COVID-19 period in 2020, there was significant global panic and the United States of America (USA) responded with restrictions on travel to the country. This significantly reduced Kenya's exports to the country, relative to other jurisdictions (Figure 5.14a). However, from May 2021 with increased uptake in COVID-19 vaccinations, the USA opened the economy and Kenya's exports improved substantially. The COVID-19 effect to Kenya's exports is also reflected in Netherlands (Figure 5.14b), UK and Pakistan in the remaining Figures 5.14(c) and 5.14(d).

Additionally, the current fighting between Russia and Ukraine may negatively impact the imports of wheat and fertilizer products to Kenya. In 2020, Kenya exported products worth US$ 75.3 million and US$ 9.2 million to Russia and Ukraine, respectively. The main exports to the two countries were coffee, tea, live trees and other plants, and edible fruits. During the same period, Kenya exported coffee and tea worth US$ 43.6 million, live trees at US$ 21.9 million and edible fruits at US$ 7.7 million to Russia. For Ukraine, Kenya exported coffee and tea worth US$ 4.2 million, US$ 1.7 million and US$ 1.6 million in 2020.

From the import side, a total of products worth US$ 357.1 million and US$ 70 million were imported from Russia and Ukraine, respectively, in 2020. The major imports from Russia during the same period include cereals, fertilizer and iron and steel that accounted for 18 per cent, 16 per cent and 13 per cent, respectively, of the total import of these products to Kenya. For cereals, wheat was the main import, accounting for 24 per cent of the total import of the product. For Ukraine, the main imports include oil seeds, iron and steel and cereals at 17 per cent, 4 per cent and 1.2 per cent, respectively, of the total imports. The main cereal product imported from Ukraine is wheat at 8 per cent of the total in 2020. It is evidently clear that at product level, the continuation of the current conflict between Russia and Ukraine may negatively affect the consumption of wheat, fertilizer, and iron and steel. In return, this is likely to increase the cost of production in the agricultural sector and prices of white flour as Kenya finds other import origins to smoothen the existing consumption of this products.

Figure 5.14: Export performance during COVID-19 period



Source: Central Bank of Kenya (2022)

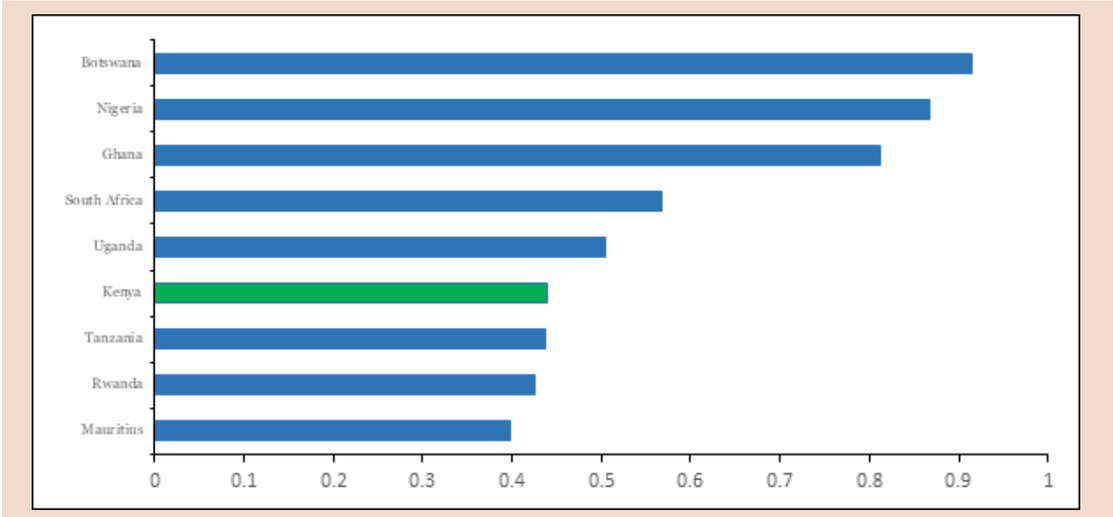
5.9 Trade for Economic Resilience and Sustainable Development

5.9.1 Export diversification and economic resilience

Kenya has shown significant progress towards enhancing export diversification as reported in Figure 5.15. Kenya's export diversification stands at 0.43, which is better than other Sub-Saharan Africa regional comparators of Botswana (0.92), Nigeria (0.87) and South Africa (0.57) (UNCTAD, 2021). On the measurement of export diversification, a value closer to zero (0) indicates higher diversification while a value equal to one (or closer) shows concentration of exports.

Countries such as Mauritius and Rwanda perform better on product export diversification compared to Kenya. These results show that there is need for increased efforts towards improving export and market diversification to build resilience in Kenya. The low diversification exposes the country to negative external shocks such as COVID-19, thus limiting export revenue and access to important products to smoothen consumption. The negative exposure pulls back Kenya's ability and prospects of long-term economic growth.

Figure 5.15: Product export diversification index 2020



Source: UNCTAD (2021)

Furthermore, the rate of export competitiveness in Kenya is low, thus limiting the potential to exploit trade opportunities. However, the current revitalization of the trade sector in Kenya through improved export strategies and implementation of the Africa Continental Free Trade Area (AfCFTA) will help enhance the competitiveness of regional exports. To achieve the benefits of economic diversification, Kenya will have to pursue product diversification to shift domestic outputs across different sectors and industries, leading to structural transformation. Trade diversification will also play an important role in scaling up export revenue through diversification of exports and imports, market destinations and improving the quality of domestically produced outputs.

5.10 Kenya's Performance of Different Trade Agreements

Since 1963, Kenya has entered into several trade agreements to facilitate trade between Kenya and other countries. These trade agreements have come in different forms that include bilateral trade, memorandum of understanding (MoU), regional trade agreements, technical economic cooperation agreements and other trade-related agreements (Figure 5.16). From independence, Kenya has entered into 51 trade agreements. Importantly, 63 per cent of the agreements are bilateral while MoUs are the lowest at 6 per cent. Four of these agreements have lapsed due to countries joining the EU (Bulgaria and Hungary), countries breakaway (Czechoslovak Republic:

Czech and Slovakia) and USSR. By the time of lapsing of these trade agreements, trade had grown by 146 per cent, on average.

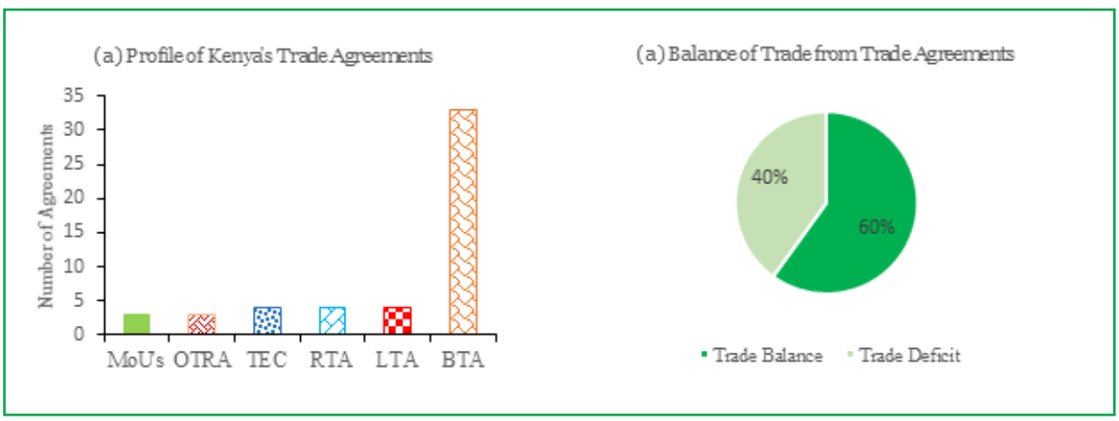
During the operation of trade agreements, several products played a significant role in enhancing trade revenue, leading to favourable trade balance. From independence, Kenya had a dominant role in coffee, tea and horticulture, and these products generate significant revenue. In countries where Kenya had trade agreements, the products remained competitive before the entry of other competitors producing similar products. The expansion of the coffee sector in South America in countries such as Brazil increased competition on the quality of international coffee products, thus reducing the size of Kenyan markets (WTO, 2020). Further, the cotton industry was an important player in Kenya's export market, thus increasing trade revenue. At the regional level, although Kenya has enjoyed favourable trade balance in EAC, Kenyan products face competition as regional countries produce similar products.

Despite the lapse of the trade agreements with the above countries, trade has continued under the European Union (Bulgaria, Czech Republic, Slovakia and Hungary). For the Russia Federation, after the collapse of USSR, Kenya entered into a bilateral agreement that has fostered trade between the two countries. In 2020, trade between Kenya and this group of countries was unfavourable.

Kenya exported products to Hungary worth US$ 0.79 million, followed by the Czech Republic at US$ 0.76 million, Slovakia US$ 0.33 million and Bulgaria US$ 0.21 million in 2020. During the same period, the main export products included live trees, mineral fuels and edible fruits.

In 2020, Kenya imported products worth US$ 33.7 million from the Czech Republic, followed by Hungary US$ 9,63 million, Slovakia US$ 7.28 million and Bulgaria US$ 4.34 million. The main import products from this group of countries is machinery and mechanicals, cereal, vehicles other than rail, and electrical machinery.

Figure 5.16: Kenya's trade agreements between 1963 and 2020



Source: Government of Kenya (2020)

Notes:
Abbreviations:

BTA: Bilateral Trade Agreements

LTA: Lapsed Trade Agreements

OTRA: Other Trade Agreements

RTA: Regional Trade Agreements

TEC: Technical and Economic Co-operations

MoUs: Memorandum of Understanding

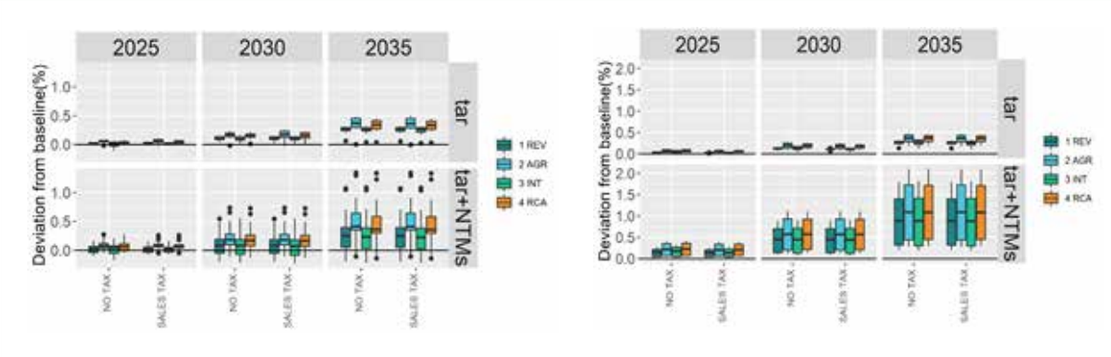
Box 5.1: The impact of AfCFTA on Kenya

The Africa Continental Free Trade Area (AfCFTA) presents a unique avenue for Kenya to advance its exports and imports to accelerate the contribution of trade to GDP. According to the World Bank (2020), the AfCFTA is expected to enhance welfare, create employment and improve revenue for the benefit of the 54 member States. Empirical findings of AfCFTA (World Bank, 2020; AfDB, 2020) and Manasse et al. (2021) suggest welfare improvement, employment creation, industrialization and increased economic growth.

Empirical evidence from Nechifor et al. (2022) proffers insightful support for implementation of the AfCFTA in Kenya. The findings from Nechifor et al. (2022) suggest that tariff only liberalization and combination of tariff and Non-Tariff Measures (NTMs) improve macroeconomic stability, trade activities (both export and imports), sectoral growth and welfare. However, the findings suggest that both tariff and NTMs offer more returns relative to tariff only liberalization. From a trade perspective, the tariff and NTMs liberalization will result to 4-7% increase in exports of cash crops, manufactured products expand by 39-40% while exports of extractive industry and processed food increases by 23-24% and 20-40%, respectively. This finding supports the objectives of the "Big Four" agenda of expanding the manufacturing sector by 20 percent. On the import front, food crops and processed food increase by between 50% and 116%.

From a sectoral perspective, the relevance of agricultural sector manifests, with employment in cash crops expanding by 20-23%. Interestingly, the findings suggest structural transformation with labour reallocation from food crops to processed foods. A similar picture manifests with reallocation of labour to public administration from the industry sector due to implementation of sales tax to scale tax revenue. From a welfare perspective (Figure 5.17), the AfCFTA framework offers a window of improved welfare with liberalization of tariff and NTMs. The improvement in welfare is spatially disaggregated and more prominent in rural areas relative to urban areas.

Figure 5.17: Distribution of welfare across different liberalization scenarios in Kenya



Source: Nechifor et al. (2022)

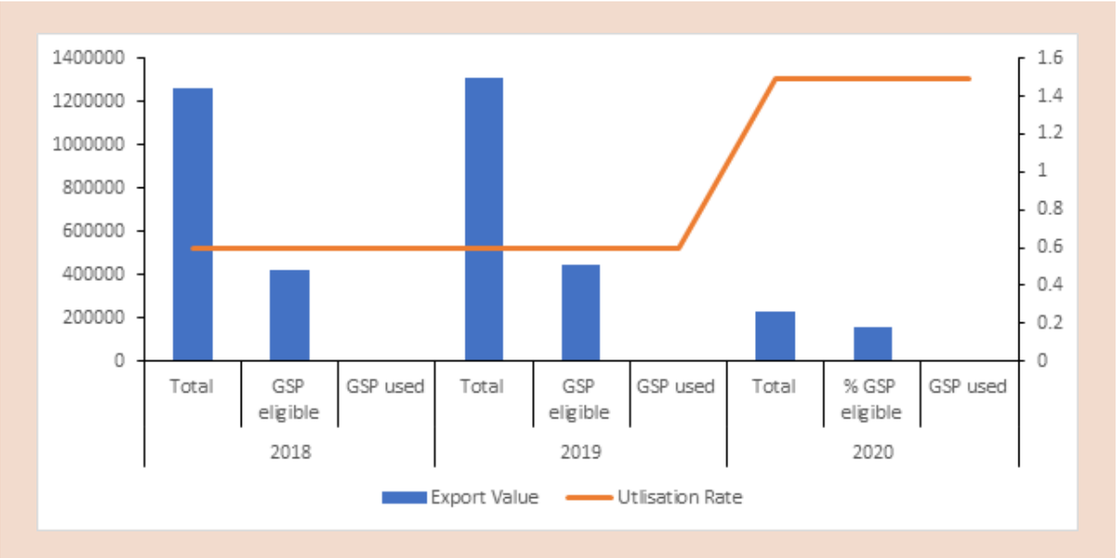
5.11 Kenya UK–GSP Utilization Scheme

The United Kingdom has been a key export and import destination of Kenyan products. Because of the proximity of the UK in the EU market, previous trade activities were carried out through the European Union trade partnership. As such, Kenyan exports and imports benefited through the EU-GSP scheme, which was applicable to the UK by virtue of being an EU member. The British Exit (BREXIT) referendum from the European Union brought significant changes in trade. However, it was agreed that the EU trade partnership will continue to be applicable to the UK for stability of trade flows between Kenya and the UK. Table 2.3 reports Kenya's GSP utilization rates for the period 2018-2020 relative to other EAC member States. Kenya's GSP utilization rate has remained marginal at less than 2 per cent compared to Uganda and Tanzania at an average of 97 per cent. The low GSP utilization in the Kenya–UK framework is due to existing Non-Tariff Measures (NTMs) such as standards, regulations, testing and regulations, which affect most of the exported Kenyan products. The

average GSP utilization rate for all the EAC countries in 2020 stood at about 59 per cent. In this regard, Kenya's GSP utilization performed below average, thus limiting export revenue derived from this partnership. Kenya's utilization rate of the GSP under the Economic Partnership Agreements (EPAs) framework is far below AGOA's utilization rate. In 2019, Kenya used only 15 per cent of the product lines under the AGOA arrangement, but the utilization rate stood at 98 per cent (KIPPRA, 2022).

As noted earlier, Kenya utilizes less than one per cent (Table 5.4) of GSP preferences of all exports. The export structure is composed of agricultural products such as flowers, tea, coffee, avocados, beans, and macadamia nuts. Other export commodities also include titanium ores and apparel and clothing. In 2020, the major exports were composed of prepared foodstuffs (113 million), vegetable products (32 million), mineral products (17.4 million), animals and animal products (14.5 million), animal or vegetable fats (13.1 million) and textiles and textile articles (10.1 million). Kenya's low utilization rate remains below average, thus pulling back revenue that could be derived from the UK EPAs framework.

Figure 5.18: Kenya-GSP utilization rate and value of exports (2018-2020)



Source: European Commission (2021)

5.12 Key Messages and Policy Recommendations

5.12.1 Key messages

1. Trade performance in Kenya is sensitive to shocks. Shocks such as increase in crude oil prices, droughts, and COVID-19 reduced Kenya exports while implementation of trade reforms such as liberalization led to increased trade performance.

2. The contribution of domestic trade to GDP is stable, but it is highly sensitive to shocks emanating from the sector itself and outside the sector. For example, increase in financial distress of Uchumi and Nakumatt supermarkets led to significant closure of retail outlets across the country.

3. Implementation of the proposed flagship projects under MTPs I–III is lagging. While some projects have been achieved, such as creation of local business groups, construction of tier 1 markets is yet to be completed.

4. The East Africa Community (EAC) market is an important export destination of Kenyan products. However, Kenya is yet to fully exploit the African market. Kenya did not export to 72 per cent of the regional countries despite producing goods and services imported by this group of countries.

5. The services sector is unexploited, with concentration in two main products currently being transport and travel. The concentration of the services sector is also reflected in the few markets for exports and imports.

6. Formation of free trade agreements is important for Kenya as 60 per cent has led to favourable trade balance. As such, the ongoing FTA negotiations and AfCFTA implementation will advance Kenya's trade interests of increased welfare and sectoral growth. The AfCFTA is an important channel for increasing job creation, cash crop export growth, and improving the welfare of poor rural households.

7. Kenya has under-utilized the existing GSP arrangements under the trade agreements such as the Economic Partnership Agreements with the United Kingdom. While Kenya has utilized only 2 per cent, other regional countries utilized over 95 per cent of their GSP for the period 2018-2021.

5.12.2 Policy recommendations

1. The National Trade Policy (NTP) of 2016 needs to be reviewed to enhance market and product diversification. The review will capture trade dynamics by aligning with AfCFTA framework and other trade agreements that are entered into. This will mitigate Kenya's exports and imports to global shocks such as the COVID-19. The revision of the NTP will scale up market access under AfCFTA framework to countries such as Cape Verde, Tunisia and the regional blocs (CEMAC and WAEMU).

2. All the products exported to and imported from African countries should be mapped out to increase trade performance. The current exports to only 28 per cent of African countries signals existence of a huge market that has potential to enhance trade revenue. The mapping out of these products will help improve export promotion strategies in Africa for Kenya. This can be achieved through collaboration with the Ministry of Industrialization, Trade and Enterprise Development, and agencies such as Export Promotion Council, Kenya Association of Manufacturers, and the private sector to develop export promotion strategies.

3. The stability of the East Africa Community is important for Kenya's trade revenue as it is its key market in the region. Kenya needs to continuously collaborate with member countries to maintain regional stability. To take advantage of the EAC peace and stability, Kenya needs to improve the quality of exports to the region to enhance product competitiveness. This will scale up support of the manufacturing, services, and agricultural sectors.

4. Information on products that utilize Customer to Government (C2G) and Customer to Business (C2B) mobile money services to support e-commerce needs to be deepened. This can be achieved through mapping of government services and ministries that use online services, and providing this information to all M-Pesa outlets and government offices. This will help boost efficiency and scale up domestic trade.

5. Kenya should pursue free trade agreements with focus on products that offer high returns for exports and imports. This can be achieved by identifying existing trade agreements and mapping current products to ensure increased utilization of the liberalized tariff lines. There is also need for consideration of uncertainties during negotiations of future trade agreements, as this will ensure resilience of exports and imports during periods of negative shocks.

6. The Government of Kenya in collaboration with the private sector could set up a development fund that advances financial support to traders in agriculture and services sectors at affordable interest rates relative to the market rate. The financial support provided to these two sectors will improve the quality and competitiveness of goods and services.

6

6 LIVESTOCK

ENHANCING A RESILIENT AND SUSTAINABLE LIVESTOCK INDUSTRY IN KENYA

Livestock production in ASALs and the related value chains have experienced acute shocks and stressors in recent years, affecting millions of livelihoods. The fragile ASAL ecosystems, central for livestock production and essential for livelihood source for pastoral communities, have been disrupted by extreme weather conditions, desert locust invasions, livestock diseases, conflict and market shocks. The shocks and stressors, which have increased in frequency and intensity over the years, threaten food security, welfare of communities and economic stability of ASALs with consequent ripple effects across the country. Building a resilience livestock industry is a pressing priority in the country. Building resilient livestock systems in ASALs that are able to minimize welfare losses will help prevent the costly welfare effects from shocks and stressors. Strategies such as rural development of ASALs that integrate both economic and social activities; data management systems; integration of pastoralists in livestock value chains and commercial undertakings; building the capacities of livestock farmers to improve the quality of livestock and livestock products; and enhancing social cohesion between pastoral communities or between pastoral and non-pastoral communities can be used to help build resilience in the fragile livestock systems.

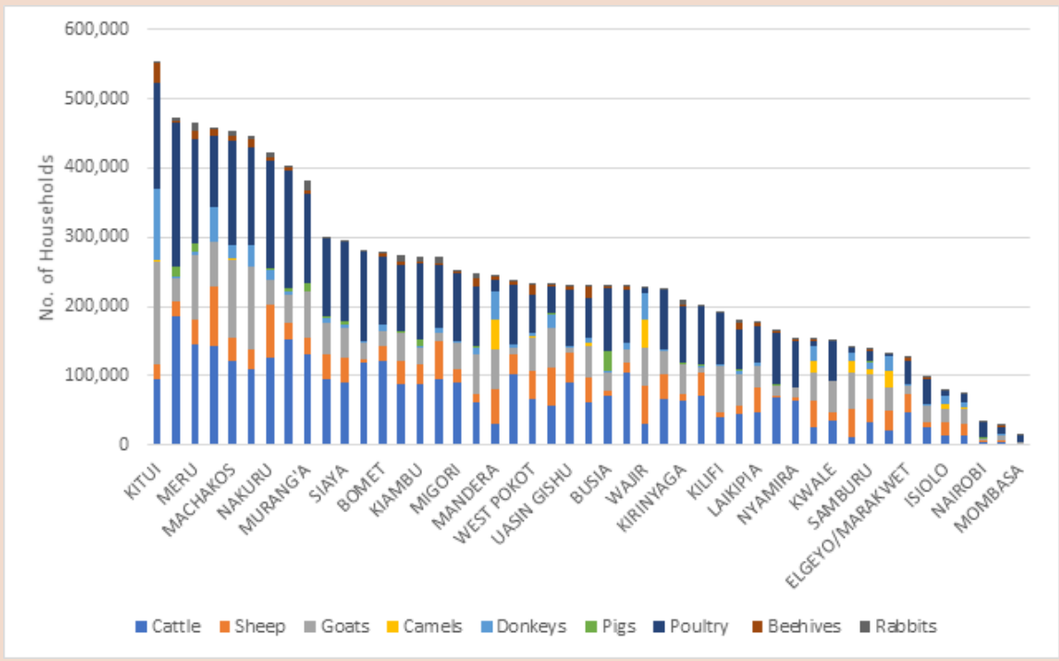
6.1 Introduction

Agriculture is a key driver of growth in the country. In 2021, the agriculture sector contributed about 22.4 per cent of total Gross Domestic Product (GDP), approximately 73 per cent from crops, 16 per cent from livestock, 3 per cent from fish and aquaculture, and 9 per cent from other sub-sectors, including forestry activities (KNBS, 2022).

To steer growth, achieve food security for all and make the agriculture sector a regional powerhouse, the Agriculture Sector Transformation and Growth Strategy (ASTGS) 2019-2029 was formulated. The ASTGS is aligned with the medium-term national agriculture sector priorities, the "Big Four" agenda, and regional commitments. To reach its overall goal, the strategy anchors on the following for the first 5 years: - a) increasing small-scale farmer, pastoralist and fisherfolk incomes; b) increasing agricultural output and value addition; and c) increasing household food resilience of farming and pastoralist households in ASALs (MoALF&I, 2019).

Building resilience in the agriculture sector is crucial for successful delivery of the ASTGS goals, particularly in the livestock sub-sector that has had long-standing development imbalances in comparison to the crops sub-sector. This undermines the livestock sub-sector's preventive, anticipative, absorptive, adaptive and transformative capacities to deal with changing circumstances (Manyena et al., 2019). The growth and transformation of the livestock sub-sector is particularly important for the realization of the above aspirations, given that livestock production systems are a cornerstone for millions of livelihoods (11.3 million households in Kenya), food security, environmental sustainability, and public health (Figure 6.1; MoALF&I, 2019).

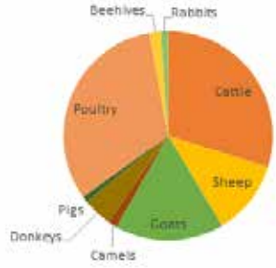
Figure 6.1: Distribution of households rearing livestock by county



Source: Kenya National Bureau of Statistics (2019), Kenya Population and Housing Census

Cattle, sheep, goats and poultry form the key livestock resource base in the country (Figure 6.2). These categories of livestock are of high importance as a source of livelihood and food and nutrition to a significant share of the Kenyan population (KMT, 2019; MoALFC, 2020).

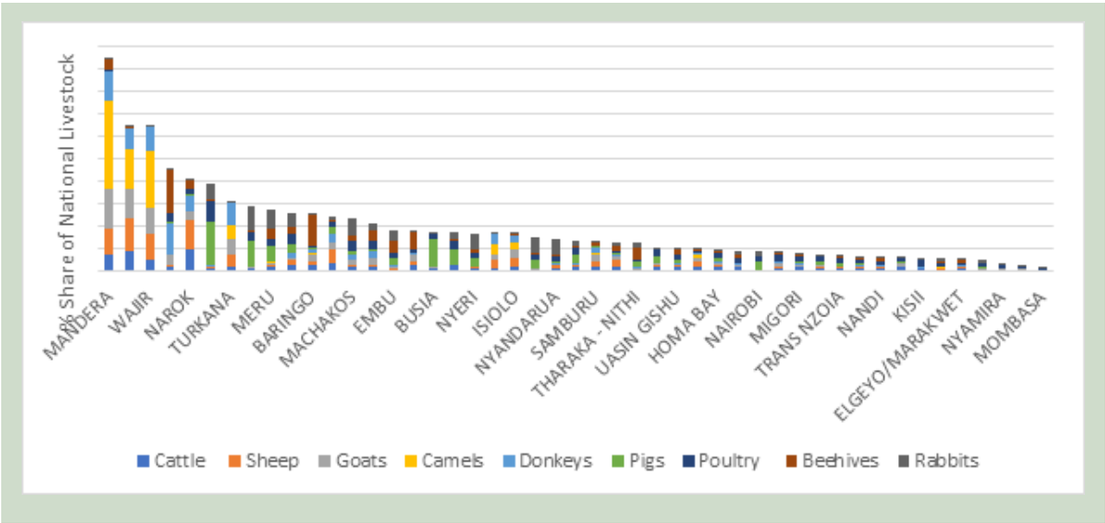
Figure 6.2: National livestock population by type



Source: Kenya National Bureau of Statistics (2019), Kenya Population and Housing Census

The livestock population is concentrated in the ASAL counties (Figure 6.3; MoALFC, 2020) and accounts for a significant share of economic activity. The sub-sector accounts for about 95 per cent of households' income and 90 per cent of employment (KMT, 2019). The ASALs also supply about 60-65 per cent of the meat in the beef industry, a key industry for not only food and nutrition security but also export earnings (KMT, 2019).

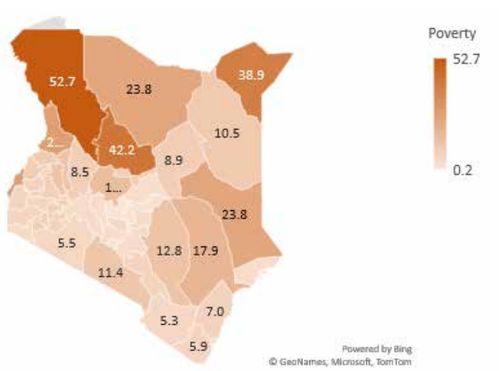
Figure 6.3: Share of livestock population by type among counties (% share of national livestock)



Source: Kenya National Bureau of Statistics (2019), Kenya Population and Housing Census

Despite the importance of the livestock sub-sector in the ASALs, the areas are characterized by hardcore poverty (Figure 6.4), weak institutions, poor infrastructure, political instability and conflicts, and limited-service provision (Sagara, 2018; KMT, 2019). The fragility of the areas makes the communities vulnerable; that is, increases the propensity or predisposition of the population to be adversely affected by shocks and stressors, and challenges to sustainable livestock production (Meybeck et al.,2012; KMT, 2019).

Figure 6.4: Hardcore poverty estimates (individuals) by county-headcount rate (%)



Data source: KNBS (2015), Basic Report on Well-Being in Kenya. Based on the 2015/16 Kenya Integrated Household Budget Survey (KIHBS)

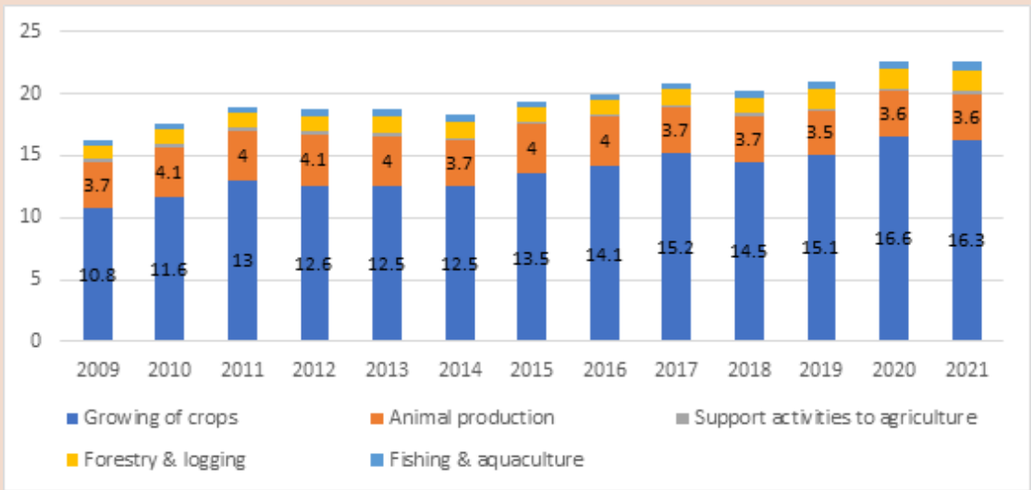
In the context of livestock production being central to the poor in Kenya and its role in food and nutrition and export earnings, it is important to explore ways to enhance resilience of the livestock production systems in ASALs and mitigate risks from shocks and stressors.

6.2 Sector Performance

The livestock sub-sector accounts for about 3.6 per cent of Kenya's Gross Domestic Product (GDP) (Ksh 431.4 billion in 2021). The sub-sector's contribution to GDP has been on a decline due to various factors such as the predominance of crops in the agricultural sector, and frequent disastrous events that adversely affect the livestock production systems.

In 2020, despite the effects of the COVID 19 pandemic, the sub-sector was more vibrant than in 2019 (Figures 6.5 and 6.6). The improved performance is attributed to favourable weather conditions that improved productivity of livestock and related products (KNBS, 2021a). The sub-sector's contribution to GDP remained constant in 2021 compared to 2020.

Figure 6.5: Livestock sub-sector contribution to GDP, 2009-2021 (%)

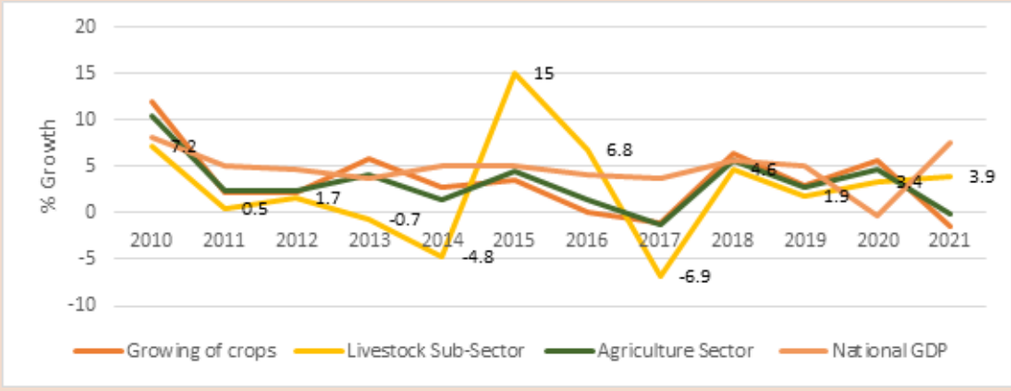


*The values reflect the new estimates after rebasing of the national accounts to the 2016 base year

Source: Kenya National Bureau of Statistics (Various), Economic Survey

While there is a high correlation between the sub-sector's growth and that of the overall agricultural sector, the livestock sector's growth is much lower and sluggish compared to the crops sub-sector. In 2021, growth in the agriculture sector declined due to unfavourable weather conditions in various parts of the country (KNBS, 2022). The performance of the livestock sector in 2021 was somewhat saved from the steep contraction witnessed in crops by increased volume marketed milk (Figures 6.6 and 6.7).

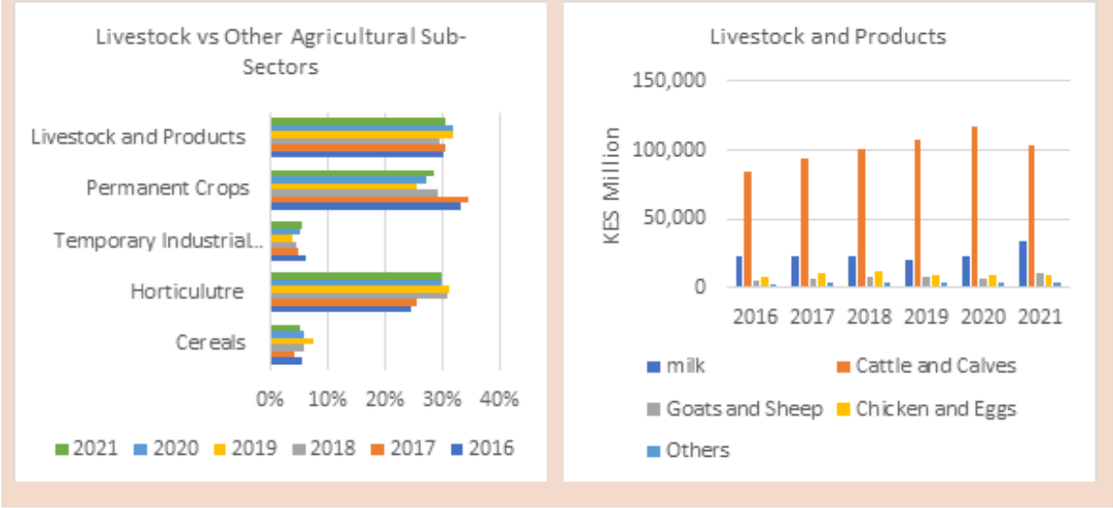
Figure 6.6: Growth of livestock real value added versus the national and crop sub-sector, 2010-2021



Source: Kenya National Bureau of Statistics (Various), Economic Survey

The livestock sub-sector, however, accounts for a significant share of the marketed agricultural production (31% in 2021), having increased to Ksh 161.62 billion in 2021 from Ksh 125.40 billion in 2016. Of the key livestock and livestock products, it is notable that significant marketed earnings are from cattle and calves, which are mainly concentrated in the ASALs.

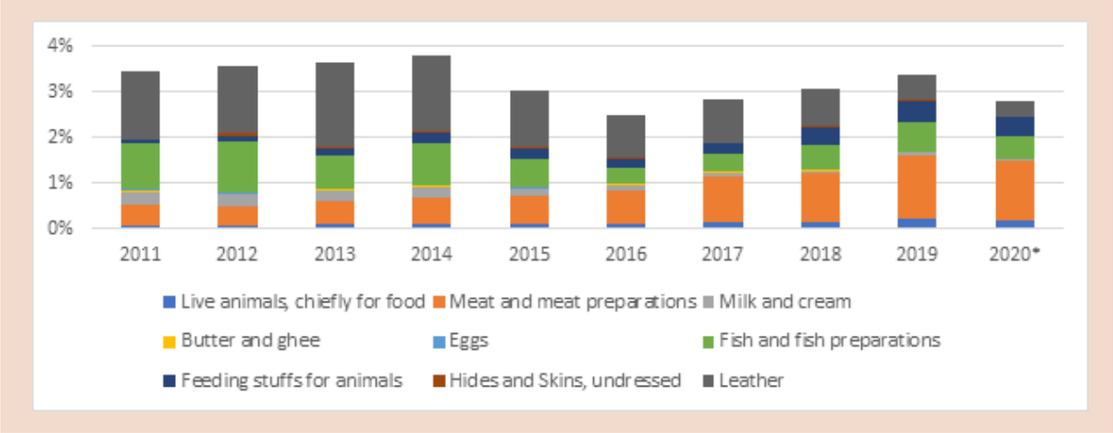
Figure 6.7: Marketed production



Source: Kenya National Bureau of Statistics (2021a)

The sub-sector's contribution to total domestic exports is about 3 per cent, but has declined over time due to various challenges affecting the livestock production systems, as will be discussed in the subsequent section.

Figure 6.8: Share of livestock and livestock product exports to total principal domestic exports, 2011-2020



*Source: Kenya National Bureau of Statistics (2021b); *Provisional*

6.3 Resilience Assessment: Beef Value Chain

As highlighted earlier, despite the importance of the livestock sub-sector, the livestock-based livelihoods in ASALs are vulnerable to recurrent shocks, defined as "external short-term deviations from long-term trends that have substantial negative effects on people's current state of well-being, level of assets, livelihoods, safety or their ability to withstand future shocks" (Choularton et al., 2015; Sagara, 2018). As explained in Sagara (2018), shocks can either have a slow or rapid onset and include floods, droughts, and economic shocks. The livestock production systems are also vulnerable to stressors, defined as "long-term pressures that undermine the stability of a system and increase vulnerability within it" (Choularton et al., 2015; Sagara, 2018). Examples of stressors include extended insecurity/conflict and poverty.

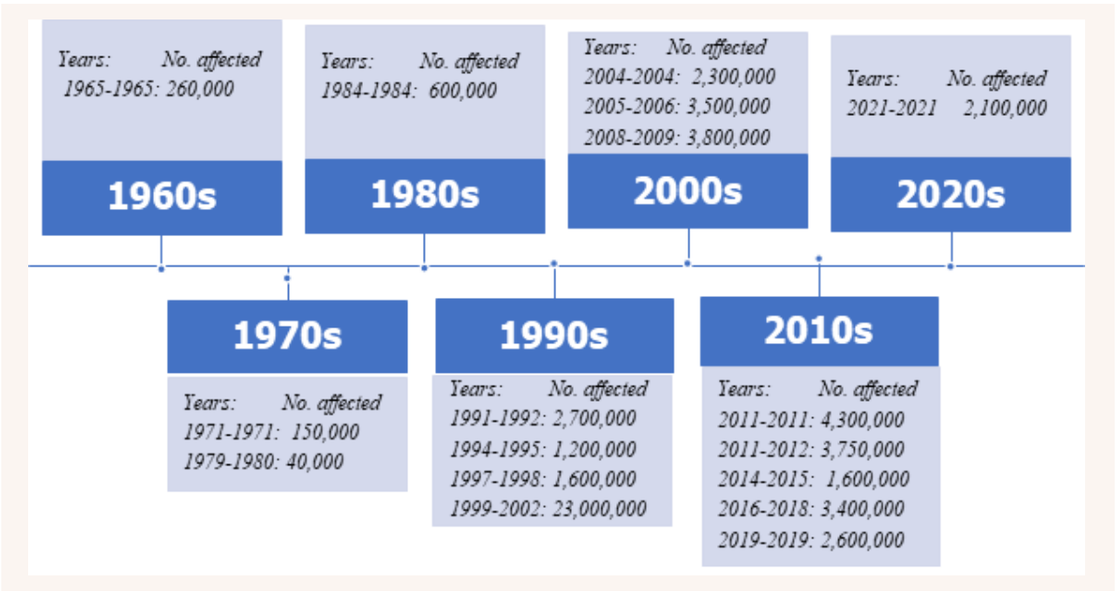
In Kenya, livestock production systems are particularly vulnerable to extreme weather events, desert locust invasions and livestock diseases, conflict/insecurity, and economic shocks (Meybeck et al., 2012; IUCN, 2010; KMT, 2019). Shocks and stressors rarely occur as independent events. Livestock production systems may experience multiple shocks and stressors where they coincide and possibly even interact or face successive shocks and stressors. Whereas the interdependence of shocks and stressors demands for comprehensive analysis to understand how resilience needs to be built,

analysis of disaggregated specific shocks/ stressors is important to appreciate the factors that contribute to resilience (Choularton et al., 2015; Sagara, 2018). The analysis is focused on beef production given ASALs comparative advantage in meat production.

6.3.1 Extreme weather events - drought and floods

While drought episodes in the country are not recent (Figure 6.9), drought occurrences have increased in frequency and intensity over the years. The drought occurrences mainly affect ASALs and are brought about by poor rainfall performance, particularly the long rains, lack of rains, and La Nina (EM-DAT).

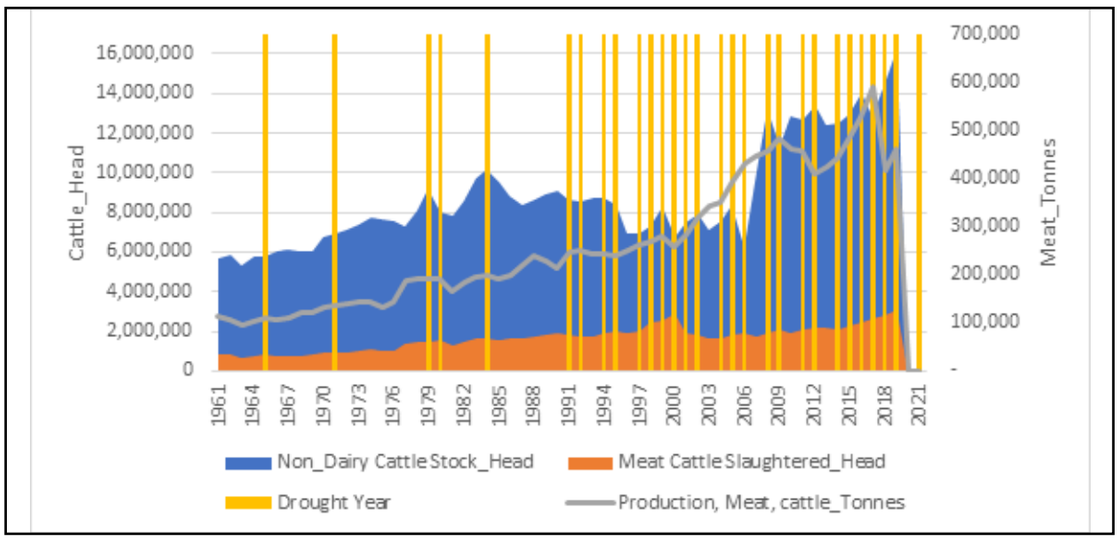
Figure 6.9: Occurrences of drought emergency events in Kenya



Source: Emergency Events Database (EM-DAT): The International Disaster Database, Centre for Research on the Epidemiology of Disasters: www.emdat.be (D. Guha-Sapir). Accessed on Mon, 31 Jan 2022

Livestock production systems are vulnerable to drought. Drought episodes adversely affect the availability of water for livestock, reduce the quantity and quality of pasture, reduce livestock body condition and value, lower production of livestock products, and lead to loss of livestock and changing patterns, distribution and severity of invasive species, pests and livestock diseases (National Treasury and Planning, 2021; Meybeck et al., 2012; IUCN, 2010). As such, droughts have a direct impact on the performance of the livestock sub-sector. For example, the 2016-2018 drought episode decelerated the growth rate of the livestock sub-sector to 0.1 per cent in 2017 from 2.4 per cent in 2016 (KNBS, 2018a). In addition, between 2007 and 2017, the Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALFC) estimated US$ 1.08 billion livestock population losses emanating from drought occurrences in the country (MoALFC, 2020). Further, the Ministry observes that over 70 per cent of livestock mortality emanates from drought events (MoALFC, 2020). Figure 6.10 illustrates drops in stock of non-dairy cattle not associated with increased number of slaughtered animals in drought years and/or consecutive periods after drought.

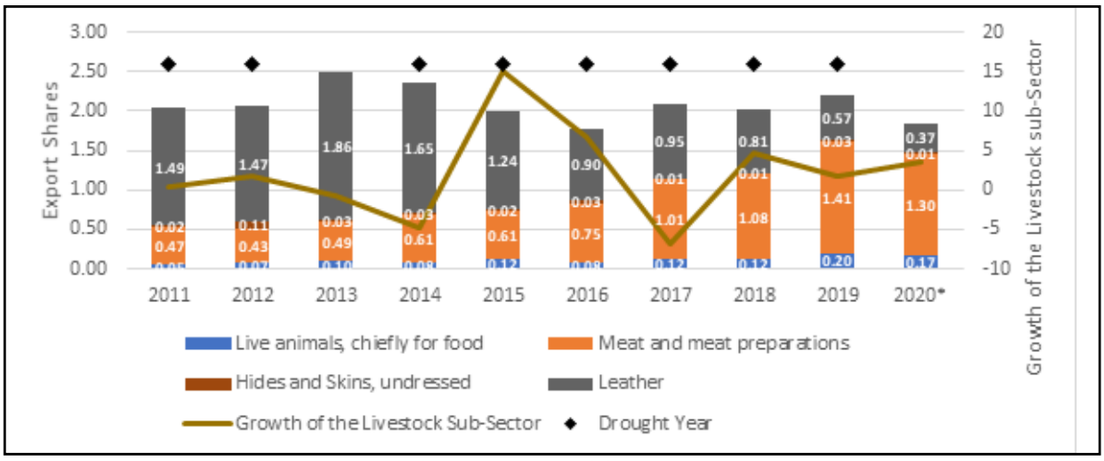
Figure 6.10: Non-dairy cattle stocks and productivity trends versus drought emergencies in Kenya



Data Source: FAOSTAT (Nov 10, 2021) and Emergency Events Database (EM-DAT): The International Disaster Database, Centre for Research on the Epidemiology of Disasters: www.emdat.be (D. Guha-Sapir). Accessed on 30th August 2021

Similarly, meat productivity (Figure 6.10) and export values of livestock and key ASAL livestock products (Figure 6.11) are affected negatively in drought years and/or consecutive periods after drought.

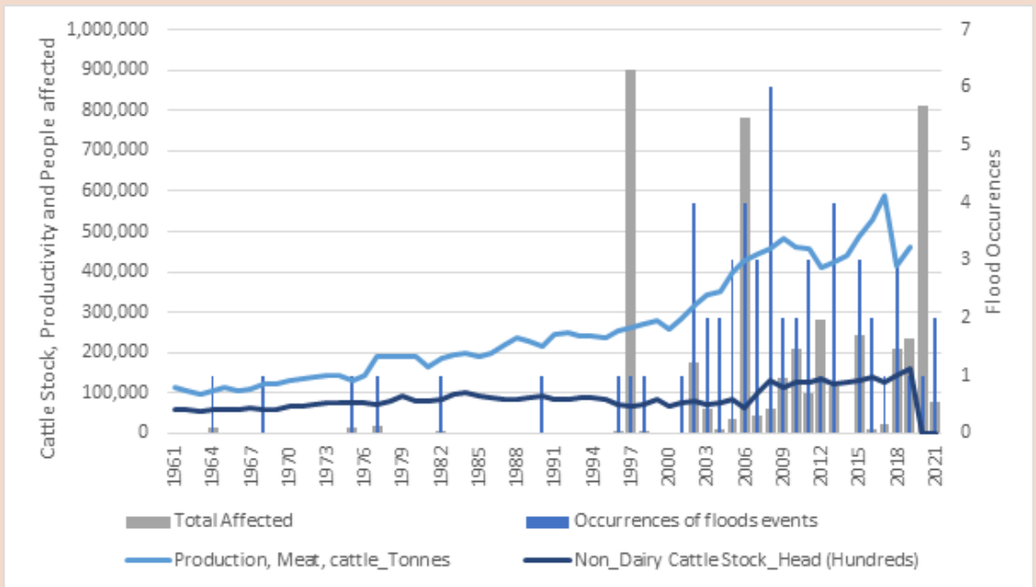
Figure 6.11: Share of livestock and livestock product exports to total domestic exports, 2011-2020



*Source: Kenya National Bureau of Statistics (2021b) *Provisional*

Other than drought occurrences, livestock production areas simultaneously face risks to floods. Vast areas of the country, including livestock production areas, are affected by floods, which have increased in frequency over the years and in turn the number of people affected (Figure 6.12). While some flood episodes are associated with increased herds, in others we observe dramatic decreases in non-dairy cattle stock (Figure 6.12).

Figure 6.12: Flood occurrences in Kenya and their effect on livestock and livestock productivity



Data Source: FAOSTAT (Nov 10, 2021) and Emergency Events Database (EM-DAT): The International Disaster Database, Centre for Research on the Epidemiology of Disasters: www.emdat.be (D. Guha-Sapir). Accessed on Mon, 30 Aug 2021

While traditionally livestock producers in ASALs have been able to cope with the limited agro-ecological capability of the region, the unpredictable drought and extreme run-off events coupled with shifts in seasonality (IUCN, 2010) and pastoral communities moving out from the traditional nomadic livelihood increases the vulnerability of livestock-based livelihood (KMT, 2019).

Various interventions have been taken up to build resilience to weather extremes. In face of frequent weather extremes in the country, the Ministry of Agriculture in 2015 launched the Kenya Livestock Insurance Programme (KLIP) in two counties, in partnership with the International Livestock Research Institute (ILRI) and the World Bank.

The KLIP, which is to be expanded in other ASAL counties, provides index-based livestock insurance (IBLI) solutions to livestock producers in ASAL counties with the aim of reducing pastoralists vulnerability to climatic shocks (MoALFC, 2020). Annually, the government supports insurance cover for 90,060 Tropical Livestock Units (TLU) as reported in the 2021 Budget Policy Statement.

In addition to IBLI solutions under KLIP, in 2020, ILRI launched the Drought Index-Insurance for Resilience in the Sahel and Horn of Africa (DIRISHA) project. DIRISHA focuses on pastoral systems in the Intergovernmental Authority on Development (IGAD) member States and aims at fostering regional cooperation in implementation of IBLI solutions.

The Kenyan government has also identified commercialization among ASAL counties as a response strategy to drought emergencies. Commercial offtake and slaughter destocking of livestock, as part of the National Livestock Offtake Programme, helps ASALs avert livestock losses and in turn safeguard livestock farmers' livelihoods. The revival of the Kenya Meat Commission (KMC) will help in the national and county livestock offtake efforts in ASALs to curb the effects of droughts. The revamped KMC will also enhance the ASAL livestock producers' participation along the leather value chain, and other livestock products.

Additional strategies implemented by the National Disaster Management Authority (NDMA) to cushion the sub-sector during drought emergencies include: provision of livestock supplementary feeds; vaccination, disease surveillance and treatment of vectors; reseeding, fodder production and conservation of ASALs; and enhancing access to water.

Further, towards building resilience and ending drought emergencies, among the flagship projects outlined in the Kenya Vision 2030 by the government are: a). Integrated Drought Early Warning System; b). Hunger Safety Net Programme; c). The National Drought and Disaster Contingency Fund; and d). Integrated Knowledge Management System for Drought. The flagships projected are under the NDMA. While the Hunger Safety Net Programme is people-focused, the other three flagship projects have the capacity to minimize livestock losses emanating from drought events. The integrated drought early warning system is operational and has made significant strides in provision of frequent drought early warning bullets at the county level. The establishment of the Integrated Knowledge Management System of Drought flagship is in progress while the National Drought and Disaster Contingency Fund flagship awaits operationalization of the fund as indicated in the 2021 Budget Policy Statement.

To support the livestock sub-sector, the Livestock Policy Research and Regulations Directorate under the State Department for Livestock, Ministry of Agriculture, Livestock, Fisheries and Cooperatives (MoALFC) has developed a draft Animal Identification and Traceability (ANITRAC) Strategy and Regulations (initially referred to as the Livestock Identification and Traceability Systems - LITS)

to support operationalization and enforcement of national policies on animal identification and traceability to support their productivity, breeding programmes, disease prevention and control, livestock movement control, surveillance of zoonotic diseases, certification of export of animals and animal products, livestock quality assurance, enhanced consumer confidence, and addressing cattle rustling problems.

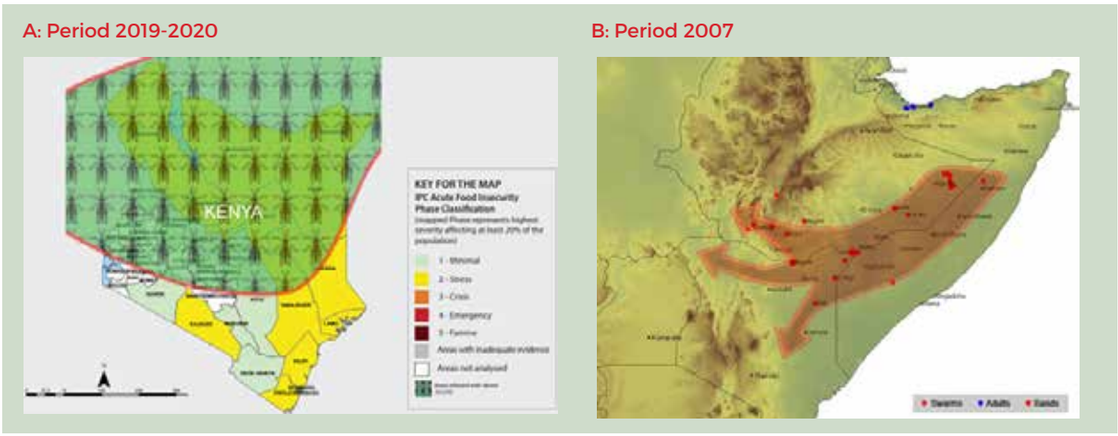
As such, the proposed strategy is anticipated to provide reliable real time livestock data for better planning and decision-making for sustainable development of the sub-sector. It will be helpful in avoiding losses and aid in planning in times of emergencies experienced during drought, disease outbreaks and insecurity due to rustling. The strategy will also be a critical component to county governments' projects to include: livestock offtake programmes, support restocking of herds and flocks, adequate access to credit and insurance, improved food safety surveillance, improved access to opportunities in global trade with the existence of functional animal traceability system, and proper management of the environment.

6.3.2 Desert locusts invasions

Desert locust invasions are among the most recent hazards affecting livestock production (National Treasury and Planning, 2021). The FAO Desert Locust Information Service (FAO DLIS) identifies desert locusts as the most destructive migratory pest in the world (FAO, 2015) and are mainly driven by climate change. Desert locusts' infestations in the country are concentrated in the northern ASALs counties and have become more serious over time with large and dense infestations affecting larger areas (Figure 6.13).

In 2019-2020, East Africa faced the worst desert locust invasion in at least 25 years. In Kenya, the 2019-2020 desert locust infestation is indicated to be the worst in 70 years (World Bank, 2020; Figure 6.13). Desert locust outbreaks in some years coincide with drought episodes and in some cases succeed drought years, magnifying the negative effects on the production systems and livelihoods (Figure 6.13).

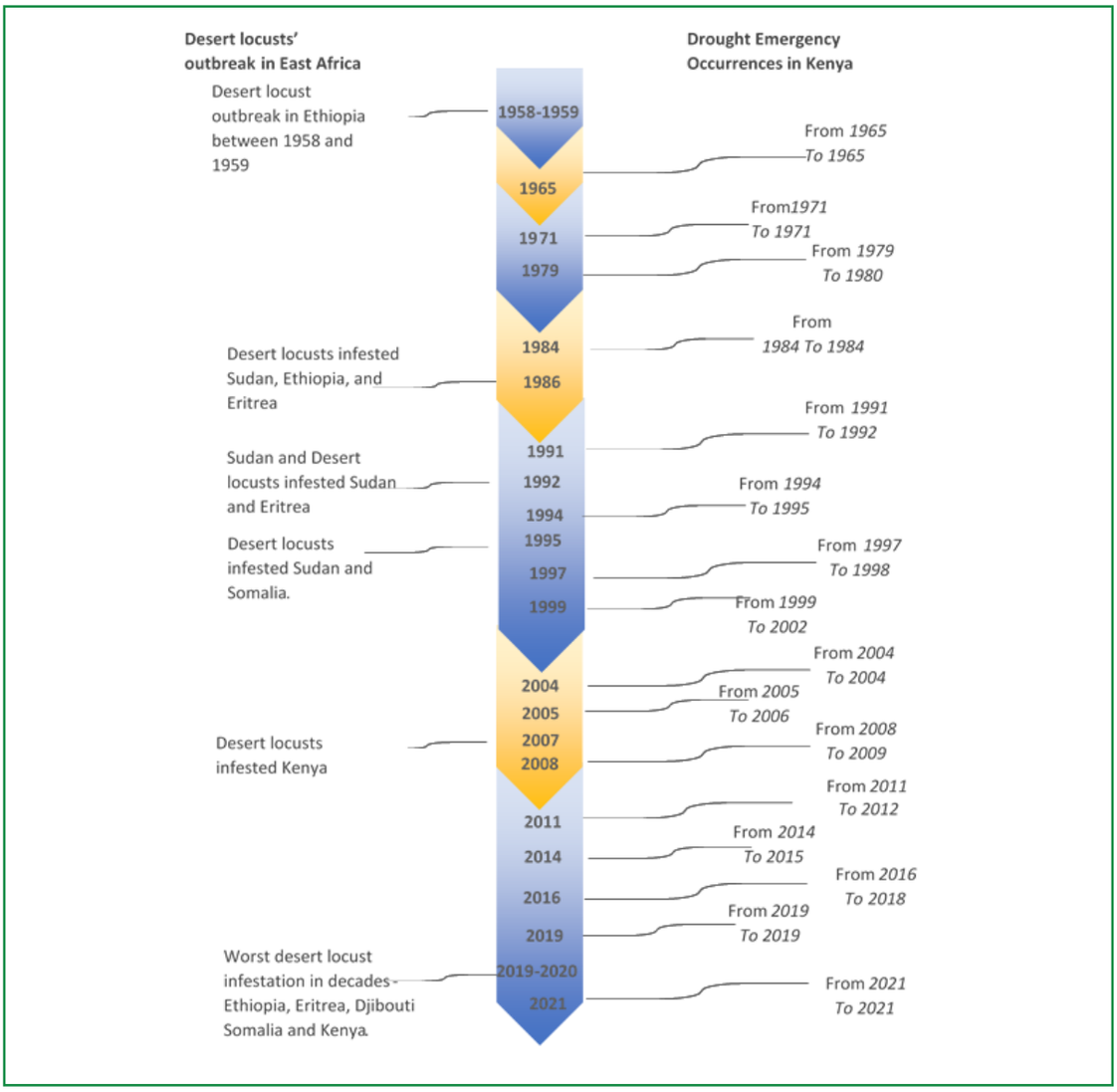
Figure 6.13: Areas infested by desert locusts in Kenya



Source: Food and Agriculture Organization (FAO) and World Health Organization (WHO).

The Integrated Food Security Phase Classification (IPC), Available at: *www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_ECA_DI_COVID19_May2020_Snapshot.pdf & FAO* ***Desert Locust Watch Available at:*** *www.fao.org/ag/locusts/en/archives/briefs/1590/2007/index.html*

Figure 6.14: The timeline of locust infestation in Eastern Africa versus drought occurrences in Kenya



Source: www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/IPC_ECA_DI_COVID19_May2020_Snapshot.pdf and Emergency Events Database (EM-DAT): The International Disaster Database, Centre for Research on the Epidemiology of Disasters: www.emdat.be (D. Guha-Sapir). Accessed on 30 August 2021

Preliminary estimates by the World Bank (2020) indicated that locusts had cleared about 175,000 hectares of crop and pastureland, affecting about 164,000 households. The locust's invasion has particularly had devasting effects on livestock livelihoods in food insecure ASALs, causing significant pasture losses (Figure 6.13). With diminished pastures, low body weight, and reduced livestock products, livestock earnings are affected. Desert locust control measures are likely to have additional environmental and livestock health effects associated with their control measures (World Bank, 2020).

To mitigate and build resilience to risks emanating from desert locust invasion, the government in collaboration with the Food and Agricultural Organization (FAO) of the United Nations (UN) has established six locusts control bases to undertake both aerial and ground control interventions in Garissa, Isiolo, Marsabit, Masinga, Turkana and Wajir. In addition, in response to the locust crisis, Kenya received US$ 30.5 million financial assistance between January 2020 and June 2021 (Table 6.1). The funds have been utilized to assist about 12,900 households in obtaining supplementary livestock feed in addition to protecting 983,500 livestock units among pastoral communities.

Table 6.1: Desert locust response in Kenya

Period: Jan 2020-June 2021	
Funding Situation	
Requirement (US$)	40.1 million
Received (US$)	30.5 million
Gap (US$)	9.6 million
Safeguard livelihood and promote early recovery response	
Beneficiaries Targeted (HH)	Beneficiaries Assisted (HH)
39.2K	42,100
Supplementary livestock feed	
Targeted HH	Assisted HH
4,500	12,900
Re-engagement farming package	
Targeted HH	Assisted HH
34.7k	29,200
Impact based on area treated	
i. The Desert Locust Crisis treated area (ha) since March 2020	212,009
ii. Metric tonnes of cereals protected over 1 season	423,800
iii. Income saved @ US$ 300 per ton	US$ 127.1 million
iv. Meeting the cereal requirements of the people estimated at 150 kg cereal consumption/year	2.8 million people
v. Protecting productive assets (livelihoods) of pastoralists households	196,700 households 983,500 LTU protected

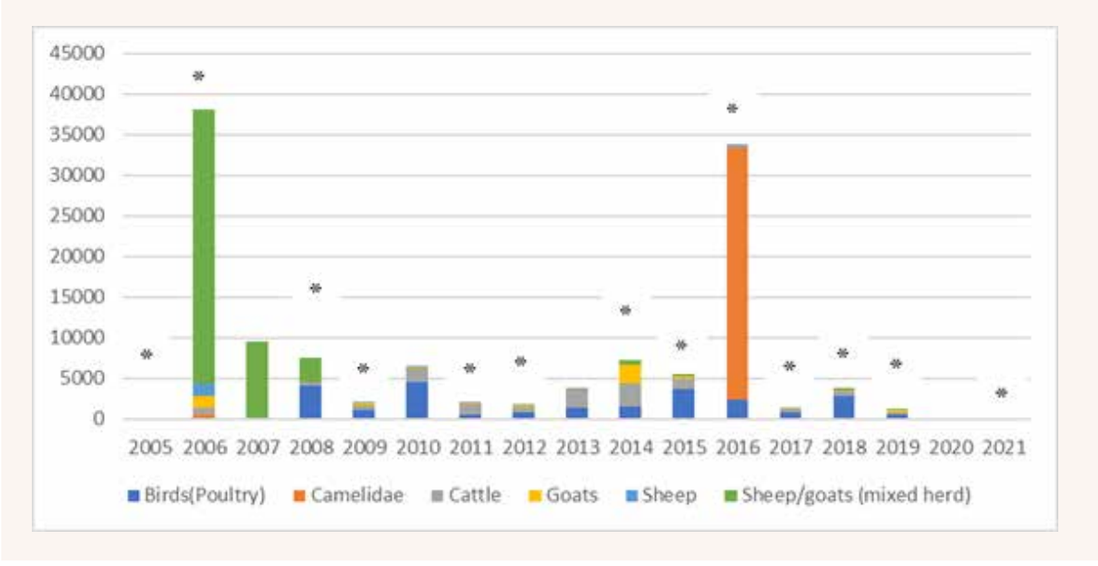
Source: www.fao.org/locusts/response-overview-dashboard/en/

Further, the World Bank, the Desert Locust Control Organization of East Africa (DLCO-EA), Intergovernmental Authority on Development (IGAD), FAO and the World Food Programme (WFP), among other institutions, are coordinating to support national interventions aimed at: limiting the increase and spread of existing desert populations; preventing livestock, and livelihood losses; building the country's capacity in desert locusts' surveillance and control; and ensuring safety measures to minimize the risks associated biopesticides used in the control of locusts swarms.

6.3.3 Livestock disease outbreak

The growing livestock and human population and their interactions therewith in livestock production areas, coupled with limited investments in livestock health services, poses significant livestock disease threats in the country (FAO, 2019). Similar to earlier observations, Figure 6.15 illustrates that livestock disease outbreaks are intertwined with other disasters such as drought. As highlighted by FAO (OIE, 2010; Meybeck et al. (2012), various direct and indirect adverse effects are associated with highly contagious livestock diseases. The direct effects include morbidity, mortality and ultimately reduction in livestock population, threats to human health through zoonotic diseases, reproduction effects, reduced quantity and quality of livestock output, and adverse physical environment and biodiversity effects as an aftereffect of measures undertaken in management of diseases. The indirect effects include: increased expenses brought about by costly disease measures, and trade bans and losses and decreased local demand due to fear of contagion. As such, livestock diseases are likely to cause serious socio-economic consequences to the country at large (OIE, 2010; Meybeck et al., 2012; FAO, 2019).

Figure 6.15: Cases of livestock diseases reported



** Drought years*

Data Source: World Organization for Animal Health-OIE and Emergency Events Database (EM-DAT): The International Disaster Database, Centre for Research on the Epidemiology of Disasters: www.emdat.be (D. Guha-Sapir). Accessed on Mon, 30 Aug 2021

High impact, contagious livestock diseases and their vectors such as the Rift Valley Fever (RVF) in cattle and Peste des petits ruminants (PPR) among the small ruminant livestock are a key pressure affecting livestock health and production in the country (Meybeck et al., 2012; MoALFC, 2020; KMT, 2019; World Organization for Animal Health-OIE).

For instance, PPR poses a great threat to livestock production in the country, with mortality rates as high as 80 per cent among small ruminants as was observed between 2006 and 2008 (FAO, 2021). FAO has been supporting the MoALFC in managing and preventing Peste des Petits Ruminants (PPR) in small ruminants since its first detection in 2006. The organization has utilized an estimated US$ 20 million in control and prevention measures, thus averting mortality of about 10 million small ruminants valued at about Ksh 45.58 billion (FAO, 2021). Further, the FAO (2019) estimates that Brucellosis and Bovine Tuberculosis in cattle combined costs the economy about 14 per cent of the cattle value-added, equivalent to US$ 4.8 billion per year.

Various efforts have been undertaken by the government and non-State actors in prevention and control of livestock diseases. In the Kenya Vision 2030, among the key flagships stipulated by the government in the Third-Medium Term Plan, 2018-2022 is the establishment of 4 Disease Free Zones (DFZs) covering the coastal area, the Laikipia-Isiolo complex and Uasin Gishu and Garissa counties. The DFZs were aimed at improving livestock health, productivity and quality of the sub-sector and comply with the World Trade Organization (WTO) sanitary requirements to enhance Kenya's meat trade in local, regional and international markets (Government of Kenya, 2018a). While among the reported achievements is the initiation of DFZ covering the coastal region (Government of Kenya, 2018a), in its Strategic Plan 2018 -2022, the State Department for Livestock observes that implementation of the DFZ as initially envisaged may not be possible. The department has instead embraced implementation of Livestock Export Zones (LEZs) (MoALFC, 2018-2022).

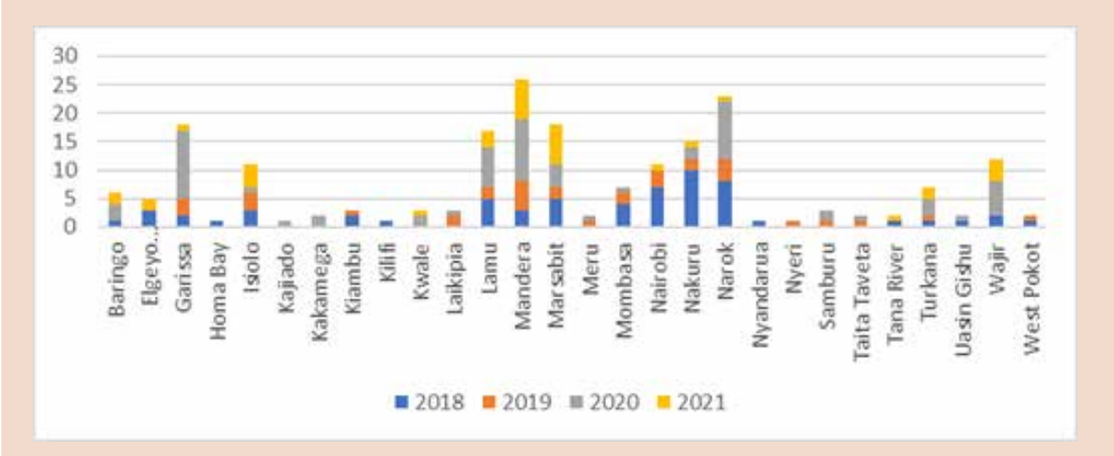
FAO has been supporting the MoALFC in managing and preventing Peste des Petits Ruminants (PPR) in small ruminants since its first detection in 2006. In 2021, FAO supported the ministry in acquiring over 2 million vaccines for PPR to be distributed to various counties, including ASAL counties (FAO, 2021). In addition, in 2021, FAO launched and implemented the 2017-2020 PPR Control and Eradication Strategy roadmap aimed at eradicating PPR in the country by 2027. Towards this, FAO has supported capacity building initiatives among targeted counties in disease surveillance and has also enhanced the counties diagnostic capacity and use of technology in disease surveillance and sharing of information.

6.3.4 Conflict in pastoral areas

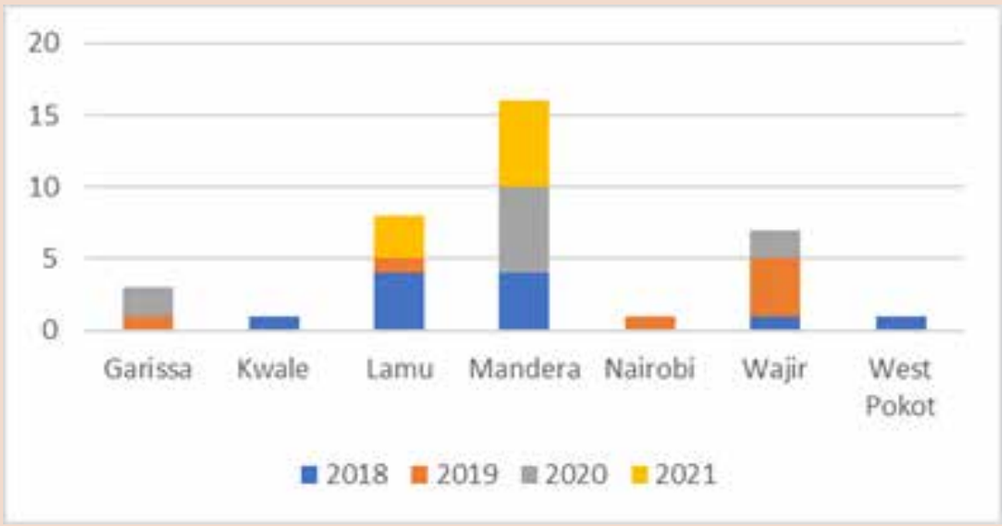
Along with weather extremes, pests and disease outbreaks, ASAL livestock production systems in the country are prone to various forms of conflict, including cattle rustling and banditry (Figure 6.16). While traditionally cattle raids were a cultural practice controlled by elders, cattle rustling and banditry in recent times has been characterized by high intensity conflicts, commercialization and has become more predatory and destructive, leaving many people dead or maimed, and resources and livelihoods destroyed (Osamba, 2000).

Figure 6.16: Conflict occurrences in Kenya by county

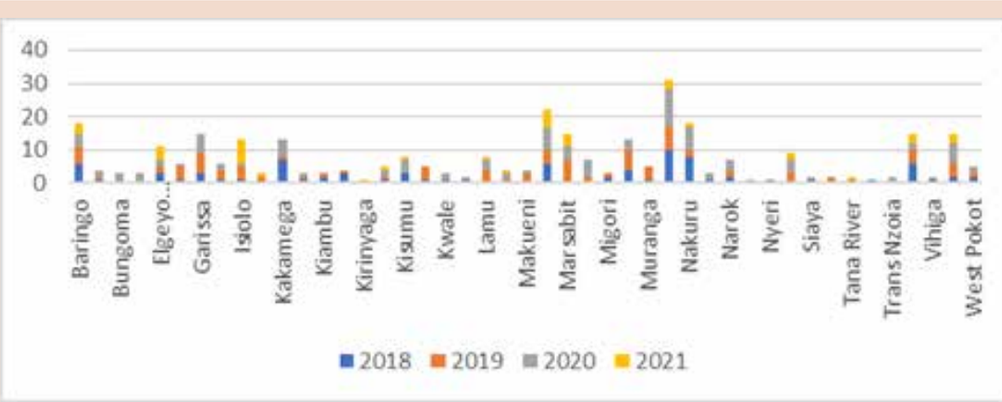
A: Cases of armed clashes by county



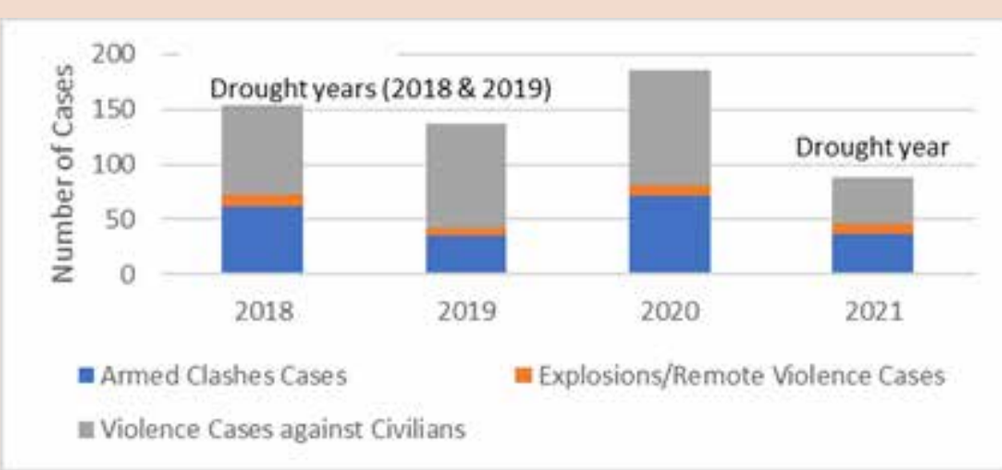
B: Cases of violence against civilians by county



C: Cases of explosions remote violence by county



D: Conflict occurrences versus drought events



Data Source: The Armed Conflict Location and Event Data (ACLED) Project https://acleddata.com/#/dashboard

Various factors are attributed to the increasing conflicts in the extensive systems of livestock production in the ASALs. The increasing livestock and human population, which brings about competing land uses, limits dynamic ecological balance in ASALs between land resources, animals and people necessary to retain their function in a stressful and changing environment. Restricted transhumance strategies, sedenterization of pastoral households, coupled with weather have increased conflicts over the declining resource use, including transboundary conflict among pastoral communities (IUCN, 2010; FAO, 2019; FSIN and Global Network Against Food Crises, 2021; Figure 6.16-part D).

As alluded to earlier, other than the shrinking resource base, additional drivers to conflict in ASALs include natural shocks and stressors such as drought and livestock diseases. Loss of livestock during these events gives some communities a reason to replenish their herds (Osamba, 2000). This creates a disruptive vicious cycle as communities seek to make up for past losses. In some instances, internal conflicts within ASALs may depict bad politics or unfriendly relationships between local leaders mainly on competition of power and administrative boundaries (KMT, 2019; Osamba, 2000). Additional drivers of conflicts in ASALs include dominance of ethnicity and regionalism, financial motives motivated by youth unemployment and poverty, radicalization and terrorism.

Conflicts are associated with loss of livestock, livestock poor body conditions with displacement of communities, or their disposal at unfavourable prices particularly among the poor livestock producers who mainly depend on the natural resource base and in extreme cases loss of human life (KMT, 2019). Conflicts further exacerbate the ASAL counties' vulnerability to other shocks and stressors as it limits the response strategies to prevent, mitigate or recover from their occurrence (KMT, 2019).

To reduce conflicts in the ASALs, the government has implemented various initiatives to include: devolution, which serves to address development imbalances in marginalized areas, including ASALs; disarmament initiatives; increased policing and security infrastructure in ASALs; domestication of the Conflict Early Warning and Response Mechanism (CEWARN) platform to manage transboundary pastoralist conflict and related conflicts among the members States of the Intergovernmental Authority on Development (IGAD); and establishment of the National Steering Committee on Peacebuilding and Conflict Management (NSC) that serves as the country's Conflict Early Warning Response Unit (CEWERU) and also the National Conflict Early Warning Centre (NCEWC) that implements the East African Community (EAC) Conflict Prevention Management and Resolution (CPMR). Conflict prevention and management strategies are, however, hindered by inadequate resources and inadequate infrastructure, which affects timeliness of response mechanisms.

6.3.5 Economic shocks in the livestock industry

Economic shocks constitute yet a key threat that impacts livestock-based livelihoods and can arise from wildly fluctuating or deviations in prices or income. Economic shocks can affect access to inputs, labour demand, prices of output, functionality of markets and asset holdings. Their impact is strongly felt among the poor population (Choularton et al., 2015; Meybeck et al., 2012). Economic shocks in livestock production may occur simultaneously or consecutively to other shocks. For instance, drought or livestock disease outbreaks may expose the sub-sector to price-related shocks, resulting from increased demand for water, feeds, or livestock drugs at the very moment when the commodities are less available, leading to price increases (Meybeck, et al., 2012). Further, the occurrences of drought may lead to livestock producers to desperately dispose the surviving livestock (KMT, 2019; Meybeck et al., 2012). The massive sales are likely to affect the prices and in turn income of the producers (KMT, 2019; Meybeck et al., 2012).

In the context of the COVID-19, market shocks during the pandemic highlighted many of the fragilities of present-day food systems, including livestock-based systems (FAO, 2020). The actors engaged in high-value and perishable commodities essential for good nutrition such as meat, dairy and other livestock products have been disproportionately affected (FAO, 2020). This includes the significant number of people involved in the informal trade in livestock and livestock products, compounding the effects on livestock livelihoods (FAO, 2020). With livestock and livestock products trading as the main source of disposable income of livestock producers in ASAL counties, the closure of markets during the pandemic peak periods, gathering and movement restrictions and increased transport costs affected livestock livelihoods (FAO, 2021). Livestock farmers and traders had to deviate from business-as-usual approaches in marketing and focused on more localized markets. The pandemic also negatively impacted disease surveillance activities in counties and delivery of key supportive services such as veterinary services, with possible negative impacts on productivity and in turn income of livestock and their products (FAO, 2021).

Efforts that contribute to improving the economic viability of the livestock sub-sector can help safeguard the livelihoods of actors within the industry and strengthen their adaptive, absorptive, and transformative capacities to endure other shocks and pressures. In particular, investments that support the functioning of the livestock and livestock products' markets and the integration of ASAL livestock producers into the livestock value chain are likely to improve earnings, and enhance the capacity of livestock communities, withstand shocks and stressors. Such efforts are far less costly than response measures taken in emergency situations (Jobbins and McDonnell, 2021).

The government has undertaken various initiatives and programmes to integrate livestock producers in ASALs in the livestock value chain, including commercial undertakings to enhance the economic viability of the industry and capacities in livestock sub-sector. These include the revival of the Kenya Meat Commission (KMC), the National Livestock Offtake Programme; the De-Risking, Inclusion and Value Enhancement (DRIVE) initiative by Kenya Development Corporation (KDC) that seeks to connect livestock producers in ASALs to high value markets, including regional livestock markets, by upgrading the livestock value chains and quality of livestock and livestock products and also facilitating trade; and efforts to integrate pastoralists in the leather value chain as stipulated in the draft Kenya Leather Development Policy 2021 in line with the Kenya Vision 2030, Medium-Term Plan (MTP) III and the "Big Four" agenda.

Further, to contribute to economic viability of the livestock sub-sector, the government has engaged in programmes and strategies for the financial protection of livestock producers in ASALs by supporting the insurance cover for 90,060 tropical livestock units (TLU) annually as reported in the Budget Policy Statement 2021. In addition, the government has engaged in activities that are expected to subsidize input costs and improve the quantity and quality of products, leading to improved prices and incomes in the sub-sector. For instance, in the medium-term budget framework (MTEF) period 2018/19–2020/21, under the livestock sub-sector, the government distributed various inputs to include liquid nitrogen, availed pesticides for control of transboundary pests, and suppressed tsetse fly population (National Treasury Budget Policy Statement, 2021).

6.4 Characterizing the Effect of Shocks and Stressors on Food Security

The interaction of hazardous events with vulnerable livestock-based systems are likely to cause widespread adverse effects on human well-being, particularly on attainment of food and nutrition security (IPCC, 2012; FSIN and Global Network Against Food Crises, 2021).

Kenya is among the many countries already falling short of the aspirations stipulated in the Sustainable Development Goal (SDG) 2. Identified as one of the major food crises in 2020, the 2021 Global Report on Food Crises (GRFC 2021) highlights that in 2020, 1.9 million of the population were acutely food insecure and in need of urgent assistance (IPC/CH Phase 3 or above) or equivalent (FSIN and Global Network Against Food Crises, 2021). Of the population that was acutely food insecure, 45 per cent were in rural ASALs (FSIN and Global Network Against Food Crises, 2021). Over the same period, an additional 6.3 million were classified as stressed (IPC Phase 2) (FSIN and Global Network Against Food Crises, 2021). In 2021, in the March-May period, about 2 million people are projected to be in crisis or worse, which amounts to 14 per cent of the ASAL counties in crisis or worse. An additional 5.6 million people are anticipated to be stressed over the same period (FSIN and Global Network Against Food Crises, 2021).

The GRFC 2021 highlights that food insecurity and malnutrition emerge mainly from adverse effects of conflict/insecurity, weather extremes, economic shocks, desert locusts and poor diets, health, and care practices (FSIN and Global Network Against Food Crises, 2021). The above highlights that the identified hazards limit the ability of the population, particularly in ASALs, to achieve food and nutrition security. The effects further limit the fragile livestock-based livelihoods to cope with shocks and stressors, further increasing their vulnerability to their occurrences.

6.5 Opportunities to Building Resilience: Lessons from Botswana

The occurrence of shocks and stressors are likely to increase as highlighted in the sixth assessment report of the Intergovernmental Panel on Climate Change (IPCC). Climate variability and climate change and its interaction with non-climate factors is a key influential factor to the increasing frequency, intensity and complexity of shocks and stressors in ASALs. This is likely to increase the vulnerability of ASALs' livelihoods to disturbances, clearly showing the need for the country to step up its approaches to mitigate risks.

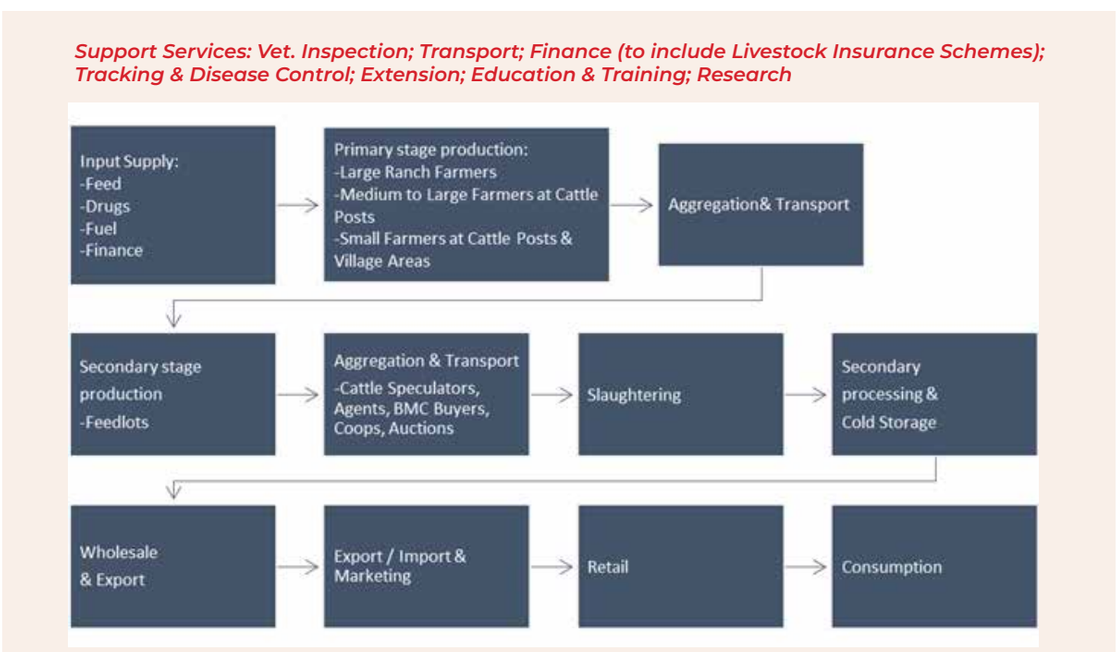
Such approaches need to involve strategies that enhance the preventive, anticipative, absorptive, adaptive and transformative capacities to deal with changing circumstances, as opposed to only focusing on the costly emergency response and relief strategies.

Sustainable development of the livestock industry is a key priority to build capacities of actors within the beef value chain and to withstand shocks and stressors and maintain the sub-sector's growth trajectory. As mentioned earlier, the long-standing development imbalances in the livestock sub-sector, in comparison to crops, undermines resilience strategies. In ASALs, development of the livestock industry, while officially recognizing and protecting livestock producers' cultural practices, is crucial for livelihood resilience. However, development that is not sensitive to the interest of the ASAL communities may leave pastoralists more vulnerable to shocks and stressors and having negative impacts on pastoral livelihoods (Jobbins and McDonnell, 2021). The strategies for sustainably enhancing the productivity of pastoral systems with the associated benefits, both direct and indirect, appreciated and enumerated may lead to stakeholders giving more attention to the pastoral systems in terms of monitoring and design of policies. Secondly, enhanced returns will enable the sub-sector attract investments for a more robust and resilient pastoral system to shocks and stressors.

Within Sub-Saharan Africa, there are promising cases of commercial-oriented livestock production systems that support a resilience and sustainable livestock industry. The Botswana beef case study outlines strategies and offers guidance on how to sustainably develop Kenya's livestock industry to promote resilience, with insights gathered from current and past efforts. Botswana is considered a model country in livestock production in the African region. Similar to the Kenyan case, livestock production in Botswana is characterized by commercial and traditional systems (Bahta et al., 2013). The traditional systems, where more than 80 per cent of cattle in the country are produced, are generally found in communal grazing areas. Owning livestock is a way of life for the Batswana, and thus important for alleviating poverty in the semi-arid country characterized with erratic rainfall (Bahta et al., 2013).

An assessment of the Botswana Beef Value Chain highlights four main channels: the export channel (controlled by the Botswana Meat Commission - BMC), the modern domestic channel (involving feedlot operations, modern processing facilities, modern retail formats among other modern quality driven processes), domestic butchery channel and, finally the direct consumption by producers (FAO, 2013). These channels are driven by demographic changes, modern processing and marketing strategies, enabling environment (such as traceability systems) and natural factors such as livestock diseases and drought (FAO, 2013).

Figure 6.17: The Botswana's livestock (beef) value chain



Source: Botswana Agricultural Value Chain Project Beef Value Chain Study (2013)

In partnership with development partners such as FAO, the country has supported the country's livestock industry for sustainable market-oriented livestock production and food and nutrition security (FAO, 2018). For instance, the country has put in place an elaborate legislative framework and built technical capacities for farmers and institutions to meet Sanitary and Phytosanitary Standards (SPS) and effective public services. Activities related to livestock include: animal disease control and emergency response; technical capacity to comply with stakeholders along the value chain and meat inspection services; capacity building in protecting livestock genetic resources; promoting business management capacity for farmers; building capacities of extension farmers; development and implementation of Botswana's Livestock Identification and Traceability System; development of a Strategic Plan for Agribusiness Promotions; and strengthening of food safety (FAO, 2018). In support of the above activities, Botswana's agriculture ministry strengthened its monitoring and evaluation system for resource control and also its data systems to allow annual processing and analysis of farmers data (FAO, 2018).

To further enhance the potential of Botswana's beef value chain in the current modern, globalized markets (the case study by FAO, 2013) on Botswana's beef value chain highlights the need to consider the following three core strategies:

(i) Partnerships and institutional change brought about by the need to reduce the high degree of direct government involvement in the country's beef value chain, which has proven to be both ineffective and costly. The study highlights the need for greater involvement of the private sector.

(ii) Trade and market liberalization to allow for sufficient competitive pressure for Botswana's beef value chain to operate efficiently, upgrade and get innovative.

(iii) Knowledge-driven development driven by the need to have quality data throughout the beef value chain, and equally support trend analysis. In addition, the data in Livestock Identification and Trace-back System (LITS) needs to be linked to disease management information systems. Data on prices in various markets is systematically collected and frequently disseminated on real time to meet stakeholders needs.

Specific recommendations for production support during drought as presented in FAO (2013) include:

(iv) Input subsidization during drought.

(v) Increase fodder production in higher rainfall areas to support livestock production in years with good rains to serve as an emergency grazing in drought years.

(vi) Create/strengthen livestock producers associations/cooperatives for more organized service provision such as access to inputs, veterinary services or selling livestock.

(vii) The associations/cooperatives could be used to lease land from the government as holding grounds to maintain livestock and salvage them from drought episodes.

(viii) Make fattening loans available to farmers.

(ix) Explore partnerships for feed production in neighbouring countries to minimize supply risks and reduce feeds prices.

For livestock animal disease control and prevention and public health, among the recommended interventions are:

(i) Access to veterinary services that are effective in terms of traceability and compliance with market requirements.

(ii) Provision of fulfilling information supply, extension and advisory tasks within production areas.

(iii) During transport, livestock needs to be scanned for diseases on site and have licensed washing and disinfection sites for livestock trucks.

(iv). Tackling resource constraints, regional harmonization of beef processing/product rules and elimination of conflicting roles among other challenges affecting the LITS that plays a key role in disease management. The report identifies the National Animal Identification and Tracing (NAIT) system in New Zealand as a model system to guide the challenges in the Botswana LITS.

The comparison between the Botswana's and Kenya's ASAL livestock systems, presented in Table 6.2, provides some key points below highlights some key differences.

Table 6.2: Comparison of Botswana's and Kenya's ASAL livestock systems

	Similarities	Differences
Livestock Production	Livestock System	
	• Majority of the countries' land, including the livestock production areas, is arid and semi-arid lands • Livestock have an important cultural place and are a main source of livelihood among the livestock keeping communities • Common key livestock resources include cattle, goats and sheep • Majority of the cattle, goats and sheep are reared in the traditional pastoral systems	• Kenya: Camels and donkeys are also common in ASALs • Botswana: The livestock sub-sector, and in turn beef, is the largest component of the agricultural-food system in the country
	What is at stake?	
	• Livestock productions occur in fragile ecosystems prone to drought and drought-related stressors, livestock diseases, locusts' outbreaks, and economic shocks	• Botswana - Additional production stressors include human wildlife conflict • Kenya - Production affected by conflict between ASAL societal groups, human-wildlife conflict, radicalization and terrorism
	Efforts towards Building Resilience to Stresses and Shocks	
	• Mainstreaming building resilience to shocks and stressors in national development plans • Response strategies with occurrence of shocks and stressors on their occurrence	**Kenya:** Identification of alternative livelihoods for households **Botswana:** • Botswana has integrated a holistic approach to resilience building across the value chain • Besides the free pastures and browse, the country provides its livestock with supplementary feeding for their survival in drought years and compensate for the low nutrient levels of the Kalahari soils in the fragile ecosystems • Protection of livestock genetic resources • Enhanced institutional and technical capacities to include: meeting SPSs in livestock trade; livestock disease and monitoring • Significant credit provided to stakeholders along the livestock value chain • Country has a number of livestock insurance products developed as PPPs

	Similarities	Differences
Processing and Cold Storage	Processing mainly carried by government institutions	**Kenya** Processing mainly done by KMC and private processors The country has not realized its potential in processing livestock and related livestock products such as hides and skins
		Botswana • Country has cold storage, cutting and processing plants for the production of portioned and processed meat products • Processing mainly carried by BMC but there are also small processors who mostly sell domestically • Abattoirs are controlled by Department of Veterinary Services (DVS). They are registered and licenced. Some of these are linked to processors and butchery chains
Livestock Marketing and Exports	Driven by both subsistence and profit motives	**Kenya:** ASAL livestock market systems remain depressed with minimal integration to the livestock value chains **Botswana:** • BMC is the major market channel for beef cattle. However, there are efforts towards greater involvement of the private sector in the entire livestock value chain • The country has a significant beef market share in Africa outside Africa • Considerable efforts in promoting more inclusive, efficient and trade-oriented livestock through farmers cooperation's, among others. About 85 per cent of BMC livestock originate from communal lands • Building business capacities among livestock farmers and extension workers capacities
Data Systems	Considerable efforts in monitoring livestock resources	**Kenya** • The Development of the Animal Identification and Traceability (ANITRAC) Strategy and Regulations ongoing **Botswana** • Implementation of the Livestock Identification and Trace-back System [LITS], which enhance disease management in the country • Strengthened the evaluation system for efficiency and effective resource control

Source: Author's conceptualization

6.6 Key Messages/Conclusion

The livestock industry in Kenya plays a significant role in steering growth of the agricultural sector and serves as a cornerstone for millions of livelihoods, particularly in ASALs. The potential of the industry is, however, curtailed by shocks and stressors. The following emerge from the resilient assessment of livestock production in ASALs:

1. Livestock production systems in ASALs are vulnerable to recurrent shocks and long-term pressures in the form of extreme weather events, desert locust invasions and livestock diseases, conflict/insecurity, and economic shocks.

2. In many instances, the production systems experience multiple shocks and stressors where they coincide and possibly even interact or face successive shocks and stressors magnifying their undesirable effects on livelihoods.

3. Drought occurrences in the country have increased in frequency and intensity over the years. Drought episodes adversely affect the availability of water for livestock, reduces quantity and quality pasture, reduces livestock body condition and value, lowers production of livestock products, leads to loss of livestock and changing patterns, distribution and severity of invasive species, pests and livestock diseases. Other than drought occurrences, livestock production areas simultaneously face risks to floods, which have increased in frequency over the years.

4. While traditionally ASALs have been able to cope with the ecological viability of the systems, the unpredictable drought and extreme run-off events coupled with shifts in seasonality and pastoral communities moving out from the traditional nomadic livelihood increases the vulnerability of livestock-based livelihood.

5. Desert locust invasions, the most destructive migratory pest the country has been observed to coincide with or succeed extreme weather events, particularly drought events. The most recent invasion was concentrated in ASALs, exposing the livestock production systems to the ‘triple crises’ of extreme weather events, acute food insecurity and the desert locust infestation.

6. The growing livestock and human population and their interactions therewith coupled with limited investments in livestock health services pose significant livestock disease threats in the country. In turn, highly contagious livestock diseases are associated with various direct and indirect adverse effects.

7. ASAL livestock production systems in the country are prone to various forms of conflict, including cattle rustling and banditry, which in recent times have been characterized by high intensity conflicts, commercialized, and become more predatory and destructive leading to loss of lives, resources and livelihoods destroyed.

8. Economic shocks in livestock production can arise from deviations in prices or income. Economic shocks can affect access to inputs, labour demand, prices of output, functionality of markets and asset holdings and their impact is strongly felt among the poor population.

9. In the context of the COVID-19, the pandemic has highlighted many of the fragilities of present-day food systems, particularly among actors engaged in high-value and perishable commodities such as meat, dairy and other livestock products. With livestock and livestock products trading as the main source of disposable income of livestock producers in ASAL counties, the closure of markets during the pandemic peak periods, gathering and movement restrictions and increased transport costs affected livestock livelihoods. The pandemic also negatively impacted disease surveillance activities in the counties, and delivery of key supportive services such as veterinary services.

10. Climate variability and change and its interaction with non-climatic factors is likely to worsen the increased frequency, intensity and complexity of shocks and stressors in fragile ASALs ecosystems. This calls for approaches to improve the preventive, anticipative, absorptive, adaptive and transformative capacities of ASAL communities to deal with changing circumstances, as opposed to only focusing on the costly emergency response and relief strategies. This will enhance the ecological, economic and social resilience of ASALs for a more robust and resilient pastoral system to shocks and stressors.

11. Lessons from the Botswana beef industry highlight key opportunities in:

(i) Capacity building of farmers and extension workers in protecting livestock genetic resources; business management; implementation of strategies including the identification and traceability system

(ii) Agribusiness promotion and strategies for strengthening of food safety

(iii) Enhanced partnerships to reduce the high degree of direct government involvement in the livestock industry and allow for sufficient competitive pressure for the industry to operate efficiently and get innovative

(iv) Knowledge-driven development using quality data that is linked to disaster management information systems

(v) Input subsidization during disasters and increased fodder production in higher rainfall areas to support livestock production in stress periods

(vi) Create and strengthen livestock producers' associations/cooperatives for more organized service provision such as access to inputs, veterinary services or selling livestock

(vii) For livestock animal disease control and prevention, enhance access to veterinary services that are effective in terms of traceability and compliance with market requirements and scanning livestock for diseases on site and have licensed washing and disinfection sites for livestock trucks during transport

(viii) Access to significant finance, to include credit and livestock insurance, through Public-Private Partnerships (PPPs).

6.7 Recommendations

From the analysis, several recommendations aimed at promoting resilience, competitiveness and sustainable development of the livestock industry are highlighted:

a) General

1. Enhance rural development of ASALs, where processes integrate both economic and social activities, including: development of well-equipped local processing centres; mobile service delivery programmes, water and market infrastructure; livestock trekking/ migratory corridors; and grazing reserves.

2. Explore climate smart measures in livestock production systems such as the silvopastoral system (Ndiritu, 2020), which entails intensification of livestock production based on sustainable natural processes. Climate smart approaches present an opportunity to respond to climate change and sustainable utilization of ASALs.

3. Explore partnerships for investments and adequate funding for successful implementation of ANITRAC, among other livestock strategies within the country. This includes enhancing private sector involvement in the development of the livestock industry in Kenya.

4. Enhance efficient and effective data management systems to support planning, decision making, monitoring and evaluation processes for resource control. The livestock industry in the country needs to be supported by quality data throughout the livestock value chain. The data needs to be centralized and linked to disaster management systems.

5. Coordination and harmonization of various livestock programmes, strategies, policies and laws, such as the upcoming Food Safety Bill, Livestock Bill 2021, and the draft Kenya Leather Development Authority (KLDA) Bill with ANITRAC.

6. Enhance access to support services to include adequate extension services and significant affordable livestock credit and insurance through partnerships. This can be achieved effectively and efficiently by strengthening livestock producer organizations in ASALs for more organized service delivery.

b) Intensify livestock production sustainably

To manage extreme weather, conflict and economic shocks and stressors, there is need to:

1. Identify alternative affordable input sourcing channels to minimize the negative effects from disruptions in distribution channels as observed during the COVID-19 pandemic.

2. Improve farmers access and management of credit and access to livestock insurance.

3. Improve rainwater harvesting, pasture management and storage in ASALs.

4. Use public/State land for fodder production and serve as holding grounds to provide feeds and maintain livestock in drought years.

5. Provide extension and advisory services within livestock production areas.

6. Establish abattoirs, processing, transport and cold storage facilities (on-site cold storage and refrigerated transport vehicles) in ASAL counties to support all time use of livestock slaughter options rather than flooding the market with poor-quality livestock during drought episodes.

c) Product quality, diversity and marketing

To manage extreme weather and economic shocks and stressors, and address the socio-economic status of communities as an underlying cause of vulnerability, there is need to:

1. Diversify livelihoods in sustainable programmes and participate in the diverse livestock products value chains, such as along the leather value chain as promoted by the Kenya Development Leather Council (KLDC). Diversifying livelihoods is one of the key strategies in promoting resilience in ASALs.

2. Build technical capacities for farmers and institutions to effectively implement various livestock strategies and for quality production of livestock and livestock products to satisfy domestic and international requirements on safety and quality. Production of quality livestock products and its subsequent marketing is key to improved income generation among livestock farmers.

3. Provide fulfilling and real time information on livestock and livestock products, prices and supply.

4. Utilize farmer field schools to promote business management capacity for livestock farmers in ASALs.

5. Enhance livestock off-take not only in drought years but also in good years through increased prices.

6. Expand/diversify market opportunities from business-as-usual approaches to improve market flexibility, predictability and help reduce production losses in times of shocks as experienced with the COVID-19 pandemic. This can be achieved through linking livestock farmers to local, regional, and international livestock value chains.

d) Enhancing social cohesion

To address conflict among pastoral communities, there is need to:

1. Engage in cultural heritage activities to minimize social polarization that can escalate intercommunal conflicts between pastoral communities or between pastoral and non-pastoral communities. The forums can be used to showcase, share and celebrate diverse and distinct experiences, customs and traditions, thereby helping communities understand and acknowledge their diversities and differences.

e) Build resilient county livestock systems

1. Utilize Farmer Field Schools (FFS) as a platform for raising awareness on climate change and introduce adaptation practices among livestock farmers.

2. Build institutional capacity of counties to effectively prepare and respond in a timely way to early warning systems in disaster management.

7

DIGITAL ECONOMY

BUILDING RESILIENCE THROUGH THE DIGITAL ECONOMY

The digital economy is not only important to economic growth and development, but is also an important factor in building a resilient economy. It enhances the ability of a society to overcome crucial challenges such as wars or pandemics and return to normalcy, thereby providing a path for future development. This is essentially the case where almost all sectors of the economy operate using digitally enabled communications and networks leveraging Internet, mobile and other technologies. Kenya's Digital Economy Blueprint 2019 identifies five pillars of the digital economy: digital government, digital business, innovation-driven entrepreneurship, digital skills and values, and infrastructure. Kenya has made significant progress in digital government by ensuring that several public services are provided electronically in the digital space. However, there is the challenge of interoperability of government information systems. On the digital business pillar, majority (84%) of enterprises have Internet in their premises. Gaps exist in the digital infrastructure pillar, manifested by a digital divide where 22.6 per cent of households nationally, 13.7 per cent for rural areas and 42.5 per cent for urban areas have Internet. Some of the constraints to Internet access that households face include lack of Internet service coverage, cost of Internet connectivity, cost of Internet-enabled devices, and lack of knowledge and skills in using the Internet. Development of digital skills at the intermediate and advanced level remains an important priority for building resilience through the digital economy and fostering innovation-driven entrepreneurship. There is need to focus on bridging the digital divide by enhancing interoperability of government information systems, development of advanced digital skills, deepening e-commerce, and nurturing innovation-led entrepreneurship to enable the realization of opportunities for socio-economic resilience presented by the digital economy.

7.1 Introduction

The spread of the Internet and the emergence of digital technologies in an interconnected youthful world has given rise to the conceptualization of a digital economy. The Digital Economy Blueprint (2019) for Kenya defines the digital economy as "the entirety of sectors that operate using digitally-enabled communications and networks leveraging Internet, mobile and other technologies" irrespective of industry. Digital economy is also defined as composed of the firms providing digital goods and services, either for final or intermediate consumption" Also see this link for more on defining the digital economy The blueprint identifies five pillars of the digital economy as: Digital Government, Digital Business, Digital Infrastructure, Innovation-Driven Entrepreneurship, and Digital Skills and Values.

The digital economy is a thematic area of focus not only nationally, but regionally and globally. Kenya's digital economy blueprint is aligned to the African Union's (AU) Digital Transformation Strategy for Africa (2020-2030), which prioritizes digitally enabled socio-economic development based on the youthful population structure and emerging digital era. It is envisioned that digital transformation will address many of the development challenges in Africa by promoting an integrated and inclusive digital society and economy, improving the quality of life, strengthening existing economic sectors, and enabling economic diversification and development. The sustainable development agenda also recognizes the potential of the digital economy in accelerating human progress, bridging digital divide, and developing knowledge societies. Digital technologies and ICTs accelerate progress towards the achievement of all Sustainable Development Goals (SDGs). For instance, digital technologies help reduce poverty and hunger, boost health, create new jobs, build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.

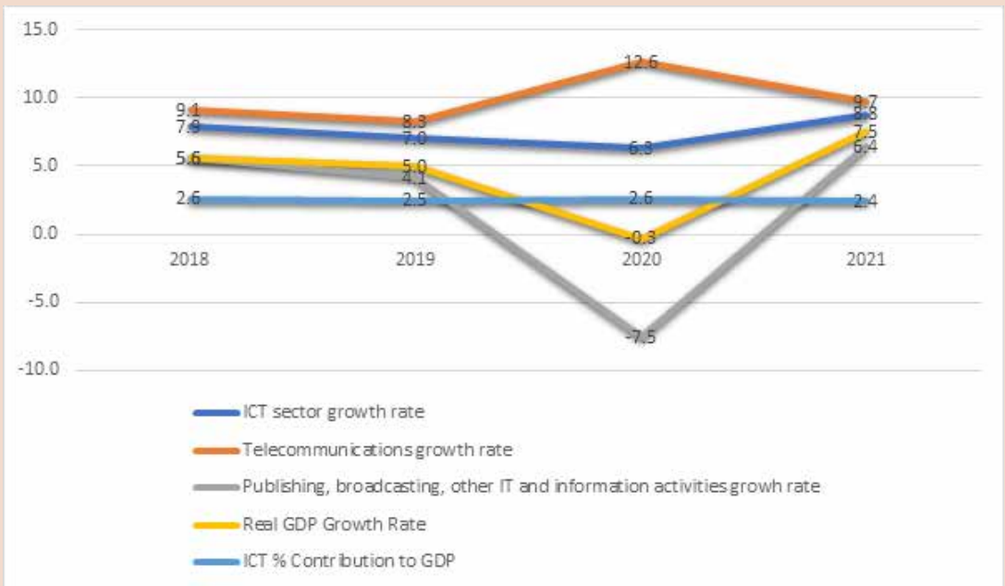
Goal 9 of the Sustainable Development Goals (SDGs) aims to "significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020".

Information and communication technology is the bedrock and enabler of the digital economy. The digital economy is characterized by intensive use of ICT by the private sector, the public and governments for the collection, storage, processing and transmission of information. The digital economy is dependent on ICT, particularly access to universal broadband, for its functioning. The nexus between ICT and the digital economy is largely in the "economic output derived primarily from advancements in Internet, broadband and digital technologies" - Government of Kenya (2019a). Evidence has shown that this nexus between ICT and the digital economy is an important contributor of economic growth. For instance, Scott (2012) estimates that a 10-percentage point increase in broadband penetration accelerates economic growth by 1.35 percentage points in developing countries (Scott, 2012).

ICT plays a key role in building a resilient digital economy. ICT-enabled digitization helps to mitigate the economic disruption brought on by shocks and emergency situations such as a pandemic. Countries with more developed broadband connectivity are able to mitigate some of the economic losses occasioned by a pandemic (Katz et al., 2020). ICT in all its forms (broadcasting, telecommunications, Internet and broadband services, print and electronic media, among others) plays an important enabling role in emergency response actions and recovery strategies. Digital business through e-commerce has been instrumental in ensuring business continuity during lockdown. Digital government has aided the government in responding, communicating and creating awareness on the pandemic and mitigation measures to the citizens. Digital infrastructure such as broad band Internet has also enabled governments, households and businesses to adapt to the measures imposed to contain the virus through teleworking/commuting. Telemedicine is also being deployed in treatment of patients and protection of health care service providers due to access to Internet. Innovation-driven entrepreneurs have also created IT-enabled services and used digital platforms to generate incomes during the pandemic.

The digital economy measured through the ICT sector witnessed an overall rise in growth rate from 7.9 per cent in 2018 to 8.8 per cent in 2021. However, a deeper look at the sub-sectors that comprise ICT reveals that the telecommunications sector witnessed an increased growth rate from 9.1 per cent to 9.7 per cent, while publishing, broadcasting, other IT and information activities experienced growth from 5.6 per cent in 2018 to 6.4 per cent in 2021. In 2021, the sector contribution to GDP declined to 2.4 per cent compared to 2.6 per cent in 2018.

Figure 7.1: Performance trend, 2018-2021



Source: Kenya National Bureau of Statistics (2022), Economic Survey

7.2 Enabling the Digital Economy through Policy, Legislative and Regulatory Frameworks

The digital economy requires an enabling environment, policy and regulation for its functions and sustainability. Kenya has continuously advanced the policy, legislative and regulatory framework in support of realizing the transformation into a digital economy. There are a number of policies that form the background to the digital economy, which are focused on advancement of ICT in Kenya. ICT is one of the key enablers in the Kenya Vision 2030. It is a major driver in transforming the country into a knowledge and information-based economy. To realize this transformation, there is need to enhance access to quality, affordable and reliable ICT infrastructure and services in the country. ICT is pervasive and plays a role in all economic activities and it has the potential to increase productivity and raise the competitiveness of the country. The Third Medium-Term Plan (MTP III) focuses on "leveraging ICTs for increased competitiveness." The plan establishes the role that ICT plays under the "Big Four" agenda. It notes that ICT will catalyze enhanced productivity and lower the cost of implementing the "Big Four" agenda. ICTs will drive initiatives towards the fourth industrial revolution in Kenya, encompassing application of digital, biological and physical technologies in universal health care, affordable housing, manufacturing, and food security programmes and projects. The Fourth Industrial Revolution (4IR) is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres and marked by emerging technologies such as Internet of Things.

The ICT policy 2020 is designed to realize the potential of the digital economy. It recognizes that all aspects of economic activity and society will be integrated into the digital economy through the Internet. The policy objectives include, among others, the creation of infrastructure conditions that always enable accessible quality Internet across the country, and using ICT as a foundation for the creation of a more robust economy that provides incomes and livelihoods. The ICT

Master Plan 2014 recognizes that ICT has an important role in driving the economic, social and political development of Kenya, including the classification of ICT as a standalone sector of the economy. Implementation of the Master Plan was intended to, among others, lead to the creation of a digital society and economy. The Master Plan has three foundations, namely: ICT human capital and workforce development, integrated ICT infrastructure, and integrated information infrastructure. These foundations lay the basis for transitioning Kenya to a knowledge-based economy and are related to the five pillars in the Digital Economy Blueprint 2019. The main points of convergence are in the recognition that developing ICT skills is a prerequisite for creation of a viable digital sector, and that infrastructure is a key enabler of other pillars that act as the backbone required to deliver ICT products and services to Kenyans, and is an enabler of digital business, digital government, and innovation-led entrepreneurship. The National Broad Band Strategy further provides the targets for infrastructure development to ensure access to high-speed Internet.

The pillar on digital government is supported in the ICT Policy 2020, which provides public service delivery as one of the four policy focus areas. The policy states that all government services must be available online, and that every Kenyan has online access. It also seeks to promote the collaboration of the National Government and the County Governments in ensuring that quality services reach the citizens. The ICT Master Plan also has e-government as one of its three pillars, and acknowledges that e-government is key to improving productivity, efficiency, effectiveness and governance in all sectors.

Development of digital skills and values is recognized as an important factor in realizing the potential of the digital economy. Skills and innovation are included as one of the four focus areas of the ICT Policy 2020, which states that the government will help create skills in selected new technologies by funding scholarships and grant, and ensure that incentives and education align with global market requirements. The ICT Master Plan also recognizes that the development of quality ICT human resources is a prerequisite to the development of a viable ICT sector. The envisaged outcomes in skills development include availability of sustainable local high-end skills to meet industry needs and ICT literate population capable of exploiting ICT products and services for improved quality of life.

In digital business, the ICT Policy 2020 states that the government will facilitate local businesses to participate in regional and global markets by tapping into the opportunities provided by the Internet of Things (IoT) and digital infrastructure. The policy will form the basis of regulation of converged industry and digital business, and it will set up rules to create an enabling environment for digital business. The policy also creates the digital environment to enable efficiency in the digital transaction space. The ICT Master Plan also provides for the development of ICT business with the objective to grow the number of IT-enabled service companies, and the range of services provided.

Innovation-driven entrepreneurship is also supported in the ICT Policy 2020, which outlines the plan designed to foster an ecosystem that will produce world class research, technology products, and industries. The government will enable the development of a robust technology entrepreneurship ecosystem through an ICT co-fund to unlock capital and promote adoption and utilization of local innovations. The policy further provides that government ICT procurement will prioritize the award and tenders to new and innovative local businesses, with a preference for firms offering Kenya built solutions. The ICT Master Plan promotes the protection of Intellectual Property Rights (IPRs) to safeguard innovations and enhance growth of innovation-driven entrepreneurship.

Some laws have been enacted to address safety and security in the digital economy. These include the Data Protection Act (2019) and the Computer Misuse and Cybercrimes Act (2018), which address safety and security issues of the digital economy. In addition, the Central Bank of Kenya (CBK) issued a Guidance Note on Cyber Security in 2017 to mitigate cyber security threats in the banking sector. In 2019, the CBK further issued the Guideline on Cyber Security for Payment Service Providers (PSPs), applicable to providers authorized under the National Payment System Act, 2011. These were strategic issues between 2013-2018, which led to the development and implementation of government information security standards and guidelines (ICTA, 2020). Going forward, focus will be on establishing a policy framework to institutionalize ICT standards in the public and private sector, and institutionalize cyber-hygiene policies and procedures. On the digital credit providers segment, the Central Bank of Kenya (Amendment) Act 2021 provides the CBK with powers to licence and oversight the hitherto unregulated digital credit providers.

Draft regulations have also been developed. This was driven by the public policy issues related to practices of the unregulated digital credit providers, such as high cost, unethical debt collection practices and abuse of personal information.

7.3 Performance Across the Digital Economy Pillars

This section discusses the digital economy performance, highlighting the situational analysis. It captures the status of the five digital economy pillars. The rationale is that the status of access, use and capability of each pillar determines the extent the country can leverage on the digital economy opportunities for resilience.

7.3.1 Digital infrastructure

The goal for infrastructure is to achieve affordable, accessible, ubiquitous and reliable infrastructure for an inclusive digital economy. The focus areas under the infrastructure pillar are: Broadband Infrastructure; Reliable, affordable and Secure Broadband Connectivity; Logistics Infrastructure; Appropriate and Affordable Devices; Management of Digital Assets; Payment systems; and Data Centres. Further to this, energy infrastructure is identified as an enabler of the digital economy as digital infrastructure and technologies are powered by electricity.

a) Access to affordable, reliable and secure broadband connectivity

One of the global targets for broad band connectivity is to make entry-level broadband services affordable in developing countries at less than 2 per cent of monthly Gross National Income (GNI) per capita. In Africa, the average monthly fixed broadband cost for users is estimated at 483 per cent of monthly GNI per capita (State of Broadband Report 2020), which is beyond the global target. In 2010, fixed monthly broadband subscriptions costs in Africa stood at US$ 176 and in 2019 the costs were US$ 33, indicating progress in cost reduction over time. In Kenya, the affordability of 1 gigabyte(gb) of data as a per cent of GNI was 2.62 (Alliance for Affordable Internet-A4AI, 2020), which was higher than the global target. “Globally, on average, one has to work 3 hours 48 minutes to afford the cheapest broadband Internet, whereas the average work time required to afford the cheapest 1 GB of mobile data is 10 minutes” (Digital Quality of Life - DQL report, 2020). For Kenya, the time required to work to afford the cheapest broadband Internet is 768 minutes (12.8 hours). Overall, Kenya was ranked 79th out of 110 countries in the DQLI in 2021 (Table 7.1), which was a drop compared to 2020 (77th out 85). In terms of Internet quality index, Kenya’s best ranking was in number of Internet user, cyber security index and Artificial Intelligence Readiness Index (67th), while the worst performance was in broadband speed growth, broadband Internet stability and mobile speed growth.

Table 7.1: Digital quality of life index 2021: Comparative ranking of selected countries

Country	Overall rank		Internet Affordability			Internet Quality		E- Infrastructure	E-security	E- Government	
	DQLI rank	Time to work to afford the cheapest broadband Internet	Time to work to afford the cheapest mobile Internet	Broadband speed	Broadband Internet stability	Broadband speed improvement	Individuals using the Internet	Network readiness	Cybersecurity	Online Service Index	AI readiness
Denmark	1	23	1	5	40	36	5	2	12	3	8
South Korea	2	10	5	6	70	1	9	14	33	1	7
Finland	3	2	18	28	46	79	15	6	7	3	3

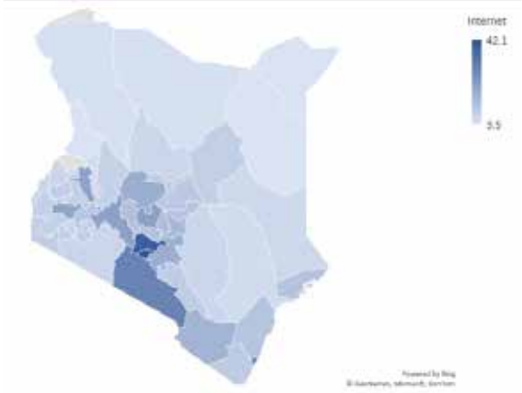
Country	Overall rank		Internet Affordability			Internet Quality		E- Infrastructure	E-security	E- Government	
	DQLI rank	Time to work to afford the cheapest broadband Internet	Time to work to afford the cheapest mobile Internet	Broadband speed	Broadband Internet stability	Broadband speed improvement	Individuals using the Internet	Network readiness	Cybersecurity	Online Service Index	AI readiness
Singapore	6	15	15	1	60	100	33	3	14	5	6
Estonia	19	44	38	40	86	97	4	21	3	2	17
China	22	5	44	12	23	55	79	38	78	12	19
Malaysia	31	71	29	34	47	87	30	32	21	24	28
South Africa	68	24	21	71	78	80	91	73	95	52	56
Mauritius	74	98	16	94	94	102	72	58	58	66	44
Kenya	79	101	75	99	104	107	38	79	56	72	67

Note: values represent rank out of 110 countries

Source: Surfshark www.surfshark.com/dql-compare?country=KE : Accessed on 15/03/2022

Kenya experiences a geographical "digital divide" (KIPPRA, 2022). Figure 7.2 shows the proportion of households with Internet across counties in Kenya. Counties in northern, eastern and coastal Kenya have low use Internet. This is an impediment to deploying ICT solutions and applications in mitigating the effects of hazards and shocks. Regions with low usage and access to Internet services are more vulnerable to the effects of shocks and are unable leverage the digital opportunities for survival.

Figure 7.2 : Households with Internet by county (%)



Source: KNBS (2019), Kenya Population and Housing Census

The data further reveals a gender digital divide in use of Internet (25% men, 20% women) and ICT devices (11.7% men, 9% women), indicating that more men than women use ICT. This translates to marginally higher vulnerability of women. The global target is to achieve gender equality across all targets by 2025.

The primary means of Internet access in low-and middle-income countries was hand-held wireless mobile devices, where 57 per cent of those who had used the Internet in the previous three months accessed it exclusively through a hand-held mobile device (State of Broad Band Report, 2019). In Kenya, overall mobile phone ownership stood at 47.3 per cent of the population (KNBS, 2020). People living in urban areas had higher (62.6%) mobile phone ownership than those in rural areas (40.5%).

When assessed by gender, male and female mobile phone ownership nationally is at 47.6 per cent male compared to female at 47.0 per cent. The same case applies in urban areas. The mobile cellular telephone subscriptions per 100 inhabitants stood at 136.12 in 2020, up from 95.37 in 2016, which indicates progress in mobile telephone use and access. Mobile telephone capacity witnessed an increase from 8.87 million in 2019 to 9.67 million in 2020 against 61.409

million connections in 2020. This represents 64 per cent connections to capacity ratio and is indicative of adequate capacity to meet the demand. As mobile phone connections grew, fixed line connections declined between 2019 and 2020. In terms of mobile transceivers, 3G and 4G mobile transceivers witnessed growth between 2019 and 2020, which is in line with Kenya's broadband strategy.

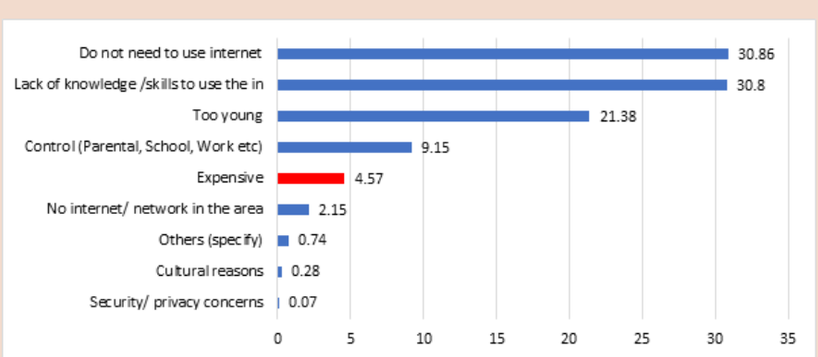
Kenya has registered significant progress in implementation of various digital infrastructure initiatives at the national and county levels. For instance, development of the Konza Technopolis City as a national flagship project powered by a thriving ICT sector, superior reliable infrastructure, and business friendly governance systems will offer resilient features including smart economy for competitive products, smart people for social and human capital, smart living for high quality of life, smart governance for better participation, smart infrastructure for efficient innovate and safe use of transport and energy, and smart environment for sustainable resource management. Some of the key milestones of this project include the acquisition of land in MTP I, gazettement and operationalization of the Konza Technopolis Development Authority (KOTDA) and the board in MTP II and the development of horizontal infrastructure of the Technopolis at over 50 per cent completion in MTP III. Further, the construction and equipping of the National Data Centre for Smart City services and facilities for phase 1 is complete, awaiting connection to power, testing and commissioning. The Data Centre, a tier 3, is a key enabler towards accelerating Kenya's digital economy and is modelled to support data, voice, video, services, systems, and applications. This is key in building resilience especially in provision of necessary data to facilitate coping mechanisms. The onboarding of key investors at the local and international levels is ongoing. For instance, the Korean and Kenyan governments have a plan to develop the KAIST, which will be an institution of strategic national importance for fast-tracking modernization and transformation of the Kenyan society into a middle-income country by 2030.

There are several connectivity projects that have ultimately increased the levels of mobile and Internet penetration in Kenya. For instance, under the National Optic Fibre Backbone Infrastructure (NOFBI) initiative, Kenya has over 7,000 km of fibre, linking more than 57 towns and has connected all the 47 county headquarters. In addition, the government is planning an additional 2,100 km under NOFBI and another 600km from Eldoret to Nadapal-Nakodok to connect schools, hospitals and other strategic locations, including pastoralist roadside markets, export processing zones and integrated infrastructure development and smart roads network. Due to connectivity projects, urban and commercial areas have experienced significant expansion of high-speed Internet network, largely due to new partnerships between telecommunications and power companies, leading to increased number of connections for Fibre to Office (FTTO) and Fibre to Home (FTTH). There are aggressive plans to continue expanding the backbone connectivity to major towns, and connect the last mile users at the household and firm levels. This is an important coping mechanism for households and firms during shocks and stressors.

b) Appropriate and affordable devices

The high cost of accessing ICT infrastructure, services, technology and devices is an impediment to its application in building resilience. The high cost of Internet access relative to income is one of the main barriers to use of ICT services worldwide (International Telecommunications Union-ITU, 2021). The National Broadband Strategy 2018-2023 in Kenya identifies the high cost of devices as a barrier to uptake of broadband services, and a call for measures towards cost effectiveness and ensuring affordability. This is supported in evidence where one of the reasons why households did not access Internet was its expensiveness (4.57%), as shown in Figure 7.3.

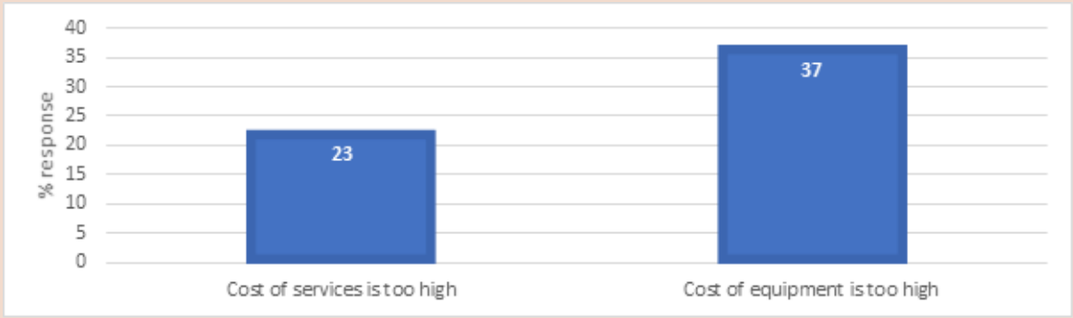
Figure 7.3: Reason why household did not access Internet - expensive



Source: Kenya National Bureau of Statistics (2016), Kenya Integrated Household Budget Survey

In the same survey, households explained that they did not have any type of Internet connection because the cost of services was too high (23%) and the cost of equipment was too high (37%) as shown in Figure 7.4.

Figure 7.4: Reason why households do not have any type of Internet connection - cost factors



Source: Kenya National Bureau of Statistics (2016), Kenya Integrated Household Budget Survey

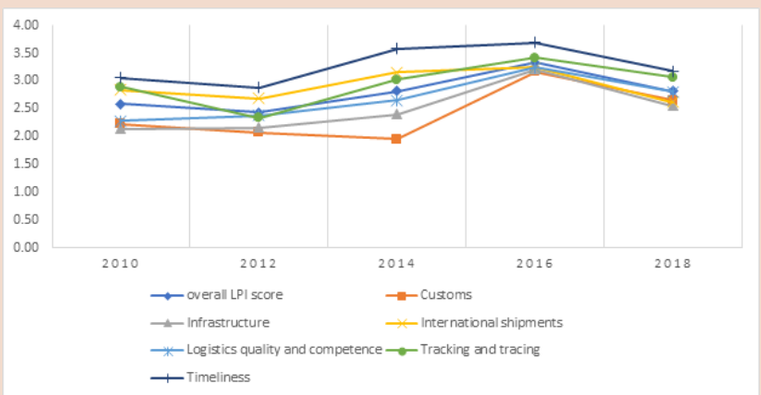
c) Logistics infrastructure

The digital economy requires adequate logistics infrastructure for its operation. Logistics infrastructure includes postal and courier services, and trade logistics infrastructure. These infrastructure are an important component in e-commerce for first mile and last mile connection. Postal services witnessed an increase in private courier operator outlets and licensed courier operators from 666 and 229 in 2019, respectively, to 788 and 263 in 2020, respectively, while public post offices recorded a decline. There was a decline in international parcels posted between 2019 and 2020.

Kenya has over the years witnessed improved performance in its logistics infrastructure and service performance. The Logistics Performance Index (LPI), which is based on worldwide surveys of logistics operators - global freight forwarders and express carriers - ranked Kenya at 68 out of 160 countries in 2018. This was a decline from its previous position of 42. The international LPI measures performance in six dimensions covering: 1) Efficiency of the clearance process; 2) Quality of trade and transport-related infrastructure; 3) Ease of arranging competitively priced shipments; 4) Competence and quality of logistics services; 5) Ability to track and trace consignments; and 6) Timeliness of shipments in reaching the destination within the scheduled or expected delivery time .

Kenya's score in the six dimensions is presented in Figure 7.5, where overall best performance was in the timeliness dimension. In 2018, Kenya witnessed a deep in LPI scores across all dimensions.

Figure 7.5: Logistics performance index score - international



Source: World Bank (2018), LPI explained: https://lpi.worldbank.org/international/scorecard

In addition, the LPI framework provides for the assessment in detail of the domestic logistics environment, processes and institutions.

Respondents assessed Kenya as having high charges in the port (67%), airport (83%) and road transport (50%), while rail and warehousing charges performed better (World Bank, 2018). The quality of logistics infrastructure was assessed to be good, with only 17 per cent of respondents indicating that the quality was low. Solicitation of informal payments was assessed to be a major cause of delay by 50 per cent of respondents. Telecommunication and IT infrastructure improved between 2015 and 2018 by 50 per cent of respondents, while cyber security threats were observed to have decreased in the same period by 33 per cent of respondents.

d) Broadband infrastructure

The broadband infrastructure is a key enabler of the digital economy. The Broadband Commission for Sustainable Development has the target that by 2025, broadband-Internet user penetration should reach 75 per cent worldwide, 65 per cent in developing countries, and 35 per cent in Least Developed Countries (Broadband Commission for Sustainable Development. 2025 Targets: Connecting the Other Half).

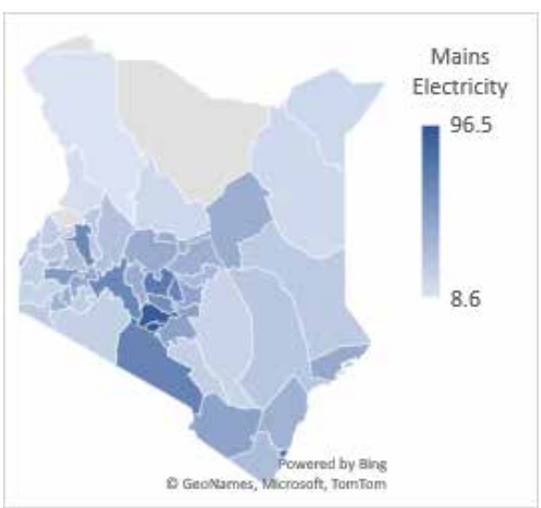
Kenya's National Broad Strategy 2018-2023 "aims at increasing access to broadband coverage of 3G to 94 per cent of the population by 2020." There are regions in Kenya that have little to no coverage of broadband network. To bridge the broadband digital divide and ensure universal access to broadband across the whole country, it is estimated that an investment of approximately Ksh 111 billion will be required (Communication Authority, 2019) .

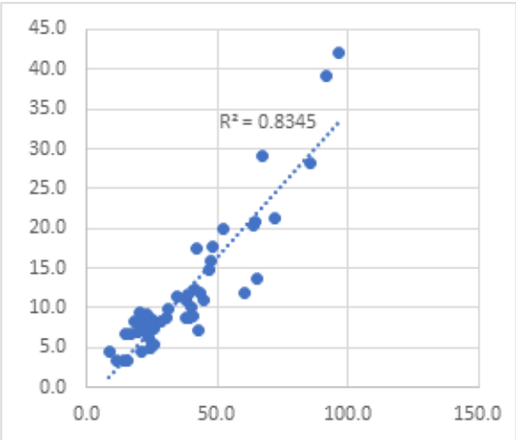
In terms of broad band infrastructure indicators, undersea bandwidth capacity grew from 6.24 million megabits per second (Mbps) in 2019 to 8.09 million in 2020, of which 49.5 per cent was utilized in 2020. Total Internet subscriptions grew from 39.7 million in 2019 to 44.4 million between 2019 and 2020, with fixed fibre to the home subscriptions growing the highest from 203,038 in 2019 to 340,271 in 2020. This was attributed to the coping strategies adopted in response to COVID-19 lock down measures such as working from home. In terms of speed, subscriptions with speeds between => 2Mbps to < 10Mbps were highest at 390,351 in 2020.

e) Enabling infrastructure

The digital economy depends on access to reliable energy sources to power infrastructure, devices and assets. Access to ICT technologies and access to energy go hand in hand. Kenya has made significant strides towards achievement of universal access to electricity through various initiatives such as the last mile connectivity programme, least cost power development plan and the Kenya National Electrification Strategy. The electricity access rate stands at over 75 per cent, with over eight million connections country wide. Figure 7.7a shows the per cent of households with electricity for lighting by county, while Figure 7.7b indicates the positive correlation between household access to electricity and household Internet access; households with electricity are associated with having Internet.

Figure 7.6: Households with electricity for lighting; b: Correlation between access to electricity and access to internet





Source: Kenya National Bureau of Statistics (2019), Kenya Population and Housing Census

Despite these gains, there exists challenges in electricity distribution, especially in areas not covered by the grid system, and challenges with power outages and reliability constraints.

7.3.2 Digital skills and values

The total number of employees in telecommunications sector increased by 5 per cent between 2020 and 2021 to reach 9,163. Similarly, employees among Internet Service Providers grew from 11,315 in 2020 to 12,395 in 2021. In terms of wage employment, the ICT sector had a 4.6 per cent share of total wage employment in 2021 (Figure 7.7). The private sector leads in ICT wage employment with 132,100 wage employees in 2021, up from 117,200 employees in 2020. The public sector had 1,900 wage employees in 2021.

Figure 7.7: Wage employment in the ICT sector - public and private

Source: KNBS (2022), Economic Survey

The digital economy can be effective in building resilience to shocks only if a significant proportion of the population have digital skills. Digital skills in the context of a digital economy and digital society are defined at different levels; that is, basic, intermediate and advanced skills. However, digital skills happen in a continuum. Basic digital skills are foundational and enable people to function in society and perform basic tasks. Basic skills cover hardware (e.g. using a touch screen or keyboard); software - using a word processor, and basic online operations – email and search). These skills are associated with foundational literacy, aligned to traditional literacy and numeracy. Intermediate digital skills are a step above basic skills as they enable people to use digital technologies more intensely and critically evaluate technology or create content. Intermediate skills include the skills necessary to undertake work-related functions such as digital marketing and publishing. They are seen as generic skills that enable one to undertake a wide range of digital tasks and be productive at work. These skills are dynamic and can be modified to respond to changes in technology, such as production and analysis of big data. Further, advanced skills are synonymous with specialist skills of ICT professionals, such as programming, coding and network management. They include skills in Internet of Things (IoT), Artificial Intelligence (AI), big data, cyber security, coding, development of mobile applications, and digital entrepreneurship. Advanced digital skills are often acquired through advanced formal education and lead to higher paying jobs than basic and intermediate digital skills (ITU, 2018).

The SDG target for Internet and broadband aims that by 2025, 60 per cent of youth and adults should have achieved at least a minimum level of proficiency in sustainable digital skills. Digital skills have been defined as skills that enable people to access, use and benefit from Internet and broadband, and enhance Internet and broadband penetration, and access to employment and entrepreneur opportunities. On the same note, digital skills are critical for the jobs of the future. “Demand for digital skills training will surge in the coming decade, as jobs that previously did not require digital skills will begin to do so”. By 2030, some level of digital skills will be required by majority (50-55%) of all jobs in Kenya (International Finance Corporation - IFC), 2021).

Limited knowledge and skills in ICT is a major barrier to households’ use of Internet, which prevents them from exploiting its benefits even during emergency or disasters. The Kenya Integrated Household Budget Survey 2015/16 revealed that households did not use the Internet due to lack of knowledge and skills (30.8%). This was also a major reason why households did not have Internet connection.

Computing skills were most preferred by service workers, shop and market sales workers (77.2%) for their optimal performance. In terms of economic activities, ICT skills were most required in the wholesale and retail trade; repair of motor vehicles and motorcycle activities. Persons within the construction (100%), administrative and support service activities (32.2%), and arts, entertainment and recreation (24.4%) mainly lacked ICT skills. Informal sector enterprises reported that the main reason they did not have workers with desired skills in ICT was the difficulty in getting persons with the desired skills, which was also the main reason for lacking computing skills (Informal Sector Skills and Occupations Survey - ISSOS, 2020).

The National Government, County Governments, and private sector have implemented various programmes and projects aimed at developing and enhancing digital skills and digital literacy. For instance, the digital literacy programme seeks to ensure every pupil is prepared for the digital world. The programme aims to transform learning into a 21st century education system. The talent and workforce programmes under the ICT Authority, such as the Presidential Digital Talent Programme (PDTP), seek to build and entrench ICT capacity in the country.

The Ajira Digital Programme also spearheaded by the national programme seeks to empower over one million young people to access digital job opportunities. One key component of the programme is to focus on education and skills for the dynamic nature of online jobs. The programme has recorded significant achievements by providing access to online digital jobs for Kenyans, and facilitating stakeholder partnerships and collaborations that have benefited Kenyans .

The programme is collaborating with 56 existing digital platforms providing different services, including business development and obtaining the correct technology to ensure efficient access.

7.3.3 Digital business

Access to and capability to use ICT is an important factor for business continuity and resilience in times of adversity. Integrating ICT in business processes has proven to be a critical solution to survival of enterprises when risk events occur. For this to happen, businesses need to remain interconnected among themselves (B2B), with their customers (B2C) and with government (B2G). Globally, the target is to overcome un-connectedness of Micro, Small and Medium-sized Enterprises (MSMEs) by 50 per cent by sector by the year 2025.

It is also targeted that 40 per cent of the world's population should be using digital financial services by 2025.

In Kenya, enterprises have made progress in access to and use of ICT in their activities. 90 per cent of enterprises interviewed used computers, all enterprises across all sectors recorded high usage of computers in their work environment. Similarly, 84 per cent of enterprises had Internet in their premises, of which majority of firms (81%) used fixed broad band for their connectivity. Fibre to the office was dominant with 50.7 per cent of firms using it. Firms that did not have Internet in their premises accessed it elsewhere. Enterprises mainly used Internet for communication by sending and receiving emails (88.7%). Delivery of products was the activity least carried out using Internet (16.6%) (Enterprise ICT Survey, 2016). Similarly, the level of e-commerce nationally is low and below optimal levels.

Data from the Kenya Population and Housing Census 2019 revealed that only 4.3 per cent of the population aged 15 years and above searched and bought goods/services online. The UNCTAD B2C E-commerce Index of 2020 ranked Kenya at position 88 out of 152 countries in the world, further highlighting the gap in e-commerce in Kenya. This is likely to have improved during the COVID-19 pandemic, where lock down measures pushed enterprises to e-commerce. Contrastingly, most of the informal enterprises do not use Internet-enabled platforms to enhance their business. The ISSOS 2020 revealed that about 80.4 per cent of informal enterprises were not using the available platforms.

The National Payments Strategy (NPS) 2022-2025 by CBK recognizes the importance of emerging digital technologies in the payments ecosystem, such as crypto currencies, stable coins, central bank digital currencies (CBDC), blockchain and distributed ledger technology (DLT). The objectives of the strategy include supporting a payment system that meets the needs of customers and fosters financial inclusion, enhancing safety and security of

payment systems, and supporting production of customer-centric and world leading innovations in the payment ecosystem. Some of the initiatives under the strategy include promoting integration of digital identity, development of data protection frameworks for digital payments, customer protection for digital payments and enhancing customer awareness in digital payments. In February 2022, the CBK published a discussion paper on Central Bank Digital Currency to elicit comments from the public on the potential use case for CBDC and inform public policy decisions. Some of the opportunities provided by the CBDC, which include financial inclusion, enhanced cross-border payments, mitigation of systemic risks on financial systems, and promoting financial stability and payments resilience. The potential risks include constraining the ability of banks to create credit, technology risks, and data privacy limitations, among others. A key area where applicability of CBDC is to be an opportunity is in enhancing cross-border payments (CBK, 2022).

7.3.4 Digital government

ICT use in public institutions and government has grown over the years. In the education sector, close to 90 per cent of public primary schools have successfully installed digital literacy infrastructure and devices. In phase 1 of the digital literacy programme, 22,891 public primary schools had 1,168,905 digital learning devices were delivered and installed with digital content for pupils in Grade one, two and three (ICTA, 2020) . This is a crucial factor of resilience during shocks as it guarantees continued learning from the safety of home or designated safe/rescue areas. Based on the discussion of household access and use of ICT, it emerges that the challenge with continued learning from home in the education sector is a household problem and not necessarily the learning institutions. This conclusion is supported by data from the May 2020 KNBS COVID-19 impact survey, which revealed that among the coping mechanisms that households used to continue learning from home, 12.2 per cent used online, 18.6 per cent used TV, 15.1 per cent used radio, 11.8 per cent used print media while 8.9 per cent used social media.

Access to and use of ICT in public sector institutions is also important for continued service delivery and administration in times of emergency and shocks. The 2016 public institutions ICT survey revealed that Kenya was ready for resilience, with 80.2 per cent of public institutions having Internet within their premises, where 64 per cent had fixed broad band connections and 52 per cent had mobile broad band. Learning institutions, constitutional and independent institutions had the highest proportion (100%) Internet access, while hospitals had the lowest proportion (63.3%). Given the public health risks that arise during disasters and emergency situations, and the “Big Four” agenda focus on universal health coverage, Internet access in hospitals will need to be enhanced to strengthen resilience.

E-government, which entails delivery of public services through online platforms accessible to citizens and agencies, ensures resilience during disasters and risk events. 43.4 per cent of public sector institutions reported offering e-government services. Learning institutions were the highest (74.3%) in terms of reporting offering some of their services online compared to hospitals at (24.7%) (Public Sector ICT survey 2016). Although this difference is understandable given the physical/face-to-face requirements of services offered in hospitals, the advent of tele-medicine (the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities” (WHO, 2010) and tele-health where aspects of medical and clinical care can be undertaken remotely online is likely to change this scenario.

To enhance prudent and transparent use of public resources, all the 47 counties are connected to Integrated Financial Management System (IFMIS). IFMIS is aimed at enhancing accountability and transparency, thereby building a resilient knowledge-based economy. On e-government, the government has invested in building e-government centres, platforms and Huduma Centres across all counties. Currently, there are more than 85 e-government centres spread out in various counties and providing e-government services and engagement opportunities directly to all citizens, including the remote and/or under-privileged communities during shocks and stressors. The centres provide access to e-government services at home or through digital kiosks in villages. The e-government portal offers an interactive environment for e-government services, such as e-tax, licenses

and registrations, e-parking, smart city services and digital signatures. Additional services include business name search and registration, notice of marriage, registration of marriage, driving licenses, land searches and clearances, passport, and visa applications. Further, Kenya has adopted a one stop-shop model (Huduma Centre) for various government services from a single location, which is key in building resilience. There are over 52 physical centres across the country. Therefore, e-government portal and Huduma Centres eliminate traditional physical barriers such as distance, time and cost, thus facilitating access to government services during shocks and stressors such as in the case of COVID-19 pandemic.

Other critical milestones achieved in building resilience include completed one hundred (100) Constituency Innovation Hubs. Further, all county headquarters are covered by computer area networks. Similarly, a total of 74 targeted national and county government offices have been connected to the unified Government Communication Systems. Other initiatives include establishment of Kenya Open Data Initiative (KODI), aimed at making data available to the public; Disaster recovery centre to support recovery efforts in the ICT sector; Digitization of land registries; and Development of Kenya National Spatial Data Infrastructure (KNSDI) to support coordination of mapping services in Kenya. Further, the migration from analogue to digital TV was completed in time to meet the global deadline of 17th June 2015. This saw the installation of digital transmitters in 10 sites completed in 2017. The digital migration in 2016 increased the number of TV channels and number of Radio FM Frequencies from 312 to 342 and from 687 to 953 in 2016 and 2021, respectively. Similarly, the total digital TV subscriptions has increased from 5,816,027 in 2018 to 6,028,061 in 2021. In addition, the government has licensed several telecommunications operators to roll out 4G and 5G network services across the country, thus increasing the number of total mobile transceivers from 184,149 in 2017 to 283,376 in 2021. Therefore, increased access to radio, TV and mobile phone services is critical in information sharing, and will support in coping mechanisms during shocks and stressors.

Kenya has initiated efforts to strengthen the digital infrastructure for national addressing. The National Addressing System of Kenya (NASK) guides the naming and numbering of streets and properties to facilitate easy identification and location on the ground. NASK involves development of digitized maps for use in management of settlements and urban communities. The potential benefits of NASK to citizens and businesses include unlocking economic value, job creation, and improved navigation. It is expected that NASK will accelerate the growth of e-commerce and associated industries with a commensurate positive impact on the economy by enabling easier geo-location for various service providers such as taxi, mail and home delivery of goods and services. The implementation of NASK started in 2014 and the following milestones have been achieved: Drafting of NASK policy and bill, which will guide the implementation of the NASK framework. The concept of NASK is being piloted at selected counties, including Nairobi County. One the emerging key issues in the digital government pillar is the limited interoperability of government information systems. This has been attributed to the silo nature of systems, which hinders data sharing and communication, and causes delays in service delivery, constrained efficiency and increased costs of managing information systems (ICTA, 2020).

7.3.5 Innovation-driven entrepreneurship

The essence of the innovation driven entrepreneurship pillar is to have an ecosystem that supports local firms to generate world class products and services, thus deepening digital economic transformation. The main characteristics of innovation-driven entrepreneurship include the number of businesses utilizing new digital technologies to improve operational efficiency, customer experience, business and profitability. Some of the indicators used to track progress and performance in this sector are number of products and services offered to the public by innovation driven-entrepreneurs; number of products and services that are brought to market by innovation driven entrepreneurs; and growth in revenues from entrepreneurs invested in information economy. A detailed discussion on innovation is provided in chapter 8 of this report.

In Kenya, the digital economy recorded positive performance in terms of revenue and investment. Combined revenue from Internet service providers and telecommunication industry grew from Ksh 320 billion in 2019 to Ksh 366 billion in 2021, with 7.4 ratio of revenue to investments in 2021 as shown in Figure 7.8 and 7.9.

Figure 7.7: Investment in digital economy

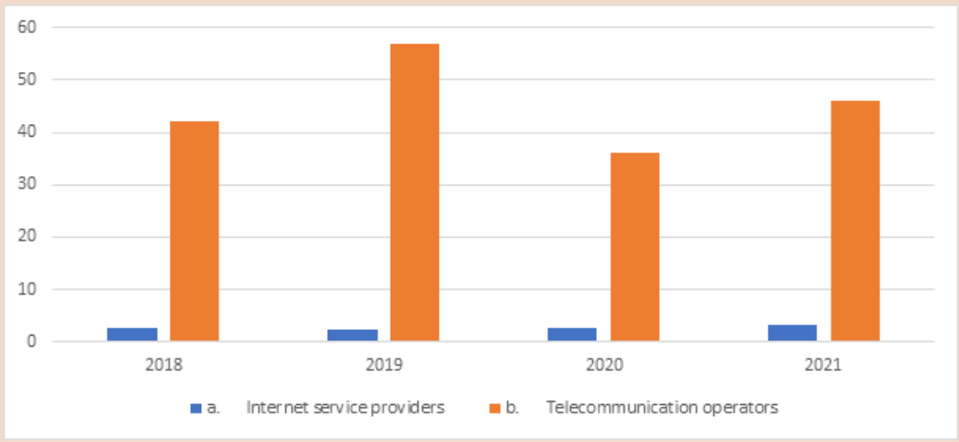
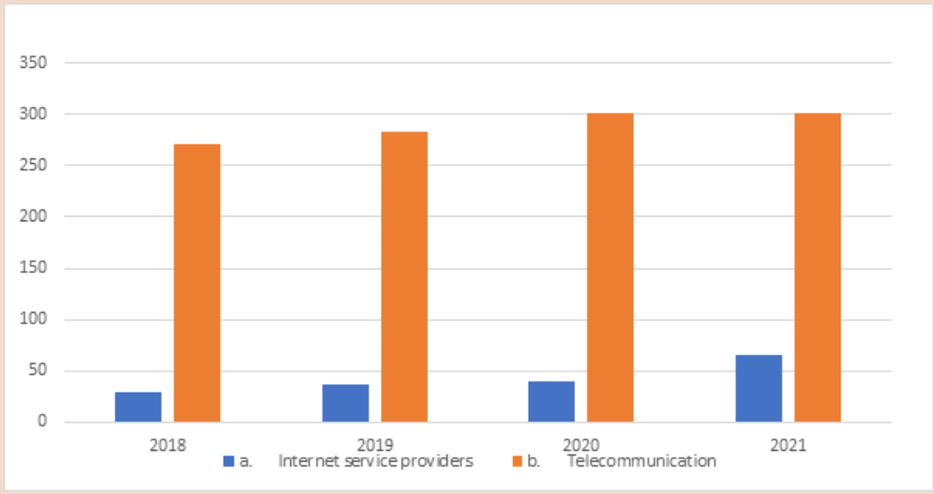


Figure 7.8 Revenue from digital economy



Source: Kenya National Bureau of Statistics (2022), Economic Survey

In January 2021, the Digital Service Tax (DST) came into effect as provided for in the Finance Act 2020. DST "is a tax payable on income derived or accrued in Kenya from services offered through a digital marketplace", where a digital marketplace is defined as a platform that enables direct interaction between buyers and sellers of goods and services through electronic means.

The DST has helped to broaden the tax base and enhanced revenue collection (KRA, 2022). Data on revenue from DST provide an indication on the growth in revenue of digital entrepreneurs. There is need to study the impact of the DST on digital entrepreneurship.

7.3.6 Cross cutting issues

The rise in use of ICT has witnessed increased growth in risks and threat to cyber security. Kenya reported a sharp rise in reported online crime between 2019 and 2021, from 139.93 million cases to 339.1 million cases in 2021. Majority of online crimes were in the category of malware. Kenya has developed the policy, legal and regulatory framework to address cyber security issues, and has also built institutional capability in prevention, detection and mitigation of cyber security threats. For instance, the government established the Kenya Computer Emergency Response Team (KE CERT) to detect and

respond to all forms of cyber threats targeting digital infrastructure and services. However, there is need to fully implement the national public key infrastructure for securing knowledge-based economy, which was initiated in 2014.

The growth in use of ICT infrastructure, services and devices has occasioned the rise in the amount of ICT waste or e-waste generated in the country. E-waste is a concern for public health and the environment because it is known to contain hazardous substances such as lead, mercury, arsenic, cadmium, selenium, hexavalent chromium, and flame retardants. It, however, also provides valuable secondary resources that are important to a circular economy. It estimated that Kenya generates an average of 3,000 tons of e-waste annually from electronic devices such as computers, monitors, printers, mobile phones, fridges and batteries (Waste Electrical and Electronic Equipment -WEEE Centre, 2021). Despite this large amount of e-waste generated, Kenya faces challenges such as inadequate capacity, skills, resources and infrastructure for recycling systems to address the problem.

There is some level of awareness and knowledge on e-waste disposal in Kenya. The 2016 Enterprise and Public Institutions ICT survey revealed that 45.5 per cent of public institutions and 4 in 10 enterprises had knowledge on appropriate e-waste disposal methods. Public institutions had made progress by formulating E-waste management policy, with approximately 34.1 per cent having one in place compared to 37 per cent of enterprises. The preferred waste disposal method among public institutions was selling or throwing ICT waste away in a dustbin, while enterprises had a mix of methods depending on the type of waste and size of firm. For example, micro enterprises disposed telephone and accompanying cable wastes to the waste bin, while small, medium and large enterprises mainly sold the waste.

The National Environment Management Authority has developed e-waste management regulations (2013), which assign responsibilities to e-waste producers, recyclers, generators and other actors in the e-waste value chain. There are licensed e-waste management companies in the private sector in Kenya that provide e-waste solutions and services.

7.4 Building the Digital Economy for Resilience-Response, Mitigation, Adaptation, Recovery and Inclusion

Hazards, shocks and emergency situations are known to have adverse impacts on ICTs that affect their availability, reliability, use and functioning. The impact cuts across the ICT infrastructure and use of ICT services. In spite of this, there is evidence that ICT and digital technologies contribute to counteracting the effects of hazards, shocks and emergency situations by, for example, facilitating early warning and prevention, allowing economic and social systems to continue operating, increasing awareness on response measures and playing a role in surveillance, data and information for coordination and decision support. Therefore, the resilience of ICT infrastructure and services is an important factor in determining the role and efficacy of ICTs in building economic and social resilience to hazards, shocks and emergency situations. The challenges of digital inclusion for vulnerable groups in society, such as the older adults, children and persons living with disability further impede the utility of the digital economy in building socio-economic resilience.

7.4.1 Effects of hazards, shocks and emergency situations on the digital economy

There are observable effects of hazards and shocks on ICT digital infrastructure and the digital economy. These range from effects on capacity and utilization of ICT infrastructure and services and consequent economic effects on the sector. For instance, during the COVID-19 pandemic, telecommunication and Internet services witnessed a growth in usage due to the lock down and work from home measures as highlighted in Box 1 and Figure 7-10. The growth in demand for broadband services affected the performance of infrastructure and quality of services, with effects ranging from temporary erosion of certain network quality indices such as Internet speed, latency and saturation (Katz et al., 2020). The speed and stability of an Internet connection determines the quality; in this case, slow and unstable connection impedes its usage and affects efficiency at work (Digital Quality of Life Index - DQLI report, 2021).

Box 1: Effects of COVID-19 pandemic on telecommunications - global examples

In Austria, the percentage of individuals (aged 16-74 years) using the Internet to make audio or video calls increased from 41 to 60 per cent between 2019 and 2020.

In Brazil, a big increase was reported in Internet users searching for health information; performing some form of public service; consulting, making payments or conduction other financial transactions; and buying products or services online.

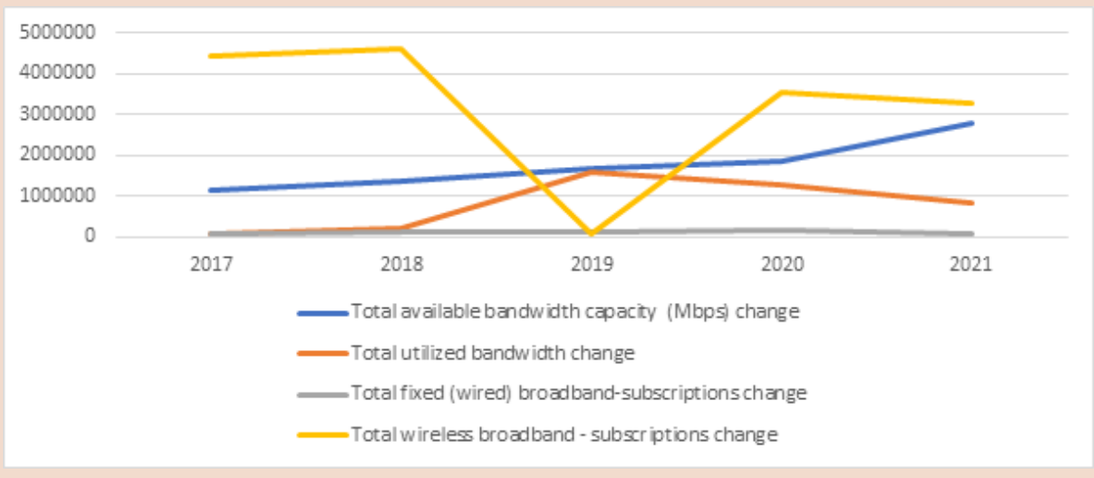
In Ireland, more than one in eight (13%) Internet users surveyed in March 2020 made purchases online of food or drink from shops or meal-kit providers, more than twice the corresponding figure for January (6%).

In Norway, the percentage of individuals who bought or ordered films or music online increased from 41 per cent in 2018 to 53 per cent in 2020, while the corresponding figure for buying or ordering travel or holiday accommodation decreased from 61 to 34 per cent.

In Italy, the average daily data traffic on fixed networks increased by 44.4 per cent in 2020 compared with 2019, with spikes in March and April 2020, when the country went into a national lockdown. For mobile networks, the increase in the average daily data traffic was 56.4 per cent.

In Kenya, total wireless broadband subscriptions increased by 3.2 million between 2020 and 2021 while fixed (wired) subscriptions increased by 92,965 (Figure 7.9). The data only mobile broadband segment drove the growth in broadband services with a 41.2 per cent increase in subscriptions. This was attributed to work from home and lock down measures put in place to contain the COVID-19 pandemic.

Figure 7.10: Change in broadband services



Source: Kenya National Bureau of Statistics (2022), Economic Survey

Disaster situations and shocks are known to affect financial performance, capital expenditure, future sources of funding, and industry structure of firms providing digital goods and services in the digital economy. For instance, during the economic downturn occasioned by the COVID -19 pandemic, ITU (2020) notes that there was reduction in revenue of telecommunication infrastructure companies. However, Internet platforms - over the top - OTT service providers (defined as any service provided over the Internet that bypasses traditional operators' distribution

channel) experienced less acute impacts during the economic downturn because they rely less on infrastructure spending. In Kenya, the value addition from the ICT sector increased by 5.4 per cent in 2020 to Ksh 272.7 billion, which was lower than the 7.8 per cent rate registered in 2019, implying the adverse impacts of the economic downturn.

7.4.2 Building resilience in a digital economy

There is growing evidence that digital infrastructure increases social and economic resilience in times of crisis, especially in a world transitioning into a digital economy. In this context, socio-economic resilience is defined "as the ability of a society to overcome crucial challenges such as wars or pandemics and return to normalcy, thereby providing a path for future development" (Katz, 2020). An economics expert's roundtable on COVID-19 and the digital economy hosted by ITU in 2020 argued that the second most important infrastructure during the pandemic after medical treatment was telecommunications. Evidence shows that digital infrastructure increased social and economic resilience by supporting the production and distribution of goods and services to counteract isolation effects of social distancing, and increasing the awareness of virus prevention measures, allowing business continuity, performance of work through telecommuting and online learning. Chamola et al. (2020) provides a demonstration of how new technologies such as Internet of Things (IoT), Internet of Medicine (IoM), drones, Artificial Intelligence, blockchain, and 5G play an important role in mitigating the impact of pandemics such as COVID-19.

It is noted that the higher the development of broadband infrastructure and connectivity, the better the ability of a country to offset the negative effects of a pandemic (Katz, 2020; Katz et al., 2020). The evidence further holds "that a reliable telecommunications infrastructure and a high level of digitization is crucial to keep the economy running under pandemic conditions." Similarly, countries that topped in connectivity could reduce by more than half the long-term negative impacts through digital infrastructure. Beyond pandemics and public health emergencies, ICT tools and infrastructure also play an important role in disaster mitigation and disaster management especially in managing information and decision-making support (Teodorescu, 2014). In relation to this, O' Reilly et al. (2006) discuss the role that telecommunications play in supporting emergency services, finance and essential industries during natural disasters. Ensuring continued quality communication between first responders, emergency coordinators, security and paramedics during disasters is crucial to saving life and property. In the public sector, resilience at the government level is increased in times of emergency through broadband and digitization. Katz et al. (2020) argue that a digitalized government has more capability to continue providing public services without interruption.

Some of the key issues and limitations that affect the role of digital infrastructure in increasing resilience of a country during crisis are the existence of a digital divide, which causes social exclusion and exacerbates inequalities especially among developing economies. The digital divide is manifested by the gap in reach and quality of digital connectivity, and Internet literacy. Other barriers include slow digitization of production and institutional failures in ICT infrastructure capacity enhancement (Katz, 2020).

7.4.3 Digital inclusion through transforming the vulnerable to the valuable

The world is increasingly dependent on ICTs for social and economic activities, and the future points to a digital world transformation in nearly all processes. However, it is emerging that digital transformation is happening with potential exclusion of vulnerable groups such as young children, older adults and persons with disabilities (PWDs) (ITU, 2020a; Carillo, 2021; and Odobašic, 2021). Children are increasingly accessing and using the Internet, with statistics revealing that one in three children (0-18 years) globally access and use the Internet, and 69 per cent of young people were online in 2019 (Graafland, 2018; and ITU, 2020b). Children are now more than ever exposed to potential harm and various risks online that threaten their safety and well-being. Some of the risks to children while online include solicitation of minors, child pornography, cyber bullying, identity theft and fraud; and Internet addiction. These risks, with the exception of Internet addiction, have been categorized as crimes in Kenya (Communications Authority, 2016). Child online protection is therefore an important issue when considering the role of ICT in building resilience for sustainable development. It is a complex challenge that must be approached from a legislative, governance, education, policy and society angle (ITU, 2020a). In Kenya, the Constitution and the Children's Act No. 8 of 2001 provide for the protection of children.

The older adults are at risk of being 'left behind' and excluded as the digital transformation takes root globally. The world population is ageing, and it is estimated that by 2050, 1 in 6 people in the world will be above 65 years of age, compared to 1 in 11 ratio in 2019 and the number of persons

age 80 years or older tripled from 54 million in 1990 to 143 million in 2019 (UN, 2019). Ageing affects people's health and intrinsic capacity, including ability to walk, hear, think and remember. Some people may experience a decline or loss of capacities (WHO, 2021). While ICTs have a role to play in promoting healthy ageing environments, they also have the potential of creating exclusion of the old, especially when design of ICT products and services are not designed with and for older adults. Healthy ageing involves developing and maintaining the functional ability that enables well-being in older age. Functional ability is made up of intrinsic capacity of the individual, relevant environmental characteristics and the interaction between them.

In this regard, ICTs can exacerbate and create social and economic inequalities. The solution lies in digital inclusion and literacy by enhancing and guaranteeing the ability of all demographic groups to access and use ICTs regardless of age, gender and location (Carillo, 2021). Policy makers need to recognize the importance of the longevity/silver economy and take measures to enhance creation of "age technology", which are defined as all technological products and services designed with and for older adults (Carillo, 2021). The longevity or silver economy, defined as the sum of all economic activity serving the needs of older adults, has grown in recent decades at a significant pace. It is considered as the new green by the Global Coalition on Aging - which estimates that its market value amounts to US$ 17 trillion.

Persons with Disability (PWDs) would face challenges in accessing ICT-enabled services and applications in situations where their needs are taken into account. This has the potential of creating exclusion and inequality. Over 1 billion people globally live with some form of disability (WHO, 2021), while in Kenya this figure stands at 0.9 million (KNBS, 2019). The ITU's Target 2.9 of its strategic goal 2 on inclusiveness states that "By 2023, enabling environments ensuring accessible telecommunications/ICTs for persons with disabilities should be established in all countries". Further, the United Nations recognizes access to information, including digital information and the Internet, as a basic human right. The Convention on the Rights of Persons with Disabilities (CRPD) identifies ICTs as a core component of accessibility rights at the same level as transportation and physical environment. Kenya has made significant progress in implementing digital accessibility in line with CRPD principles. Kenya, with a score of 70 out of 100, was the top among lower middle-income countries and second in Africa after South Africa in terms of digital accessibility for persons with disability (Digital Accessibility Rights Evaluation (DARE) Index, 2020). DARE Index score includes points corresponding to the three categories of variables measured: country commitments, capacity to implement, and actual outcomes in digital accessibility for persons with disabilities. It indicates the overall progress and momentum of a country in implementing digital accessibility for PWDs.

Policy responses are therefore required to mitigate any risks posed by the spread of ICTs and digital exclusion of PWDs. Policy makers need to focus on the critical elements of digital inclusion, which are ICT accessibility and accessibility standards in development of products, services and content, access to Internet, adoption of ICT and digital literacy, and affordability. Participation of persons with disabilities in devising ICT policies and legal frameworks, and in the development of standards, is important in achieving ICT accessibility for all.

7.5 Key Messages

1. Kenya has made significant progress on key digital economy indicators, which strengthens its capability to build social and economic resilience. This is evident given its ranking and recognition. The key areas globally where Kenya has recorded good performance include digital accessibility for persons with disabilities, number of Internet users, mobile money use, cyber security, and artificial intelligence readiness.

2. On digital infrastructure, Kenya has made good progress in adoption and development of broadband infrastructure and mobile penetration. However, there is need to address the digital divide where access to and use of Internet and ICT devices in some regions is low due to inadequate network coverage, especially of the broad band network.

3. In digital business, there has been rapid expansion in e-commerce. However, the challenge of low e-commerce penetration especially at the household end needs to be addressed where only 4.3 per cent of the population aged 15 years and above searched and bought goods/services online.

4. Digital government has grown over time, with the development of e-government public service delivery solutions. The emerging challenge to be tackled is the limitations in interoperability of government information systems, which hinders the full realization of digital government opportunities.

5. Digital skills at the basic level have been developed over time through initiatives such as the Digital Literacy Programme and inclusion of digital content in the education curriculum. More action is needed to build a critical mass of people with intermediate and advanced digital skills among the work force.

6. Innovation-driven entrepreneurship has recorded good progress with the emergence of enterprises offering IT-enabled services and solutions to the market. There is need to support the growth and sustainability of innovation-driven entrepreneurs and enterprises by enhancing access to advanced digital skills and responsiveness, and agility to the dynamic global technology environment.

7. The government recognizes the social and economic importance of ICT and is implementing the Digital Economy Blueprint. Kenya is also playing a leading role in digital economy transformation in Africa. Actualization of the vision for a digital economy and achievement of "ICT everywhere" will ultimately build resilience for sustainable development.

7.6 Recommendations

Digital government

- To address the issue of interoperability of government information systems, the government could review and develop a framework for legal, technical, organizational and semantic layers of interoperability.

- ICT infrastructure is exposed to vulnerabilities that affect availability and reliability during disaster. The government could develop and implement a national ICT emergency and contingency plan to build resilience.

Digital government

- To address the issue of low e-commerce penetration, digital business could focus on increasing the B2C segment by building the e-commerce capability on the customer (household side) and enhancing reach and last mile connectivity in the e-commerce value chain.

Digital infrastructure

- The digital divide could be addressed through implementation of programmes and projects to increase connectivity in underserved areas and measures to address affordability of broadband services and devices. This requires partnerships with the private sector and exploration of technologies to serve remote areas and renewable energy solutions.
-

Digital skills and values

- To enhance growth and entrenchment of digital skills across the country, existing programmes in the education sector such as digital literacy programme, KICD e-cloud, among others, need to be enhanced and reviewed for effectiveness for those in basic and higher education. For adult population in the formal and informal sector, targeted digital skills development programmes could be enhanced for basic, intermediate and advanced skills. Multi-stakeholder collaboration could be applied, and a funding mechanism provided to build a critical mass of ICT experts with advanced digital skills.

Innovation-driven entrepreneurship

To foster the growth and development of innovation driven entrepreneurship, there is need to build advanced digital skills of entrepreneurs and provide a dynamic policy and regulatory environment responsive to the rapidly changing global technologies to ensure global competitiveness.

8

LEVERAGING ON SCIENCE, TECHNOLOGY AND INNOVATION (ST&I) FOR BUILDING A RESILIENT KNOWLEDGE-BASED ECONOMY

Science, Technology and Innovation (ST&I) supports building resilient knowledge-based economies through anticipation and smart preparedness for future shocks/stressors, and enhanced agility and responsiveness to shocks/stressors to lessen adverse impacts. Though there are efforts to develop necessary skills is a huge gap in STEM-related skills, especially those necessary for anticipation and smart preparedness in the event of shocks/stressors. Although Kenya has made significant progress in developing infrastructure for ST&I, the country experiences challenges linked to inadequate resources to acquire, develop, and maintain infrastructure. Further, limited funding coupled by inadequate framework hampers innovators and innovation centres in nurturing and scaling up innovations. This, coupled with limited R&D funding from the private sector and weak academia-industry linkages, limits innovations in the country and hampers resilience efforts. Lack of sufficient and up to date data on activities of ST&I is also a bottleneck to enhancing resilience. Therefore, there is need to promote Public Private Partnerships to invest in infrastructure and in skills development; develop and implement collaborative innovation framework for identifying, nurturing and scaling up innovations; fast-track development of policy framework for adoption of emerging technologies and standards; and fast-track full development and implementation of an effective national ST&I policy framework that prioritizes and implements ST&I activities in building resilience from shocks and stressors in the economy.

TECHNOLOGY

8.1 Introduction

Science is a system of knowledge that is concerned with the physical and natural world and its phenomena, and works to unveil general truths and the operations of fundamental natural laws. Technology is the systematic theoretical and practical knowledge and skill used in the process of production or service delivery. Innovation is the process of using knowledge and technology to develop, improve, or improve the production or performance of products, services and processes that have value in terms of commercial impact or social benefit (UNCTAD, 2019).

Science Technology and Innovation (ST&I) capabilities are critical in facilitating economies to increase productivity and incomes, enhance well-being, and generate new knowledge that can help deal with key policy challenges emanating from shocks and stressors and, therefore, building economic resilience (OECD, 2021). The World Bank (2007) notes that knowledge and innovation can help nations deal with challenges that make them more fragile. Further, Inter-American Development Bank (2020) emphasize the importance of ST&I in tackling the COVID-19 pandemic, noting that countries with more mature innovation ecosystems and developed institutional capacities can respond more quickly and decisively. United Nations (2020) also postulates that science and technology are essential to humanity's collective response to the COVID-19 pandemic. There is evidence that countries with more knowledge-intensive economies and more developed innovation systems suffered less from the 2008 financial crisis than those with weaker innovation systems (UNCTAD, 2020).

ST&I has therefore been recognized globally as a key driver of sustainable development. In the 2030 Agenda for Sustainable Development, for example, the 17 Sustainable Development Goals and the 7 action areas call on all countries to advance the welfare of their citizens in a sustainable manner to ensure the long-term viability of all development and growth through effective use of ST&I (United Nations, 2016). Further, the AU Agenda 2063 recognizes ST&I as a driver for achieving Africa's sustained growth, competitiveness, and economic transformation (African Union Development Agency, 2020). Similarly, the EAC Vision 2050 recognizes ST&I as one of the enablers for social-economic transformation and development in East African economies (EAC, 2015). In Kenya, ST&I is recognized in the medium-term plans I, II and III as a critical enabler in achieving the Kenya Vision 2030.

ST&I supports building resilient knowledge-based economies through anticipation and smart preparedness for future shocks/stressors; enhanced agility and responsiveness to shocks/stressors to lessen adverse impacts (OECD, 2020). World Bank (2007) postulates four pillars for building a knowledge-based economy. The first pillar is on skills encompassing primary, secondary education, vocational training, higher education, and lifelong learning. The second pillar is infrastructure that supports provision of ST&I activities, such as digital infrastructure, space infrastructure, energy facilities, medical research facilities and biotechnology infrastructure. The third pillar is innovation systems that facilitate innovations and include research and innovation centres and universities. The last pillar is the institutional structure that facilitates efficient mobilization and allocation of resources, stimulate entrepreneurship, and induce the creation, dissemination, and efficient use of knowledge. These four pillars determine the success of a country's ability to deal with challenges emanating from shocks and stressors. ST&I therefore supports recovery and resilience to an economy by providing solutions and coping mechanisms from shock and stressors in the country, mainly weather-related (droughts and floods), disease related (livestock diseases and pandemics such as the COVID-19) and economic-related. Other shocks that have hit the country are desert locust invasions and conflicts in pastoral areas.

8.2 Sector Performance

In this section, the analysis of performance of ST&I sector is based on the planned activities as identified in the MTP I and in the subsequent MTP II and MTP III. The analysis is based on the four key pillars critical for development of the sector. It is generally observed that most of planned activities have not been completed, mainly because of inadequate funding. Further, it is noted that the tracking of the activities progress is hampered by lack of an effective monitoring framework. However, numerous milestones have been achieved as indicated in Table 8.1.

Table 8.1: Summary of performance of the ST&I sector

Pillars	MTP I (2008-2012)		MTP II (2013-2017)		MTP III (2018-2022)	
	Targets	Achievements	Targets	Achievements	Targets	Achievements
Skills	National Skills Inventory and Audit Survey. National Critical Skills Development Strategy. To increase number of researchers, scientists, and engineers. Increase the transition rate from secondary level education to university and strength the postgraduate training in Science and Technology. Increase numeracy and literacy levels at all levels of the education system.	Construction of new laboratories and workshops in all Technical and Vocational Education and Training (TIVET) institutions.	Kenya Institute of Oil and Gas. Kenya Institute of Mining and Geology. Kenya Institute of Nanotechnology. Establish Kenya Advanced Institute of Science and Technology (KAIST). Repackage STEM in Education and Training Integration of Science, Technology, and Innovation in Education Management. Human Capacity for Biotechnology Research and Product Development. Centres of Excellence in Biotechnology Research in Research and Higher Learning Institutions.	Capacity for universities to offer Science, Technology, Engineering and Mathematics (STEM) courses increased. Loan agreement signed with the Economic Development Cooperation Fund (EDCF) Korea for the establishment of KAIST. Three centres of excellence in universities and research institutions established at Egerton, Moi, and Jaramogi Oginga Odinga universities. Egerton University A secretariat to oversee the activities of establishment of Kenya Institute of Oil and Gas, and Kenya Institute of Mining and Geology put in place. Pan African University Institute of Basic Sciences, Technology, and Innovations at JKUAT established	Establish KAIST. Establishment of Institute of Applied Sciences. National Skills Inventory and Audit for ST&I	

Pillars	MTP I (2008-2012)		MTP II (2013-2017)		MTP III (2018-2022)	
	Targets	Achievements	Targets	Achievements	Targets	Achievements
Infrastructure	Enhance the capacities of ST&I institutions through advanced training of personnel, improved infrastructure, and equipment	Land for the Konza Technopolis (Konza City) project procured	The National Physical Science Research Laboratory for Engineering and New Production Technologies. Baseline Survey and assessment of National ICT Capacity/Readiness	Konza Technopolis Development Authority (KOTDA) and the board gazetted and operationalized. The National Physical Science Research and Laboratory strategy developed	The National Physical Science Research Laboratory for Engineering and New Production Technologies. Centre for Nanotechnology Research. The Square Kilometre Array. An Optical Astronomical Observatory. Centre for Microsatellite Technology Development: Centre for Petroleum and Gas Exploration Research Renewable Energies Research Laboratory Enhancement of the Centres of Excellence in universities and research institutions Centre of Excellence for Stem Cells Research, Synthetic Biology and Regenerative Medicine	Establishment of an Optical Astronomical Observatory. Two sites for the establishment of the ST&I park for coordination of technology and innovation commercialization programme identified at the Konza Technopolis and Dedan Kimathi University of Technology

Pillars	MTP I (2008-2012)		MTP II (2013-2017)		MTP III (2018-2022)	
	Targets	Achievements	Targets	Achievements	Targets	Achievements
Innovation systems	A Biannual National Innovation Survey . Increase funding for basic and applied research at higher institutions of learning, and for research and development conducted in collaboration with industries to Ksh 37 billion by 2012. Strengthen academia industry linkages	National Science, Technology, and Innovation Fund established. An Award Scheme for recognition of outstanding scientists in Kenya initiated.	Establishment of a Centre for Nuclear Research for Peaceful Applications. Establishment of the Kenya National Innovation Agency (KENIA). Establishment of County Technology and Innovations Advisory and Prospecting Centres. Develop and transfer county-specific technologies. Kenya Electronics Telecommunications and Computing Research Institute. Software Development and Commercialization	Kenya National Innovation Agency. Kenya Industrial Property Institute (KIPI) opened intellectual property rights protection desks at universities and developed benefit sharing framework. Research funding increased from 0.48 per cent to 0.79 per cent of GDP. National Research Fund (NRF) established	Centres of Excellence in Biotechnology Research. Biotechnology Stewardship. Establish and empower county technology and innovations advisory and prospecting centres. Manufacture of Pharmaceuticals. Development of Indigenous Technologies for the Manufacture of Niche Products	

Pillars	MTP I (2008-2012)		MTP II (2013-2017)		MTP III (2018-2022)	
	Targets	Achievements	Targets	Achievements	Targets	Achievements
Institutional structure	A framework to collect and disseminate information on the resources employed by the sector and their effectiveness	National Biotechnology Policy. Biosafety Act. National Bio Safety Authority	Review Biotechnology Policy and Legal Framework. Policies and bills on Biosciences; Atomic Energy; Nanotechnology Kenya Space Science and Technology; and the Natural Products Implement Management Information System. Implement Innovative Technology Transfer System. Undertake Science Technology and Innovation Indicators Surveys. The African Science, Technology, and Innovation Observatory	The ST&I Act, 2013 enacted. Establishment of the National Commission for Science, Technology, and Innovation (NACOSTI). Kenya Space Agency established Draft policies and bills on Biosciences; Atomic Energy; Nanotechnology Kenya Space Science and Technology; and the Natural Products. A design for a national ST&I Statistics Observatory	Finalize draft policies and bills on Biosciences; Atomic Energy; Nanotechnology Kenya Space Science and Technology; and the Natural Products. The African Science, Technology, and Innovation Observatory	The African Science, Technology, and Innovation Observatory

Source: Government of Kenya (2008, 2013 and 2018a)

-: Means data is not available

In a robust ST&I ecosystem, Kenya has underperformed in areas of skills particularly in tertiary education which is key in producing the skills necessary for ST&I development and building economic resilience. Over the years, the tertiary education has received attention in terms of funding the learning and research activities, but there are still inadequate skilled professionals to support ST&I activities. Further, the envisioned KAIST expected to offer STEM courses has dragged due to funding constraints, therefore limiting the realization of the ST&I capabilities in the country.

On infrastructure, the key achievements necessary for economic resilience are initiating the process to establish Konza Technopolis, which will be a science technology and innovation park where the development of horizontal infrastructure is currently ongoing. The Technopolis is, however, yet to be gazetted as a special economic zone to provide incentives to attract and retain investors. The strategy for the National Physical Science Research and Laboratory was developed. The laboratory is expected to deliver cutting edge physical science solutions from small equipment and research tools to large projects in need of complex design and fabrication. Also, an Optical Astronomical Observatory was established to undertake advanced research, training, and outreach in basic space science with relevance to astrophysics, mathematics, engineering, and technology. This is important in supporting resilient efforts in the country. Further, two sites for the establishment of the ST&I parks for coordination of technology and innovation commercialization programme were identified at the Konza Technopolis and Dedan Kimathi University of Technology. Despite these achievements, various infrastructural projects for ST&I are experiencing financial constraints and therefore delays in completion and consequently limiting the development of the ST&I sector. For instance, delays in completion of the Konza Technopolis envisioned to be a techno park hinders, to a large extent, the development of ST&I sector in Kenya. Other countries such as Korea have managed to grow their ST&I sector through establishment of techno parks.

To enhance economic resilience in the country through innovations, the Kenya National Innovation Agency (KENIA) was established under the ST&I Act (2013) to develop, promote, and manage the country's innovation system. The National Research Fund (NRF) was established under the ST&I Act (2013) to: award contracts, grants, scholarships or bursaries or any other award to persons or institutions, and offer financial support for the acquisition or establishment of research facilities, among other functions. To support NRF, research funding has been increased from 0.48 per cent to 0.79 per cent of GDP. To ease access of Intellectual Property Rights process and provide incentives to researchers, the Kenya Industrial Property Institute opened desks at the universities. This initiative is expected to address the challenge of awareness on benefits of use of intellectual property rights and limited patenting drafting skills that continues to hamper innovation in the country. There is need for such initiatives in other research institutions, including technical and vocational training institutions.

On institutional structure, the ST&I Act 2013 was enacted, and subsequently NACOSTI established to regulate and assure quality in the ST&I sector. To harness available natural resources in a sustainable way and enhance resilience in food security, the National Bio Safety Authority was established to offer general supervision and control over the transfer, handling, and use of genetically modified organisms to ensure safety of human and animal health and provide an adequate level of protection of the environment. Also, the Kenya Space Agency has been created to promote, coordinate, and regulate space-related activities in the country to enhance resilience by facilitating other sectors with planning, such as weather forecasting and surveillance tools. The African Science, Technology, and Innovation Observatory was established to facilitate the collection, analysis and reporting on ST&I indicators. A design for a national ST&I Statistics Observatory for capturing, developing, sharing, and storing national ST&I information was also completed. The statistics observatory is critical in providing the data necessary to guide resilience efforts in the country through data sharing and dissemination. Despite the major efforts in entrenching institutional structures for ST&I, an effective coordination framework for ST&I sector players and activities is not in place.

The milestones achieved in creating ST&I capabilities has over time enhanced Kenya's competitiveness score globally (Table 8.2). The score improved from 53.4 (out of 100) in 2018 to 54.1 in 2019. Kenya was ranked position 95 (out of 114) in 2019 compared to position 93 (out of 140) in 2018, far below the MTP III target of attaining position 85 in Global Competitiveness Index by 2022.

Table 8.2: Kenya's ranking in global competitiveness (2018-2019)

PILLARS	2018		2019	
	Score	Rank/140	Score	Rank/114
Overall Global Competitive Index	53.4	93	54.1	95
SKILLS PILLAR	55.4	109	56.3	97
Current workforce			56.3	74
Mean years of schooling	56	87	56	87
Skill of current workforce			56.6	43
Extent of staff training	54.7	46	53.1	53
Quality of vocational training	53.1	57	54.4	58
Skillset of graduates	53.3	56	51.8	66
Digital skills among active population	61.3	43	59.1	49
Ease of finding skilled employees	64.7	21	64.4	22
Future workforce			56.3	102
School life expectancy	61.7	113	68.5	N/A
Skills of future workforce			44.1	105
Critical thinking in teaching	45	47	39.9	75
Pupil/teacher ratio in primary education	48.4	110	48.4	111
INNOVATION CAPABILITY PILLAR	36.5	69	36.3	78
Interaction and Diversity			41.3	61
Diversity of workforce	59.1	56	57.9	66
State of cluster development	55.4	56	53.5	40
International co-inventions/million pop	1.3	96	1.1	97
Multi-stakeholder collaboration	54.4	33	52.7	38
Research and Development			27.9	62
Scientific publications	79	52	79.7	54
Patent applications /million pop	2.7	94	2.2	95
R&D expenditures(%GDP)	(0.8)26.2	46	(0.8)26.2	47
Commercialization			43.1	111
Buyer sophistication	36.5	85	38.1	92
Trademark applications/million pop	48.2	106	48	107
INSTITUTIONS PILLAR				
Intellectual property protection	56.4	58	52.1	69

Source: World Economic Forum (2018; 2019)

The key pillars considered in the global competitiveness index relating to ST&I are skills, innovation capability and institutions. The score on skills improved from 55.4 (out of 100) in 2018 to 56.3 (out of 100), while he innovation capability score remained at below 50 (out of 100) and steady at 36.3 (out of 100) in 2019 from 36.5 (out of 100) in 2018. Under the skills pillar, improvement was recorded in quality of vocational training and school life expectancy, whose scores were 54.4 and 68.5 in 2019 from 53.1 and 59.1 in 2018, respectively. The construction of new laboratories and workshops in TVET may be a contributing factor to the improved quality of vocational training. The government policy of developing mass human capital with necessary competencies and skills has improved school life expectancy - total number of years of schooling from primary through to tertiary level, improved the diversity of workforce and increased scientific publications. On intellectual property protection, the score declined to 52.1 in 2019 from 56.4 in 2018, indicating continued existence of challenges in IPR structures.

As the country continues to make major strides in the development of the ST&I sector, it is important that these developments help the country cope with shock and stressors that occur in from time to time. This then requires deliberate efforts to develop the ST&I sector in tandem with the shocks and stressors to drive the transformation agenda of building a resilient knowledge-based economy. The activities carried out across the four pillars for a robust ST&I sector are therefore crucial in building coping mechanisms. The status and challenges on these pillars in building resilience are discussed in the subsequent sections.

8.3 Skills

A resilient knowledge-based economy requires well-educated and skilled workforce for creating, sharing, disseminating, and using knowledge effectively for economic success. This includes providing solutions emanating from shocks and stressors that can face an economy. The production of new knowledge and its adaptation is generally associated with higher levels of education. The government is cognisant of this fact and has taken several initiatives to develop a highly skilled human resource base in ST&I, targeting applied sciences in institutions of higher learning, including universities and in TVETs. Other specialized skills to be promoted include those in the fields of oil and gas, mining and geology, nanotechnology, and biotechnology. Developing this specialized local expertise will bring solutions to exploit untapped resources, thus supporting economic resilience in the country. Notable achievements in skills development include invigorating the teaching and uptake of STEM courses.

Expertise of specialists with knowledge in STEM is critical in accelerating technological innovations, and therefore development of the envisioned knowledge-based economy. To enable learners at the basic education level apply appropriate knowledge and skills successfully, the government reformed the 8-4-4 education system in 2017 and introduced a Competency-Based Curriculum (CBC). The curriculum emphasizes the importance of not only developing skills and knowledge, but also applying these to real life situations. The integration of pertinent and contemporary issues and service learning into the framework provides the opportunity for learners to develop and apply their competencies and talent. The outcomes to be achieved through the CBC include critical thinking and problem solving, and creativity and imagination (Kenya Institute of Curriculum Development, 2017). The free primary school programme is expected to increase enrollment, thus scaling up STEM-related courses across all levels of education.

To enhance the capacity of secondary schools in provision of STEM courses, the Centre for Mathematics Science and Technology Education in Africa (CEMASTEA) has continued to offer professional programmes for mathematics and science teachers in the counties to assist them develop innovate new approaches to learning and teaching, with creative problem-solving. Further, CEMASTEA has established the STEM model schools programme in selected schools and making them centres of excellence (KIPPRA, 2022). At the university level, there has been an increase in capacity to offer STEM courses. This has resulted to an increase in university graduates in STEM-related courses. Though the graduates in Business Administration and Law, and Education continue to dominate, the share of university graduates in Natural Sciences, Mathematics and Statistics increased to 9.0 per cent in 2017/18 from 7.9 per cent and 5.65 percent in 2016/17 and 2015/16, respectively (Table 8.3). Engineering, Manufacturing and Construction graduates also increased to 5.00 per cent in 2016/17 from 4.37 percent in 2015/16. There was, however, a decline in 2017/18 to 4.3 per cent. Male graduates dominate females in all courses. As the country increases the graduates of STEM courses, it is important to include Arts in STEM courses to form STEAM (Science, Technology, Engineering Arts and Mathematics) to create well-rounded graduates.

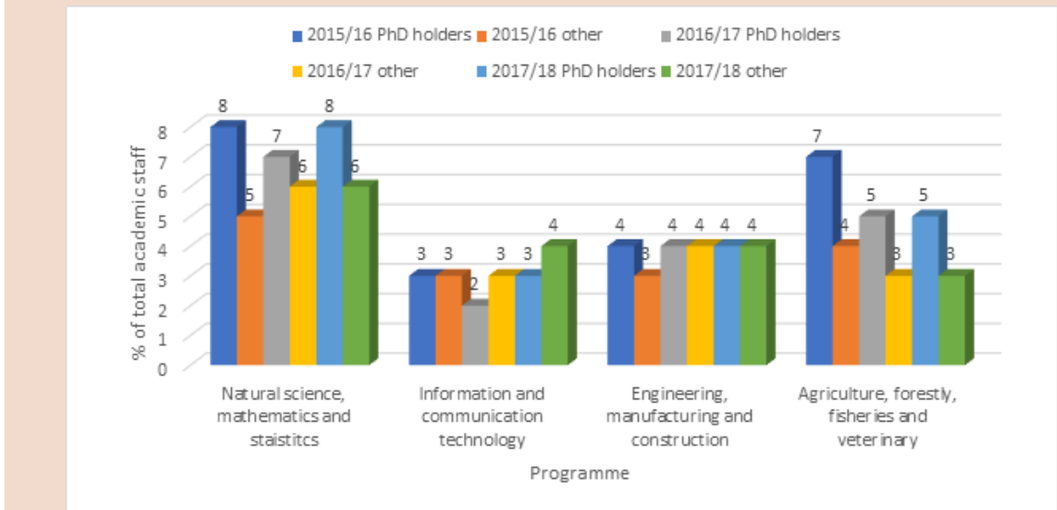
Table 8.3: University graduates in STEM-related courses (%)

Domain	2015/16			2016/17			2017/18		
	Total Graduates	Female	Programs	Total Graduates	Female	Programs	Total Graduates	Female	Programs
Natural Sciences, Mathematics and Statistics	5.7	4.7	15.4	7.9	6.5	13.6	9.0	7.5	18.1
Information and Communication Technology	5.4	3.6	4.9	4.5	2.8	5.4	3.9	2.5	5.5
Engineering, Manufacturing and Construction	4.4	1.9	5.5	5.0	2.2	5.7	4.3	2.1	6.1
Total Number of graduates	210,100	95,272	3,286	86,971	39,461	4,011	82,651	36,766	5,113

Data Source: Commission for University Education (2016, 2018 & 2019)

In the universities, academic staff with doctoral degrees are critical since they are typically responsible for graduate student supervision. In Kenya, the number of academic staff with doctoral degrees at the universities remains low at below 10%, with the number of professors declining from 1% in 2015/16 to 0.8% in 2017/18.

Figure 8.1: University academic staff



Data Source: Commission for University Education (2016, 2018 and 2019)

Further, the number of PhD holders in applied fields such as Natural Sciences, Mathematics and Statistics, Information and Communication Technology, Engineering, Manufacturing and Construction, and Agriculture, Forestry, Fisheries, and Veterinary is comparatively low (Figure 8.1). This has a negative effect on skills development, especially for ST&I-related fields. While funding to universities is crucial for supporting the enhancement of staff skills, including enrolling in PhD programmes, it has been declining over time. In 2018/19 and 2019/20, for example, universities were allocated Ksh 91.1 billion and Ksh 97.7 billion, respectively. The allocation, however, declined to Ksh 94.9 billion in 2020/21, and Ksh 76.3 billion in 2021/22 (Government of Kenya, 2019a, 2020 and 2021). The decline in funds, therefore, negatively affects staff and skills development at the universities.

On vocational training, the government has taken a deliberate effort to revamp the TVET sub-sector, critical in provision of lifelong skills that meet the needs of the industry and self-employment. For example, in 2018/19, the government committed Ksh 16 billion for technical institutions, recruitment of additional 2,000 technical training instructors, capitation grants, 15 new technical training institutes, curriculum development assessment and certification centre and Technical Vocational Training Authority. In 2019/20, Ksh 10.3 billion was allocated to tuition and tools support in vocational training, Ksh 6.8 billion set for the construction and equipping of technical institutions. A further Ksh 6.3 billion was allocated for the construction and equipping of technical institutions and vocational training centres in 2020/21. Finally, in 2021/22, Ksh 1.8 billion was committed for construction and equipping of Technical Training Institutes and Vocational Training Centres. In the same period, Ksh 1.1 billion was set aside to increase access and improve the quality of Technical and Vocational Education and Training programmes under the East Africa Skills Transformation and Regional Integration Project (Government of Kenya, 2018b, 2019a, 2020 and 2021).

These efforts have seen TVET enrollment increase from 359,852 in 2018 to 430,598, 451,205 and 498,326 in 2019, 2020 and 2021, respectively. Also, TVET institutions have increased from 1,769 in 2018 to 2,140, 2,301 and 2,396 in 2019, 2020 and 2021, respectively (KNBS, 2022). These achievements address the challenges identified in Sessional Paper No. 1 on Policy Framework for Reforming Education and Training for Sustainable Development in Kenya (Government of Kenya, 2019b) of inadequate number of TVET institutions, negative perception of TVET, and deficiency of TVET graduates in the competencies required for the labour market. However, while the number of TVET students seeking Higher Education Loans Board (HELB) loans and bursaries has been on the rise, many

have not been beneficiaries. This has a negative effect on their ability to complete their studies. While in 2019/20, a total of 32,935 students missed out on loans, 49,432 students did not get bursaries. In 2020/21, however, the students who missed out on loans decreased to 8,911 (KNBS, 2022).

The efforts to develop skills in STEM-related areas are critical in developing ST&I in the country. However, much more effort is needed to achieve the necessary numbers of experts to propel the country into higher heights of development. This includes conducting a National Skills Inventory and Audit Survey targeted in MTP I to inform ST&I skills development in the country. According to Africa Capacity Building Foundation (2016), the estimated number of researchers in STEM-related areas is 50,535 in Kenya. The country is estimated to have only 3,693 and, therefore, a gap of 46,842. Much of the efforts in developing ST&I skills have focused on those skills exploitation of untapped opportunities in the country, with little attention to skills necessary for anticipation and smart preparedness in case of shocks/stressors. Such expertise include environmental specialists/engineers, climate change specialists, geographic information systems specialists, toxicology scientists, geohazard specialists, data centre operators/analysts/scientists, and tropical disease specialists. Therefore, prioritizing the development of these experts is critical in building resilience, especially because most of shocks and stressors in the country are mainly weather-related.

8.4 ST&I Infrastructure

ST&I infrastructure is a key enabler for the achievement of a resilient knowledge-based economy. ST&I infrastructure enhances capacities and capabilities of a country to create environmentally sustainable and resilient economy and prepare and address the shocks and stressors. A well-functioning ST&I infrastructure supports the provision of ST&I products and services. A good composition of ST&I infrastructure includes the digital infrastructure, space infrastructure, energy facilities, medical research facilities, biotechnology infrastructure, knowledge management infrastructure, among other infrastructure.

The MTPs implementing the Kenya Vision 2030 have identified ST&I infrastructure as a driving force in the realization of development goals, including the “Big Four” agenda. Although the government has made efforts in building the necessary ST&I infrastructure, it is generally weak, with implications on the country’s efforts in building resilience.

8.4.1 Digital infrastructure

Digital infrastructure for ST&I facilitates the effective communication, dissemination, and processing of information and knowledge for a knowledge-based economy. Over the recent years, Kenya has made significant efforts to increase the level of access and connectivity in the country, guided by several strategic policies such as the Kenya Vision 2030 through the MTPs, Digital Economy Blueprint, National Broadband Strategy and National ICT masterplan. Studies show that a well-connected infrastructure is critical to unlock the opportunities that support growth and development of a resilient knowledge-based economy. For instance, development of the Konza Technopolis City is a national flagship project expected to be a world-class city, powered by a thriving ICT sector, superior reliable infrastructure, and business-friendly governance systems. The Konza Smart City framework offers resilient features for smart economy, supporting competitive products; smart living for high quality of life; smart governance for better participation; smart infrastructure for efficient innovative and safe use of transport and energy; and smart environment for sustainable resource management.

Some of the key milestones under the Konza Technolopolis include the acquisition of land in MTP 1, gazettement and operationalization of the Konza Technopolis Development Authority (KOTDA) and the board in MTP2. While in MTP3 has seen the development of horizontal infrastructure of the Technopolis at over 50 percent completion. Further, the construction and equipping of the National Data Centre for Smart City services and facilities for phase 1 is complete, awaiting connection to power, testing and commissioning. The Data Centre, a tier 3, is a key enabler towards accelerating Kenya’s digital economy and is modelled to support data, voice, video, services, systems, and applications. This is key in building resilience especially in providing necessary data to facilitate coping mechanisms. The onboarding of key investors at the local and international levels is ongoing. For instance, the Korean and Kenyan governments have a plan to develop the KAIST, which will be an institution of strategic national importance for fast-tracking modernization and transformation of Kenyan society into middle-income country by 2030.

Other specific digital infrastructure initiatives to enhance resilience include the establishment of

the Kenya Computer Emergency Response Team (KE-CERT) to detect and respond to all forms of cyber threats targeting digital infrastructure and services. Although Kenya has made significant progress in developing digital infrastructure for ST&I, the country experiences challenges linked to inadequate resources to acquire, develop, and maintain infrastructure leading to low accessibility and connectivity levels across counties. Digital divide is a challenging issue due to inadequate digital infrastructure in the underserved and unserved areas. Other related issues include data inclusiveness, data privacy and cybersecurity. It is important to note that some of the targets in the MTPs have experienced delays in implementation, while others have not started.

8.4.2 Space infrastructure

The space sector has evolved over the years and is currently among the fastest growing sectors in the world. The space sector plays a critical role in building a resilient knowledge-based economy and, therefore, enhancing productivity of the economy through wealth formation, job creation, technological advancement and enabling decision-making. Space-related infrastructure provides an enabling environment for fostering development and advancement in higher education, science, technology, research and innovation. The enabling environment supports creation of knowledge and innovations to support socio-economic development and data-driven decisions.

Globally, space has been identified as critical for the overall development in the fields of agriculture, disaster management, remote sensing, climate forecast, banking and finance, and defence and security. Information, data and innovations derived from space science and technology can offer solutions to socio-economic, technological, environmental and security challenges. For instance, geospatial data, information and communications technology and global interconnectedness have great potential to accelerate human progress, bridge the digital divide and to develop knowledge-based economies and advancing scientific and technological innovations to address societal needs.

Kenya's involvement in space science and technology dates to 1964 when Kenya and Italy signed a cooperation that led to the establishment of San Marco satellite launching and tracking site in Malindi. The operations at the San Marco Space Centre, currently referred to as the Luigi Broglio–Malindi Space Centre, are guided by a bilateral agreement between the Kenyan and Italian Governments ratified in October 2020.

The Kenya Space Agency was established and mandated under the Kenya Space Agency Order of 2017 to coordinate, regulate and promote the development of the space sector, and to provide leadership and advisory in policy, legislation and programmes related to the space sector. The Agency is also expected to position the country to tap into regional and global opportunities, including entering into bilateral and multilateral agreements. The Agency has identified four priorities in the following thematic areas: Delivery of Space Services; Developing National Space Capability; Sector Coordination and Leadership; and Corporate Positioning and Sustainability.

The MTP III has identified a Space Science Technology Development Programme themed enhancing the teaching, research and development of space science and subsequent use of space technology for peaceful purposes. The programme is being implemented under three flagships. The Centre for Microsatellite Technology Development is being established to undertake advanced research in the areas of satellite technology development, manufacturing, launch and operation. To support the development of microsatellite, a number of local space scientists and researchers have been trained. Other milestones achieved in the space sector include the launch of 1U Nano satellite in 2021 by Kenya Space Agency, jointly with five local public universities to support agriculture and disaster management. Kenya had previously launched a cubesat with support from Japan.

The Square Kilometre Array (SKA) flagship project entails building a large radio telescope with a node in Kenya to be used as a research facility for astrophysics, engineering, surveying, mathematics, and information technology to generate "Big Data". To this end, the Longonot Earth Station will be acquired from Telkom Kenya for conversion into a radio telescope. The final flagship project is the establishment of an Optical Astronomical Observatory. This entails undertaking advanced research, training, and outreach in basic space science with relevance to astrophysics, mathematics, engineering, and technology.

Other key milestones realized in the country include organization of key forums such as the Space Sector High Level Forum held on the 25th February 2021, and the upcoming Kenya Space Expo and Conference for 2022. This upcoming conference themed "Leveraging Space Capabilities for National Development" will bring together industry players in an interactive forum that showcases current projects, innovations and provides an opportunity for linkages and collaboration.

The preliminary assessment of the space sector shows that Kenya is yet to derive optimal benefits from exploration and exploitation of outer space. Several challenges face the space sector in the country. Investing in the modern space technology and equipment for upstream and downstream activities is capital-intensive and, therefore, the implementation of space-related projects is usually slow. Further, there are limited local institutions offering comprehensive training in space-related careers, leading to inadequate human resources.

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8.4.3 Energy infrastructure

Energy is one of the key ingredients for development and building of economic resilience. Energy drives economic productivity and industrial growth to support recovery and resilience of an economy. Access to reliable and modern energy sources, including green energy is therefore fundamental for economic growth. ST&I is an engine of growth for the green economy, which aims at reducing environmental risks and ecological scarcities. Research studies have touted green initiatives, including green jobs and green entrepreneurship as important strategies to simultaneously address both the economic downturn and environmental degradation and, therefore, transition to a low-carbon economy.

The MTP III has identified energy technologies development programme to facilitate the diversification of the country's non-renewable and renewable energy mix to meet the energy demands for industrialization and development, and ensure use of clean energy and increased energy efficiency. The key projects being implemented are Renewable Energies Research Laboratory, which is being established to conduct advanced research and development in solar energy, wind energy and biofuels. The Centre for Petroleum and Gas Exploration Research is being created to undertake research and technology development in oil and gas exploitation. It will focus on the value chain in the exploitation of fossil fuel reserves, including socio-economic considerations.

Despite the progress made in the energy sector, Kenya experiences energy shortages and supply disruptions coupled with high costs that further constrain the efficiency of economic activities. Such disruptions occur due to heavy reliance on hydro-based power systems, that are affected by both floods and droughts. Increased power outages and duration may result in energy-intensive sectors considering renewable energy options as an integral part of their new build capacity and existing capacity and therefore less disruptions of economic activities.

The share of electricity generated from geothermal energy accounted for 16.1 per cent and 45.9 per cent of the total generation in 2008 and 2019, respectively. Geothermal has continued to be a leading energy source for electricity because it surpassed hydro in 2015. Therefore, there is need to focus more on renewable and greener energies to offer more reliable and affordable energy across the economic sectors in the country, thus supporting building of a resilient economy.

Geothermal is considered a highly reliable source of electricity and key in ensuring a stable baseload as Kenya strengthens the ST&I sector. However, the government needs to consider packaging incentives through attractive pricing to promote and encourage direct uses of geothermal resources, such as the utilization of heat, water, gases, and minerals by industries. For solar, there is need for a framework for electricity generated from solar energy to national and isolated grids through direct sale or net metering, which currently is not available. Further, based on the least-cost approach, the government has prioritized the development of geothermal and wind energy plants and solar fed mini-grids. This could see the provision of cost-effective power to small and medium industries' powering, especially in isolated areas far from the grid.

Preliminary assessment in the energy sector indicates low uptake of modern technologies. The sector depends on outdated and inefficient technologies that are unreliable and are expensive to maintain when generating and distributing energy. Embracing green sources of energy coupled by smart energy technologies provided by ST&I has potential to transition Kenya into a low carbon economy. Smart energy solutions offer better engineering and design, better efficiency, monitoring and reduction of operating costs. All these efforts are necessary in building resilience in the energy sector, which is a key enabler for a resilient economy.

8.4.4 Medical research infrastructure

Health infrastructure, including medical research infrastructure, enables countries to prevent diseases, promote health, and prepare for and respond to health challenges. A well-functioning health infrastructure supports countries to keep their population healthy and safe. Such infrastructure supports public health emergency by ensuring that the affected and injured people are taken

care of. Further, such infrastructure promotes vaccination and other methods of controlling infectious diseases. Future developments in healthcare and technology innovation heavily rely on solid research infrastructure put in place to enable facilities to conduct high-level scientific research in healthcare.

The MTP III has identified the establishment of the Centre of Excellence for Stem Cells Research, Synthetic Biology and Regenerative Medicine as a target. This will facilitate advanced stem cells research and regenerative medicine to address the need for new therapeutic and interventional approaches to Non-Communicable Diseases (NCDs). Further, the MTP III identifies manufacturing of pharmaceuticals through Public Private Partnership initiatives between the Kenya Medical Research Institute (KEMRI) and local pharmaceutical industries in the manufacture of pharmaceutical products through appropriate technology transfer and acquisition. The key achievements include establishment of 12 centres of KEMRI to support medical research, development of vaccines and control of infectious diseases. Some of these centers include the Centre for Infectious and Parasitic Diseases Control Research (CIPDCR), Centre for Clinical Research (CCR), Centre for Global Health Research (CGHR), and Centre for Biotechnology Research and Development (CBRD).

Further, the Government of Kenya has initiated various programmes to strengthen health infrastructure. Such programmes include equipping the health institutions with equipment such as cancer screening and treatment facilities, and X-ray machines. In addition, the envisioned Nuclear Research Reactor will locally produce isotopes that will support the treatment of cancer. Currently, the isotopes are largely imported from South Africa, thus making cancer treatment expensive in Kenya. However, financing health infrastructure is a long-standing development challenge in Kenya. The country lacks well trained medical scientists to carryout complex medical research needed to address challenges posed by pandemics. Further, efforts to strengthen the medical infrastructure are required to build resilience against pandemics and other related shocks.

Other notable efforts include recent plans by Moderna to establish a vaccine facility to manufacture mRNA COVID-19 vaccine in Kenya. Moderna is expected to invest about US$ 500 million in this facility and supply as many as 500 million doses of mRNA vaccines for Africa each year. The Kenyan facility will not only manufacture drug substance but will also be expanded to include fill/finish and packaging capabilities. Further, the facility will enhance Africa's vaccination efforts, which have lagged sharply behind other continents.

As countries transition from a one size fits all approach into customized healthcare that is tailored to the needs of the individual, Kenya is yet to fully integrate the role of ST&I in healthcare. Countries are adopting patient-centric models to offer health services and, therefore, Kenya needs to develop customized healthcare driven by data and knowledge derived from research. Patient-centric models promote effective treatment, which is based on collection and analysis of patient information on genetic, environmental and lifestyle factors. Although the challenges of data collection in precision medicine are already beginning to be explored in developed countries, Kenya requires innovative and expanded technology infrastructure and support to accelerate biomedical discovery that translates into breakthrough health care solutions. Kenya should prioritize building robust medical infrastructure that promotes patient-centric services, effective storage and smart retrieval of data and knowledge. Embracing ST&I in healthcare will provide an opportunity for more advanced analytics tools, particularly those driven by machine learning and artificial intelligence.

8.4.5 Biotechnology infrastructure

Biotechnology (Biotech) is a set of technologies used to change the genetic makeup of cells, including the transfer of genes within and across species to produce improved or novel products. New genes are obtained by either isolating and copying the genetic material of interest using a range of biotechnology tools, including traditional breeding techniques, that alter living organisms, or parts of organisms, to make or modify products; improve plants or animals; or develop micro-organisms for specific agricultural uses. Modern biotechnology today includes the tools of genetic engineering.

Biotech plays a critical role in supporting recovery and developing a resilient food supply ecosystem. One of the biotech's promises is to develop food that has a longer shelf life and crops that can tolerate extreme weather. For example, biotech-based solutions help in editing of the gene so that foods can look more appealing (with fewer bruises and spots) and slowing down the ripening of fruits that stay firm for longer and therefore

making foods to be available, thus reducing food wastage. Similarly, biotech can provide farmers with tools that can make production cheaper and more manageable. For example, some biotechnology crops can be engineered to tolerate specific herbicides, which make weed control simpler and more efficient. Other crops have been engineered to be resistant to specific plant diseases and insect pests, which can make pest control more reliable and effective, and/or can decrease the use of synthetic pesticides. These crop production options can help countries keep pace with demands for food while reducing production costs.

Kenya has developed a comprehensive national policy to guide research, development, and commercialization of modern biotechnology products. The policy, which was approved in September 2006, commits the government to give priority to the provision of relevant institutional, infrastructural, and legislative framework. Further, Kenya plans to establish a Biotechnology and Biosciences Programme under the MTP III to develop and safely apply biotechnology and biosciences in agriculture, health, mining, industry, and environmental conservation. The projects to be implemented include public awareness on biotechnology with an objective of developing specific platforms for public education and awareness creation on modern biotechnology. Further, Biotechnology Information and Resource Centres (BIRCs) at the county level will also be established to create awareness on biotechnologies. Secondly, Centres of Excellence in Biotechnology Research for infrastructure development and human capacity enhancement through the National Research Fund (NRF) will be established. Finally, Biotechnology stewardship to facilitate the safe application and adoption of biotechnology through technology stewardship of the approved National Performance Trials (NPT) for the insect protected and water efficient Bt. Maize and Bt. Cotton will be established.

Some of the key milestones in enhancing biotechnology in Kenya include establishment of the KEMRI's Centre for Biotechnology Research and Development (CBRD) to undertake basic and biotechnology-related research on human diseases in Kenya, with the overall goal of contributing to the improvement of human health and welfare. The key functions of the centre include applying modern science and biotechnology to discover, develop and improve tools and strategies for diagnosis, prevention and control of major human diseases in Kenya and the region; improve basic understanding of the biology of disease-causing agents of public health importance in Kenya and the region; coordinate and advise on issues related to basic biomedical and biotechnological research, pre-clinical studies, quality control and bio-safety; and train, mentors and supervise undergraduate and postgraduate students from local colleges and universities.

Further, the Biotechnology Research Institute (BRI) is one of the institutes established under the KALRO Act 2013 to undertake research that generates and promotes agricultural biotechnology knowledge, information and technologies that respond to clients' demands and opportunities. Kenya is an agro-based country and, therefore, BRI works with county governments and other stakeholders to sustainably exploit the county resources to make new products or provide new methods of production using modern biotechnology. Despite the progress in agricultural and livestock productivity through classical breeding and selection, these techniques are inadequate in attaining the rate of advancement required to resolve food production and processing challenges. Consequently, BRI was created to offer alternative tools of research, such as novel laboratory-based biotechnology to provide solutions.

Overall, despite the enormous benefits that can be realized by applying biotechnology and genetic engineering in numerous fields including research, medicine, industrial biotechnology and agriculture, Kenya has not adequately invested in biotechnology infrastructure and skills to reap these benefits. Such technologies are key in addressing food shortages experienced due to droughts. Research studies indicate that the rise of commercialized genetically modified crops has provided economic benefit to farmers in many different countries, but has also been the source of most of the controversy surrounding the biotechnology technology. In developed countries, genetically modified organisms and foods offer possible solutions to create animal model organisms of human diseases, and producing hormones, vaccines and other drugs, genetic engineering to cure genetic diseases. Kenya could apply the same techniques to produce products that have industrial applications such as producing enzymes for laundry detergent, cheeses and other products and therefore increasing agricultural production.

8.4.6 Nanotechnology infrastructure

Nanotechnology is a set of enabling technologies that are capable of developing structures, systems, and devices in a scale ranging from 1 to 100 nanometers (nm). Nanotechnology and

nanoscience entail the development of appropriate high strength materials that are low cost, effective and efficient and find wide application in numerous technological developments. In general, nanoscale materials offer unique opportunities for socio-economic growth by providing high performance technological appliances (electronics). Similarly, nanotechnology contributes to industry's sustainability by consumption of raw materials coming from waste resources and the use of methodologies that consume low amounts of water and energy, thus protecting human health and the environment.

Nanotechnology has been billed as the science of the future, with micro-particles already powering innovations across industries. Today, nanotechnology industry is growing fast and is considered as the core of the next boundless technological revolution, and it has a significant role spurring global economic growth. Nanotechnology-enabled applications, including materials, can be applied to create nano biomedical applications, nano agricultural and food production, nano-fertilizers, nano-agrochemicals, nano-textile products and nano-oil industry products. Some of the potential benefits that can be realized from nanotechnology include reduced costs, less toxicity, greater efficiency, operating frequency, voltage, reduced complexity, and reliability.

The Kenya Vision 2030 has identified key priority areas in nanotechnology for implementation, which include: Capacity building on nanotechnology (education) through scholarships; Investment in instruments and techniques supporting nanoscience and nanotechnology research; Implementation of the policy on nanotechnology; Public engagement and awareness on nanotechnology; Research in medicine (nanomedicine), Water and sanitation; Nanomaterials for infrastructure development and manufacturing. The following projects are identified in MTP III for implementation: Kenya Institute of Nanotechnology, to be established as a multidisciplinary institution focused on specialized training in nanoscale science and technology. The Institute will focus on the combined skills of universities and industry in the fields of, Chemistry, Physics, Materials, Medicine, Electrical and Electronic Engineering, Mechanical Engineering, Chemical Engineering, Biochemical Engineering and Earth Science. The National Physical Science Research Laboratory (NPSRL) for engineering and new production technologies will provide infrastructure and equipment for research that will deliver cutting edge physical science solutions from small equipment and research tools to large projects in need of complex design and fabrication. The formation of research units of NPSRL will provide consulting, engineering, fabrication, and calibration services for both public institutions and private businesses worldwide.

To actualize the goal of establishing a robust nanotechnology infrastructure, Kenya has initiated several initiatives. For instance, Dedan Kimathi University of Science and Technology jointly with Semiconductor Technologies Limited (STL) recently established a nanotechnology and semiconductor manufacturing facility under a Public-Private Partnership arrangement. Further, in January 2021, Iran was invited to participate in a bid to set up a nanoscience and nanotechnology centre in Kenya, setting up Nairobi at the centre of global innovations. The facility to be put up at the University of Nairobi is to concentrate on research in all aspects of computational nanoscience, and to help promote the fields of nanoscience and nanotechnology across the country and beyond. Further, Iran is partnering with the Jomo Kenyatta University of Agriculture and Technology to formulate postgraduate programmes in nanotechnology, equip nanotechnology laboratories and bring in professors in the field of nanotechnology to build capacity in the field and raise awareness about nanoscience. Iran ranks fourth in nanotechnology in the world after China, the United States of America and India.

Preliminary assessment of Kenya's situation reveals that there is minimal understanding or appreciation of nanoscience and nanotechnology, including the potential benefits. Further, the teaching of and research in the areas of nanoscience and nanotechnology and the accompanying infrastructure is weak and uncoordinated. The regulatory frameworks and policies governing the manufacturing of nanoscale products is inadequate. While Kenya has to develop its nanotechnology infrastructure by putting in more resources, it can reap enormous benefits in building a resilient economy through greener and efficient solutions associated with nanotechnology. These solutions reduce pressure on raw materials and use of unconventional raw material sources or nano-enabled construction products, therefore providing better ecosystem and livelihood conditions.

8.5 Innovation Systems

Innovation is key in fostering increased output and productivity. Introducing innovative ideas into products, processes and services is highly

dependent on the presence of a well-established national innovation system. Generally, the development of innovative ideas into products, processes and services often leads to creating more jobs and offering solutions that safeguard the environment against the effects of shocks and stressors. Innovations derived from the emerging technologies coupled with the application of the latest scientific concepts offer the foundations for economic recovery and building resilience. Innovations are, therefore, key enablers for socio-economic development and can help nations deal with the challenges that make them more fragile by improving service delivery during and after disasters, through effective and efficient people-centred and data-centric approaches.

Emerging technologies such as Internet of Things (IoT), Artificial Intelligence (AI), Robotics, Data Analytics, Fourth Industrial Revolution (4IR), 3D printing, nano technology and gene-editing are increasingly informing the current policy debate on building resilient knowledge-based economies. Research studies demonstrate that the emerging technologies support the functioning of economies, societies, and individual lives during and after the occurrence of shocks and stressors. The emerging technologies offer innovative models and tools for mitigation, preparedness, response, and recovery measures necessary for economic resilience.

The race to respond to the recent shocks of economic stressors particularly due to Covid-19 pandemic has stimulated innovations and creativity in Kenya with huge potential towards accelerating industrial development based on home-grown solutions. For instance, the containment measures such as curfews, social distancing and remote work have cast the knowledge-based economy into the spotlight and ultimately accelerated economic recovery. Innovative solutions keep a country functioning during a pandemic, by enabling remote working, distance learning and facilitating commercial activities by contactless transactions.

Generally, the Kenyan economy exhibits limited levels on innovation required to foster increased output and productivity improvements necessary for employment and wealth creation. In this regard, there are various efforts that are put in place to intensify the innovations for economic resilience.

8.5.1 Status of key innovation/incubation centres

Kenya has continued to register significant growth in the innovation centres. There are over 50 active innovation centres spread across the counties. Majority of the innovation centres are privately owned and located in Nairobi, and mainly offer software development services (Table 8.4). Further, the MTP II established key incubation centres and programmes in Konza Technopolis and Dedan Kimathi University of Technology to spur the formation of new ST&I-based businesses and serve as incubation centres for technology and innovations. The innovation centres in the country are constrained by limited funding, coupled by inadequate framework to support the identification, nurturing, and scaling up of innovations. This hampers resilience efforts across the country.

The Global Innovation Index of 2021 shows that most developing countries are often unable to steadily improve their innovation systems and, therefore, are not able to catch up in innovations with their more developed peers. The developing countries are not able to successfully complement their domestic innovations with international technology transfer, and ultimately have weaker innovation systems. Kenya is ranked position 85 by the Global Innovation Index of 2021. While there are some areas that Kenya has done well, such as in areas of knowledge and technology outputs, business environment and market sophistication, the country registered poor scores in areas of infrastructure and tertiary education. To build a stronger innovation system, governments, and enterprises in many parts of the world have scaled up investments in innovations, and Kenya should strengthen its innovation capacity to build economic resilience, including overcoming the COVID-19 pandemic and ensuring post-pandemic economic growth.

Table 8.4: Selected innovation centres in Kenya

Sector	Name of key Innovation center/lab	Description	Area of focus	Location/ county
Public sector	KIRDI Incubation Centre	KIRDI runs an incubation programme for MSMEs in which startups are housed within the organization for a maximum period of 6 months. KIRDI also runs a virtual incubation service where research scientists support entrepreneurs and industrialists from their establishments	Agro processing Fabrication	Nairobi and branches in Kisumu
Public sector	Huduma White Box	This is a one-stop-shop hosted by the government for anyone who wants to present/share/sell an idea, innovation, invention or solution	Software development	Nairobi
Private sector	Ihub	Ihub Innovation Centre is dedicated to accelerating the application of social capital and technology for economic prosperity	Software development	Nairobi
Private sector	EldoretHub	EldoHub is an ICT and entrepreneurship innovation hub located in Uasin Gishu County in the western region of Kenya. It targets young, energetic, innovative and creative individuals to provide them with skilled based training, working space and a platform to interact, and network with their peers and share ideas	Software development	Eldoret
Private sector	LakeHub	LakeHub is a growing community of creatives, programmers, hackers, designers and entrepreneurs.	Software development	Kisumu
Private sector	Swahilipot	Swahilipot is a technology, creatives and heritage space. It is non-profit organization based in Mombasa that focuses on inspiring and nurturing entrepreneurs and creatives through networking, technical training, support, professional mentoring and coaching.	Software development	Mombasa
Academia	Chandaria Business Innovation and Incubation Centre at Kenyatta University	The incubation centre supports startups in various sectors	Agribusiness and agriprocessing; Aviation and Space Science; Business and Professional Services; Information and Communication Technology; Marketing and Communication; Manufacturing and Construction; Transport and Logistics; Bio and Nanotechnology; Health and Nutrition; Green and Ecological Business; Tourism and Eco-tourism	Nairobi

Sector	Name of key Innovation center/lab	Description	Area of focus	Location/ county
Academia	USIU- Incubation and Innovation Centre	Offers Africa's technology graduates the hands-on experience they need to succeed as software craftsmen - able to design, develop, implement, and manage successful software solutions	Software development	Nairobi
Academia	@IlabAfrica	@iLabAfrica is an innovation centre that spearheads Research and Innovation in the ICT for the Development (ICT4D) ecosystem towards the attainment of the UNDP Millennium Development Goals (MDGs) and Kenya's Vision 2030. Its focus areas are on ICT Research and Innovation, Incubation and Entrepreneurship and ICT Policy Research. @iLabAfrica has established several research and innovation themes to address different challenges and opportunities.	Software development	Nairobi
Academia	Nailab	The Nailab is an incubator and accelerator for ICT start-ups. Nailab has been contracted by the Government of Kenya to help in lowering entry barriers for ICT entrepreneurs to implement and scale their business in the country and beyond.	Software development	Nairobi

Sources: Various sources (websites for whitebox.go.ke, ihub, @IlabAfrica, Nailab, EldoretHub et al)

8.5.2 Selected innovation products

Kenya has numerous innovations that support creation of resilient knowledge-based economy. Specifically, there are innovations created to address the effects of hazards such as floods, droughts and pandemics and therefore enhancing resilience at households' and firms' level. Kenya is rich with innovations in various sectors offering services at the local, national and the global levels and, therefore, contributing to building of economic resilience. Majority of the local innovations are supporting e-commerce activities. Further, there are fewer innovations geared towards enhancing the anticipation and smart preparedness in the events of shocks/stressors, hence more efforts are required in this area.

Some existing innovations support in building resilience levels for communities in need of water during floods and droughts by improving efficiency, accountability, responsiveness, and transparency of water service providers. Some of the innovations towards these efforts include the Majivoice, which is a platform for two-way communications between citizens and water providers using affordable, accessible, and user-friendly technologies. The application is built to strengthen dialogue between citizens and water service providers, and to ensure timely and transparent resolution of consumer concerns in case of any disruptions during the dry and rainy seasons. Similarly, MajiData application provides the water sector with information required to measure the impact and progress towards the achievement of the Sustainable Development Goals and targets set by Kenya's Vision 2030. In Kibera, the SODIS application has successfully facilitated access to water and more so to safe drinking water by use of solar technology. Families can save on fuel that was previously used to boil drinking water during flood and drought seasons. Other related projects supported by mobile technology include M-Maji, which provides water information to empower the underserved communities with better information about water availability, price, and quality. The Trilogy Emergency Relief Application (TERA) is a SMS platform allowing its users to send geographically targeted messaging for communities to prepare for potential flooding situations.

Emerging and innovative solutions are critical in exploration of water resources. For instance, international exploration company Radar Technologies International (RTI), employs a battery of innovative solutions, including troves of NASA data, to probe Earth in search of natural valuable resources – such as water. Among the key technology used was Water Mapping Technology (WATEX), which assisted in the discovery of at least 66 trillion gallons of water deep beneath the surface of Turkana in the Lotikipi and Lodwar basins. Combined with the 898 billion gallons of rainfall diverted into the basin annually, the previously untapped catchment system has the potential to improve the lives of drought-prone areas for generations in the county.

Innovations are also playing a critical role in accelerating the achievement of the "Big Four" agenda. For instance, under the Food Nutrition and Food Security agenda, digital solutions are playing a significant role in the agricultural sector by offering timely information and tools to farmers. For instance, technology-based tools help farmers use precise amounts of inputs, detect issues with their crop and better manage their farm operations. It is evident that digital products are facilitating many businesses to make better decisions in reducing operational inefficiencies and widen access to local and global markets. Disruptive technologies such as IoT enhance agricultural productivity by meeting food demand. Food security is a key part of Kenya's "Big Four" agenda by the government. IoT-based technologies support the development of smart agriculture innovations to boost operational efficiency, maximize yields and minimize wastage due to real-time field data collection, data analysis and deployment of control mechanisms. Kenya is home to about 25 per cent of agriculture tech start-ups in Sub-Saharan Africa.

Disruptive innovations have continued to revolutionize farming over the last few decades, leading to higher productivity, effective use of water, fertilizer, and pesticides thus reducing the cost of production and reducing the impact on natural ecosystem. The use of new and innovative solutions in agriculture will attract the youth to farming, thereby helping reduce unemployment and migration to cities. Further, disruptive innovations will allow farmers and their families to be more economically, socially, and environmentally resilient.

Further, innovations play a significant role in addressing the effects of the COVID-19 pandemic. Innovations assist in effecting measures such as movement restrictions imposed by the government, enhance food production distribution chains and information sharing. The power of digital innovations can facilitate understanding and management of the pandemic, therefore supporting economic resilience. For example, the Kenyatta National Hospital acquired a modern innovative computer-assisted diagnostics facility for COVID-19 treatment.

Other critical innovations include M-Kopa, which is an African connected asset financing platform that provides underbanked customers in Africa the essential products including solar lighting, televisions, fridges, smartphones and financial services. In supporting disaster recovery efforts, Kenyan software engineers have developed Ushahidi software. This is an open-source software application which uses user-generated reports to collate and map data especially in disaster zones.

Other key innovations realized under the various MTPs include development of rapid test kits for HIV and HBV; five vaccines for control of Newcastle, East Coast Fever (ECF), Contagious Bovine Pleuropneumonia (CBPP) and Contagious Caprine Pleuropneumonia (CCPP) diseases; production of 421 varieties of different crops; provision of 2,700 Sahiwal and Boran bulls to farmers; and installation of 12,000 drip irrigation kits for farmers. Table 8.5 shows various key innovations for supporting the economic resilience.

Innovations for "Big Four" agenda and COVID-19 pandemic

Table 8.5: Innovations for "Big Four" agenda and COVID-19 pandemic

	Name of Innovation / Facility/Tool	Purpose of Innovation/Facility/Tool	Status
Affordable Housing	Coding system for e-construction permit system	Quick Response (QR) coding system under the e-construction permit system that eliminates the need for stamping in Nairobi County. Property developers are not required to present hard copies of their development application documents for stamping as a final approval process. The QR Code system provides unique identification of all approved architectural and structural plans	In operation in Nairobi County
Universal Healthcare Coverage	Medical Tteleconferencing facility and artificial intelligent tele-radiology centre at Kenyatta National Hospital	The CT scanner equipment can detect COVID-19 before it is active, thus ensuring isolation of patients in good time and takes less than a minute to get results. The Centre can connect live to Wuhan China for timely demonstrations in treatment of Corona virus and leverage on tele-radiology to capture and interpret COVID-19 CT scan remotely from the 47 counties. The tele-conferencing services at the centre offer doctors from all cover the world an opportunity to interact with their peers locally to share best practices in various issues	Operational at Kenyatta National Hospital
Manufacturing agenda	3D printing solutions	Various manufacturing firms are employing 3D to save a lot of time spent on the back-and-forth process of prototyping, ordering, and delivering products to areas with challenging accessibility. 3D printing technology is already in use from printing PPE equipment to apparel	Various manufacturing firms are embracing 3D printing technologies
	Manufacturing solution	Telecoms operator Safaricom has partnered with Kenya Breweries Limited (KBL) to connect and enhance its coolers using Internet of Things (IoT) technology. The connected coolers are wired with sensors that monitor temperature and how often the fridge door is opened to give real-time data for the alcoholic beverage company. Over 2,000 coolers are already connected	Operational in Kenya Breweries Limited (KBL)

	Name of Innovation / Facility/Tool	Purpose of Innovation/Facility/Tool	Status
Food Nutrition and Security	Innovations for food delivery	Twiga Foods is a food supply chain platform that allows grocers to access quality products, at cheaper prices, delivered directly to their shops. Providing vendors with a simple mobile-based ordering platform to purchase stock, and farmers with predictable pricing for their crops. Twiga works with more than 8,000 Kenyan farmers and over 5,000 vendors, linking smallholders in rural areas to retail vendors in cities Twiga Foods is supported by Liquid Intelligent Technologies to deploy a complete precision agriculture IoT system to improve farm productivity at Twiga's Takuwa farm. The system includes four different types of agriculture sensors: a comprehensive weather station, soil moisture and temperature probes, borehole water metres, and sensors for measuring irrigation water acidity and salinity. The system takes advantage of Liquid Intelligent Technologies' extensive low-power wide area IoT network using 0G Sigfox technology covering 85% of the population in Kenya at lower costs than other technologies The IoT sensors provide critical information to the Twiga agronomy team, helping to measure temperature, humidity, rainfall and wind speed to give real-time data at the farm site. This helps the farm managers know the right farming approach to be applied, such as when to irrigate or apply pesticides. Further, the water quality sensors provide specific metrics that help the team to optimize their fertilizer application	Operational in Kenya
	Irrigation services	SunCulture is a mobile enabled, solar-powered irrigation system aimed at Kenyan smallholder farmers. SunCulture uses pay-as-you-go technology to ensure rural communities can afford and have access to water pumping solutions. Suncunlture allows for flexibility and reliability through remote monitoring, predictive maintenance, and performance optimization features	Operational in Kenya
	Farm input	Digifarm is an integrated mobile platform that offers farmers convenient, one-stop access to a variety of services, including discounted inputs and advice on input use, financing, and information on crops and animals. The platform also improves collection of agricultural data by registering farmers and allowing them to key in information such as the size of their farms and nature of farming activities. Other value-add services provided through DigiFarm include insurance yield cover and extension services through remote agronomists located at the DigiFarm call centre or on ground DigiFarm Village Advisors (DVA)	Operational in Kenya
	Post-harvest management	SolarFreeze uses an integrated approach to post-harvest management to help smallholder's farmers in Kenya deal with post-harvest losses. SolarFreeze's mobile app and Internet of Things (IoT) platform helps to monitor Cold-Chain distribution networks and fresh produce being delivered to clients in solar powered cold rooms and energy efficient trucks	Operational in Kenya
	Supply chain	iProcure's supply chain platform offers complete procurement and last mile distribution services, providing businesses with intelligent and data-driven stock management across supply chains. Operating in rural Kenya, with its storage facilities strategically located to ensure extensive reach to their consumers, iProcure uses a predictive algorithm to ensure the most popular goods are always available	Operational in Kenya

	Name of Innovation / Facility/Tool	Purpose of Innovation/Facility/Tool	Status
	Innovations for market information	M-Farm is a transparency tool for Kenyan farmers where they simply SMS the number 3555 to get information pertaining the retail price of their products, buy their farm inputs directly from manufacturers at favourable prices, and find buyers for their produce. M-Farm gives farmers up-to-date market information, linking farmers to buyers through our marketplace and current agri-trends M-Farm offers smallholder farmer with three services: price information, collective crop selling, and collective input buying. They are currently collecting wholesale market price information on 42 crops in five markets in Kenya. Pricing information is collected daily through independent data collectors using geocoding to ensure that the prices are being collected from wholesale traders actually located in each market	Operational in Kenya
COVID-19-Related Applications	COVID-19 digital immunization system	Kenya's Ministry of Health (MoH) has a new digital immunization records platform being used for keeping electronic records for COVID-19 vaccination in Kenya	COVID-19 digital immunization system was launched in March 2021
	Upcoming innovations during COVID-19 pandemic	• M-Shule platform provides personalized training, life skills information, and data tracking over SMS and chatbot • Zalisha platform links farmers to markets, offers farmer advisory on agricultural challenges such as access to information and climate change. • MSafari is an analytics tool to help keep track of PSV commuters and help with contact tracing in the event that a confirmed case is confirmed to have used public transport, therefore placing other commuters at risk • The Pill Shop is an online platform connecting patients to doctors/clinics/hospitals • Afya Rekod health platform helps patients access health care. • • Imarisha Afya is healthcare financing through Micro-health insurance capitation product with inbuilt telemedicine solution for access to healthcare services through WhatsApp platform and Mobile app	Innovators have developed prototypes but are not able to scale up due to financial and market limitations

Further, the government has formed several taskforces in the past, with an overall goal of building a robust national innovation system in Kenya. The taskforces include National ICT Advisory Committee to identify key innovations for COVID-19 pandemic. The Distributed Ledgers Technology and Artificial Intelligence Taskforce was tasked to establish a framework for the emerging technologies. Some of the key policy recommendations by these taskforces and not implemented include creating a comprehensive innovation framework that identifies, nurtures, supports and scales innovations.

8.5.3 R&D funding

A well-functioning ST&I sector requires adequate research and development (R&D) funding. However, the funding of R&D, which is key in increasing the stock of knowledge, technologies and promoting innovation, has been and continues to be a challenge in Kenya. The MTP III indicates inadequate funding as one of key constraints facing the ST&I sector. In MTP I, the government indicated the need to provide a framework for mobilizing resources, including funding from domestic and foreign sources. Several initiatives have, however, been initiated to provide sufficient funding to the ST&I sector. During implementation of MTP II, the National Research Fund (NRF) was established to: support the funding of ST&I-related activities in the country. Research funding by the government also increased from 0.48 per cent to 0.79 per cent of GDP. These initiatives have had a positive effect in R&D activities.

Table 8.6: Individual and institutional research licenses granted (%)

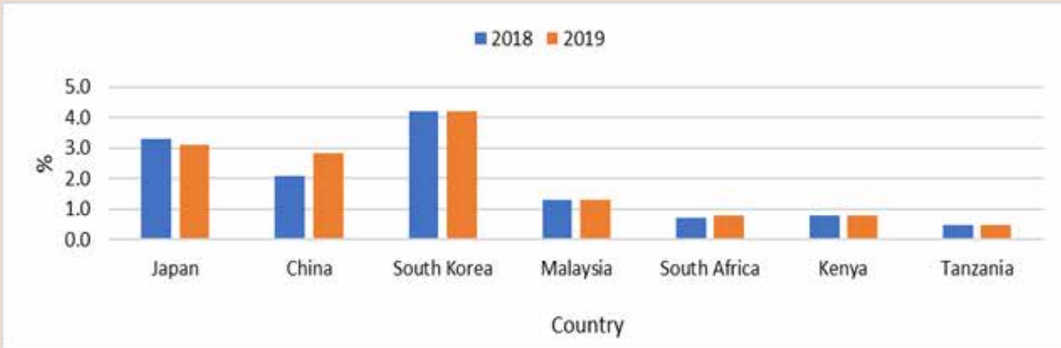
Field of Research	2018/19				2019/20				2020/21			
	Male	Female	Total	Institutional	Male	Female	Total	Institutional	Male	Female	Total	Institutional
Agriculture and Natural Resources Sciences	54.55	45.45	2.50	4.39	57.43	42.57	4.96	6.78	3.51	2.25	5.76	5.36
Earth and Biological Sciences	57.09	42.91	4.56	6.42	54.84	45.16	1.01	2.17	0.76	0.29	1.05	1.16
Health and Biological Services	51.05	48.95	10.86	39.19	48.76	51.24	22.45	50.41	10.81	10.79	21.60	58.41
Humanities and Social Sciences	51.10	48.90	76.27	46.62	54.15	45.85	65.20	40.11	35.65	30.55	66.19	31.88
ICT and Infrastructure Sciences	63.26	36.74	3.76	1.35	55.63	44.37	4.79	0.54	2.52	1.63	4.15	2.32
Physical, Industrial and Energy Sciences	58.12	41.88	2.05	2.03	59.79	40.21	1.59	0.00	0.93	0.31	1.24	0.87
Total			**5,719**	**296**			**6,112**	**369**			**5,153**	**690**

Data Source: Kenya National Bureau of Statistics (2022)

Table 8.6 show the analysis of individual and institutional licences granted in various areas of research in the country. Though individual research licences granted increased to 6,112 in 2019/20 from 5,719 in 2018/19, the licenses dropped to 5,153 in 2020/21. However, institutional licences increased to 690 in 2020/21 from 369 in 2019/20 and 296 in 2018/19. Research on Humanities and Social Sciences and Health and Biological Sciences, however, dominated the number of both individual and institutional licences. Other research fields directly linked to ST&I, such as Agriculture and Natural Resources Sciences, Earth and Biological Sciences, ICT, and Infrastructure Sciences, and Physical, Industrial and Energy Sciences each constituted less than 6 per cent of individual research and less than 7 per cent for institutional research. There is, however, a consistence increase in research in Agriculture and Natural Resources Sciences fields by individual researchers. The various funding initiatives have contributed to increased research in the country, leading to an increase in the number of scientific publications (see Table 8.2 above).

The government support to R&D activities in Kenya is mainly channeled through NRF, which is established under Section 32 of the ST&I Act, 2013. NRF gets budgetary allocations from the government and is mandated to mobilize and channel resources for research and ST&I, including through supporting the cooperation and dissemination of relevant research findings. It commenced its operations in 2016/17 financial year with Ksh 3.384 billion; 88.7 per cent from the government and 11.3 per cent from donors (Government of Kenya, 2018c). This allocation was about 0.04 per cent of GDP, which was much lower than the 2 per cent of GDP stipulated in the ST&I Act, 2013.

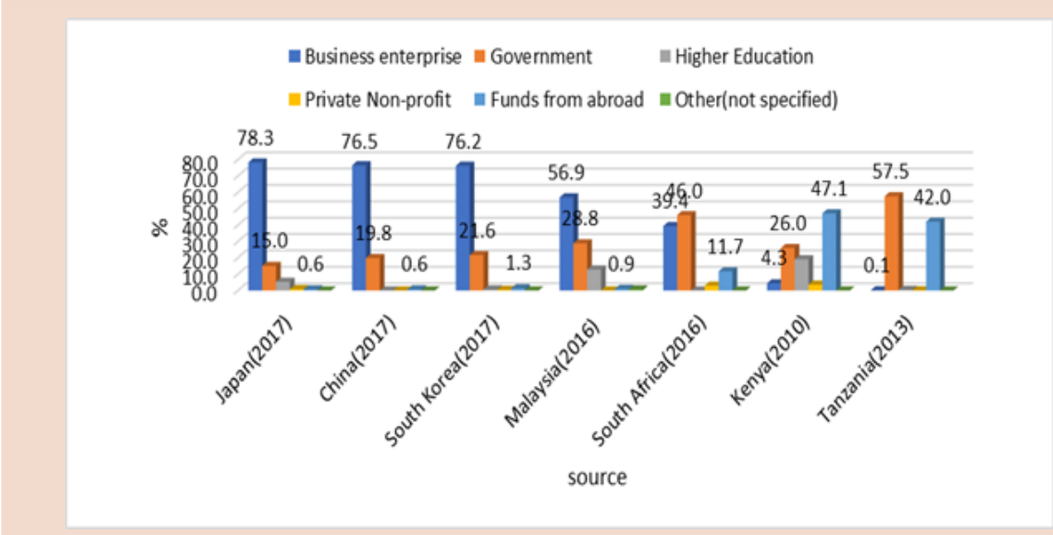
Figure 8.2: R&D expenditures (% of GDP)



Data source: World Economic Forum (2018; 2019)

In the MTP III, the target is to increase research funding from the current 0.8 per cent to 2 per cent of GDP by 2022. While Kenya has stagnated at about 0.8 per cent, aspirator countries such as China and South Korea are already at above 2 per cent of GDP (Figure 8.2).

Figure 8.3: Sources of funds for R&D



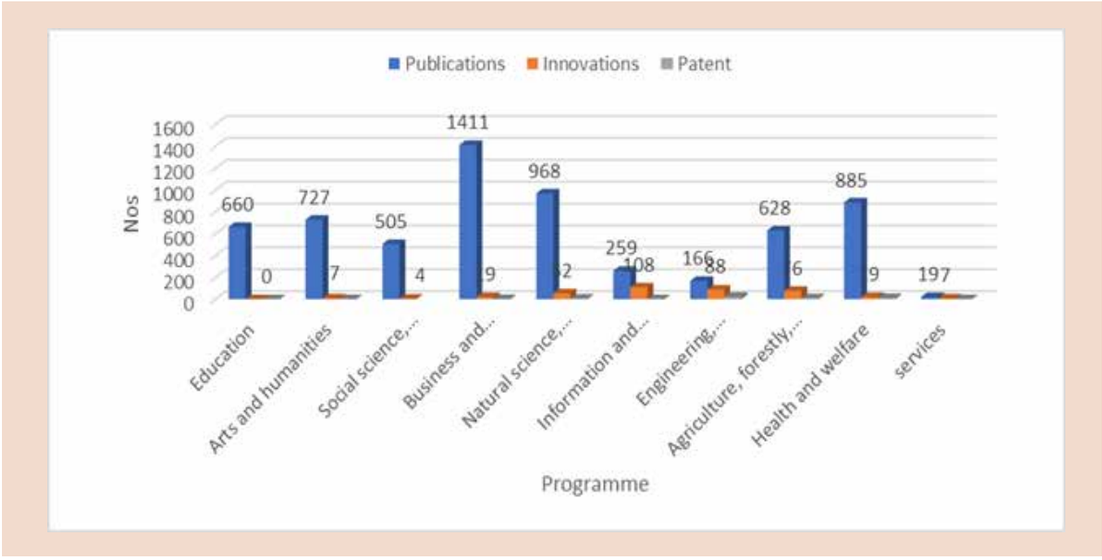
Data Source: UNESCO Institute for Statistics (2019), years indicated are the latest available

Further, R&D activities in Kenya are mainly supported by the government and foreign sources, with little support from the private sector, mainly business enterprises. As shown in Figure 8.3, funds from abroad constitute about 47.1 per cent, the government provides about 26 per cent of sources of funds, while business enterprises provide only 2.6 per cent. In countries such as Japan, China, South Korea, and Malaysia, the private sector provides the largest share of funding. The business enterprises' support to R&D activities in Japan, China, South Korea, and Malaysia is at 78.3, 76.5, 76.2, and 56.9 per cent, respectively. Therefore, these countries have been able to build capacity to cope with shocks and stressors. This is unlike Kenya where the low funding allocated to R&D and the continued little support from the private sector continue to limit innovations in the country, and therefore the capacity to be resilient from shocks and stressors.

8.5.4 Academia-industry linkages

In MTP I, the government targeted to strengthen academia-industry linkages. Universities and other institutions of higher learning are not only sources of knowledge creation, but also for innovation, and technological advances. This academia-industry collaboration is key in providing alternative funding channels; access to/or acquisition of state-of-the-art equipment; improved curriculum and training in technology-oriented programmes and problem-solving; enhanced employment prospects for students; supplemental income for academic staff; and clearer contribution of academia to the economy, among others (World Economic Forum, 2011; Martin, 2000).

Figure 8.4: Publications, innovations and patents (2017/18)



Data Source: Commission for University Education (2016; 2018; 2019)

One of the great disincentives for industry to collaborate with academia is inadequate undertaking of relevant innovations that can be adopted by industry. In Kenya universities and other institutions of higher learning, innovations are taking place in these institutions despite the challenges they face. In 2017/18, for example, universities undertook a total of 380 innovations. The Natural Sciences, Mathematics and Statistics, Information and Communication Technology, Engineering, Manufacturing and Construction, and Agriculture, Forestry, Fisheries, and Veterinary fields had over 67 per cent of all innovations at the universities (Figure 8.4). However, only 11 per cent of the innovations at the universities were patented due to the existence of unresponsive intellectual property rights (IPR) structures. This is compounded by weak academia-industry linkages, thus limiting commercialization of the innovations. Further, the ineffective benefits sharing framework in the academia is also a disincentive to researchers. Consequently, industries source their innovations outside Kenya. This dampens the motivation for innovations locally. Unlike Kenya, the academia-industry linkages in Korea are strong due to presence of techno parks. These are complex facilities for research development, high technology, enterprise incubator and industrial production in the form of academia-industry cooperation for improving competitiveness. There are 18 techno parks in Korea where 16 are government initiated (Nam et al., 2015). Konza Technolopolis, which is yet to be fully in operationalized, in such an envisioned techno park in Kenya.

8.6 Institutional Structure

Over time, Kenya has had several policies guiding the development of the ST&I sector. These policies have, however, not only looked at specific aspects within certain ST&I pillars but have also taken a sectoral approach. This then raises several challenges making it difficult to develop the ST&I in totality. These include, among others, the existence of several institutions carrying out ST&I activities, and which are uncoordinated, leading to fragmented investments, thus a weak integration of ST&I in all sectors of the economy. Further, there are difficulties in tracking spending in ST&I activities, which is crucial to ensure the funding for ST&I sector. The gap in coordination may also result in ineffective utilization of resources, where different ministries or institutions design their own programmes and strategies and compete among themselves for allocation of public funds. The existing policies are also not aligned to the counties in terms of their role in ST&I. The continuity of policies has also been a challenge, especially the implementation level. This has weakened the role of ST&I in building resilience in the economy

The Sessional Paper No. 5 on 1982 on Science and Technology for Development emphasizes the critical element in the institutional pillar of ST&I, especially on coordination of the working relationship between the various science making agencies, including government ministries, parastatal organizations, research institutions, the higher education sector, and professional bodies in ST&I policy making. The Sessional Paper further reinforces on the innovation systems pillar by pointing out the government

intention of attaining a level of 1 per cent of GDP for research and development to generate new knowledge leading to practical, and tangible innovations. However, these aspirations are yet to be achieved. On skills pillar, the Sessional Paper emphasizes the need to train scientists and engineers, technologists ad technicians, artists, and craftsmen to increase ST&I capabilities in the country. The efforts towards these aspirations are ongoing, with emphasis on STEM courses at the universities and technical skills at TVETs.

The Sessional Paper No. 2 of 1997 on Industrial Transformation to the year 2020 with an industrial development, focuses more on the innovation system pillar and identifies access to credit as a major impediment for the private sector in undertaking innovation, and the need to protect innovations. Further, funding for private sector research is noted as non-existent and unstructured. However, the policy notes the need to encourage the private sector to invest more heavily in technology development, either independently or through collaboration with public R&D institutions. The weak R&D within the private sector is also highlighted as a challenge. According to the policy, there are weak linkages between the private sector and research institutions. The policy also focuses on the institutional pillar by noting the importance of developing a comprehensive policy framework for acquisition in industrial technology, which is yet to be put in place. On the skills pillar, the policy emphasizes on technical and vocational skills, which is an ongoing effort.

The Sessional Paper No. 2 of 2005 on Development of Micro and Small Enterprises for Wealth and Employment Creation for Poverty Reduction aimed at facilitating the development of a vibrant Micro and Small Enterprises (MSEs) sector. The policy focuses on the innovation system and skills pillars. There are proposals to support R&D to boost MSEs' access to appropriate technologies and innovation through the establishment of a Micro and Small Enterprises Development Fund. The policy also proposes the establishment of award schemes that recognize innovations and technology development within the sector. While the award schemes have been established, the Micro and Small Enterprises Development Fund is yet to be in operation. The policy also emphasizes on skills development to support technology transfers.

The Sessional Paper No. 9 of 2012 focusing on National Industrialization Policy Framework for Kenya seeks to promote a globally competitive and diversified industrial sector. The policy sets out to promote high value addition in the country through establishment of industrial, science, and technology parks, which are key elements in the infrastructure pillar. On the innovation system pillar, one of the envisioned benefits from implementation of this Sessional Paper was considerable development of ST&I, leading to increase in registered patents and commercialization of research findings. Consequently, the policy interventions include strengthening the institutional structure pillar by developing a policy to support commercialization of research findings; the strengthening of linkages between universities, the facilitation of R&D institutions; the formulation of mechanisms to facilitate collaboration with the private sector specifically in research, technology transfer, development and to mobilize resources for R&D. On the skills pillar, the policy envisages the expansion of technical, vocational, and entrepreneurial training for artisan, craftmanship, technician, technologist, and engineering training for industry through, for example, reforms in TVETs. Again, efforts towards these aspirations are ongoing.

The 2012 Sessional paper and the Kenya Investment Policy 2019 reinforce the innovation system and institutional pillars but lay the importance of linkages through institutionalization of incubation, sub-contracting, and creation of linkages between foreign affiliates and local Small and Medium Enterprises (SMEs). The envisioned National Industrial Incubation and National Industrial Sub-contracting policies. are however yet to be put in place.

In response to challenges facing the ST&I sector, the Kenya Vision 2030 calls for an economic and institutional regime that provides incentives for the efficient use and creation of knowledge and for entrepreneurship. The first and the second medium-term plans identified ineffective coordination of ST&I activities as among the key challenges in making Kenya a knowledge-based economy. The MTP III further calls for the development of a formal, comprehensive, and integrated ST&I Policy. In 2013, the government enacted the Science, Technology, and Innovation Act No. 28 of 2013 to facilitate the promotion, coordination, and regulation of ST&I in the country The coordination framework is, however, not in place. The development of the policy is also not complete, making it difficult to comprehensively develop the ST&I sector. This hampers the effectiveness of ST&I in building resilience, and ability to respond to shocks and stressors. A policy on ST&I is critical in offeringa coordinated approach to enhance economic resilience and areas of data sharing to predict suitable interventions.

8.7 Key Messages

Skills

1. The key achievements in skills include reforms in the education system through the introduction of CBC, which is focused on development of skills and their application in real life situations, increase in capacity to offer STEM courses at the universities, and revamping of TVETs. However, much more needs to be done to achieve the necessary numbers of experts to propel the country into higher heights of development. The gap of about 46,842 researchers in STEM fields hampers efforts in anticipation and smart preparedness for future shocks/stressors.

Infrastructure

2. Kenya has made significant progress in developing digital, space, energy, medical research, biotechnology and nanotechnology infrastructures for ST&I. Preliminary assessment shows that Kenya is yet to harness the enormous benefits from space, biotechnology and nanotechnology economies. Further the country experiences challenges linked to inadequate resources to acquire, develop, and maintain infrastructure leading to low accessibility and connectivity levels to develop ST&I services and products.

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Innovation system

3. Kenya has made major strides in innovation products as witnessed during the COVID-19 pandemic. Such products include COVID-19 Digital System used for keeping electronic records on vaccinations. Innovations in E-learning and E-commerce played a key role in mitigating the effects of COVID-19. However, innovators and innovation centres in the country are constrained by limited funding, coupled with inadequate framework to support the identification, nurturing, and scaling up of innovations. This hampers resilience efforts across the country.

4. The National Research Fund has been established to support the funding of ST&I activities. Research funding from the government has also increased from 0.48 per cent to 0.79 per cent of GDP. This is low compared to the targeted 2 per cent of GDP provided in the ST&I Act. The low funding allocated to R&D and the continued little support from the private sector limit innovations in the country and therefore the capacity to be resilient from shocks and stressors.

5. The innovation hubs such as Chandaria Business Innovation and Incubation Center at Kenyatta University, and USIU Incubation and Innovation Centre demonstrate efforts to link the academia to industries. The absence of techno parks, the the existence of silo mentality both in the academia and industry limit strong academia-industry linkages. Consequently, industries source their innovations outside Kenya. This dampens the motivation for innovations locally. Further, the ineffective benefits sharing framework in the academia is also a disincentive to researchers.

Innovation system

6. Efforts have been made to establish key institutions such as NACOSTI, KENIA and NRF through the ST&I Act 2013 to support ST&I activities. However, the absence of the envisioned national ST&I policy hampers the effectiveness of ST&I in preparedness and response to shocks and stressors. A national policy on ST&I is critical to offer a coordinated approach to enhance economic resilience and areas of data sharing to predict suitable interventions. Lack of sufficient and up to date data on activities of ST&I hamper the effectiveness of ST&I in building resilience.

8.8 Policy Recommendations

1. Promote Public-Private Partnerships to invest in infrastructure and in skills development. There is need to complement government investments in infrastructure particularly in space, medical research, biotechnology and nanotechnology. Skills development for anticipation and smart preparedness mainly relating on environmental shocks/stressors need to be prioritized. This calls for bringing the private sector on board to participate from the onset to the execution of the targeted projects. This can be done through the Public Private Partnership Act of 2013, which provides for the participation of the private sector in terms of financing, construction, development, operations and maintenance and protection of such ST&I projects. To attract private sector participation in such projects, there is need to create awareness and sensitization. This partnership will support quick realization of the envisioned projects such as Kenya's Moderna vaccine facility, and Konza Technopolis, and therefore enhance efforts for building economic resilience.

2. Develop and implement collaborative innovation framework for identifying, -nurturing and scaling up various categories of innovations by involving all the key stakeholders, including innovators, government, industries and development partners. The framework needs to create an enabling ecosystem to support identification, nurturing and scaling up of innovations for smart and preparedness for shocks/stressors by establishing accelerator programmes across counties.

3. Fast-track development of policy framework for adoption of emerging technologies and standards. The emerging technologies, including Artificial Intelligence, Blockchain, Fifth Generation technology (5G), Internet of Things (IoT), Fourth Industrial Revolution (4IR) and Industry 4.0 technologies are critical in building economic resilience, hence the need to entrench them into the policy framework. Also, adopting best practices and domesticating standards will guide the application of the emerging technologies and, therefore, enhance economic resilience.

4. Fast-track full development and implementation of national ST&I policy. The efforts to put in place a national ST&I policy started in 2014 and to date the finalization of the policy is yet to be realized. The policy will guide the development of the ST&I sector in Kenya. The envisioned policy will be critical for development of the ST&I sector, including the coordination of ST&I activities and programmes necessary for building economic resilience in the country.

9

9

ENTRENCHING A RESILIENT CREATIVE ECONOMY

The creative economy can enhance inclusivity due to its high level of interconnectedness; it presents opportunities through forward and backward linkages. The creative economy has commercial, cultural and social inclusion value proponents. Several creative industries leverage on the digital economy, enabling them to exploit the opportunity to enhance market access. Further, a large proportion of Kenya's youth are engaged in the creative economy. There are, however, various challenges facing Kenya's creative industries, including high vulnerability to risks, ineffective supportive and/or comprehensive policy framework; inadequate infrastructural and financail support; and inadequate statistics to support effective planning for the sector. Enhancing the capacity of creatives and access of creative products requires development of relevant skills; development of the creative infrastructure; provision of appropriate financial products; and appropriate policy review.

CREATIVE ECONOMY

9.1 Introduction

Creative "Orange" economy is essentially a set of knowledge-based economic activities. The importance of the economy has increased as evidenced in global, regional and domestic development agenda. Culture, for instance, as an enabler of inclusive and sustainable development will contribute to the achievement of Sustainable Development Goals (SDGs). The 74th session of the UN General Assembly held in 2019 declared 2021 as the International Year of Creative Economy for Sustainable Development in recognition of its contribution in promoting sustained and inclusive growth. Goal 16 of the African Union Agenda 2063 promotes an African Cultural Renaissance in which cultural heritage, creative arts and businesses is a priority. The EAC Cultural and Creative Industries Act 2016 establishes a Culture and Creative Industries Council to develop and promote creative industries and create and maintain a registry of creative and cultural entrepreneurs within the East African Community. The creative economy industries, as knowledge-based activities, are therefore key to implementation of the country's national policy priorities. The Kenya Vision 2030 leverages on knowledge-based growth.

Industries in the creative economy include: the visual arts; performing arts, published and printed media, audio-visuals, design, traditional and cultural expression, cultural sites and creative services (UNCTAD, 2008). Oral traditional expressions, performing arts, social practices, festive events, and traditional craftsmanship are classified by the United Nations Educational Scientific and Cultural Organization (UNESCO) as intangible cultural heritage. With technological advancements, there has been emergence of new creative media, digitally motivated, resulting in creative software, computer or video games, animation, and creative content.

The creative economy is highly interconnected. Sectors such as tourism, accommodation, food and beverage services are linked to the creative economy, particularly visual and performing arts, while others such as agriculture, gemstone mining and manufacturing are linked to fashion and interior design. These sectors on their own have strong backward and forward linkages, thus revealing the creative economy's potential in inclusive and sustainable growth. The creative economy could also make tremendous contribution to social development with respect to promoting social cohesion; the well-being of communities and cultural diversity (UN, 2013).

Kenya has a diverse creative economy characterized by various players who are largely micro and small enterprises, and majority of whom operate informally. Data is a key challenge. This Chapter therefore establishes the situational analysis based on the information available.

Table 9.1: Creative economy industries

Traditional and cultural expression and cultural sites	• Arts crafts, cultural festivals • Cultural and recreational services; library, museum, historical sites
Visual arts	• Antiques, painting, photography, sculpture
Performing arts	• Music, drama, dance, other live performances
Published and printed media	• Books, newspapers, brochures, adverting material, other publications
New media	• Creative software, digitalized creative content, video games
Audio visuals	• Film, broadcasting services
Design	• Interior design, fashion, toys, graphic or architectural drawings, jewelery
Creative Services	• Advertising, architectural services, research and development services, cultural and recreational services

Source: UNCTAD (2008)

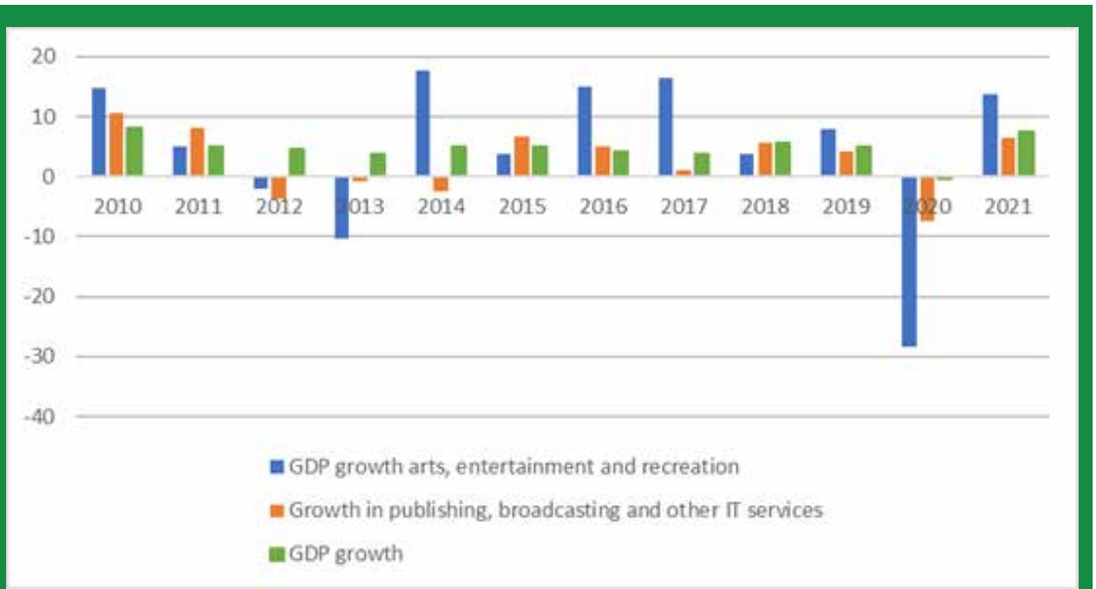
9.2 Creative Industries' Contribution to GDP, Employment and Earnings

9.2.1 Contribution to GDP

In 2021, arts, entertainment and recreation activities accounted for 0.2 per cent of GDP and 0.25 per cent of total wage employment. Publishing, broadcasting, other IT and information activities accounted for 0.7 per cent of GDP and 4.6 per cent of total wage employment. Between 2019 and 2020, with COVID-19 and the containment measures, growth of arts, entertainment and recreation industries contracted by 28.3 per cent while publications, broadcasting, IT and information services contracted by 7.5 per cent (KNBS, 2022a). A similar contraction was witnessed in 2012/2013,

explained by General Elections held in March 2013, and contraction of the accommodation and food services contracted by 7.8 per cent and 18.7 per cent, respectively. Publishing, broadcasting, other IT and information activities, which include publishing activities, motion picture and sound recording activities, radio and TV broadcasting, telecommunications and information technology activities, contracted by 7.6 per cent. A number of creative industries were thereby adversely affected by the effects of COVID-19 due to the interactive nature of the activities.

Figure 9.2: Growth rates for arts, entertainment and recreation industries



Note:

Kenya's arts, entertainment and recreation industries covers three of the UNCTAD (2008) eight creative economy classes; that is, performing arts, visual arts, traditional and cultural expression and cultural sites. Publishing, broadcasting, other IT and information activities cover two classes; publishing

Data source: Kenya National Bureau of Statistics (Various), Economic Surveys

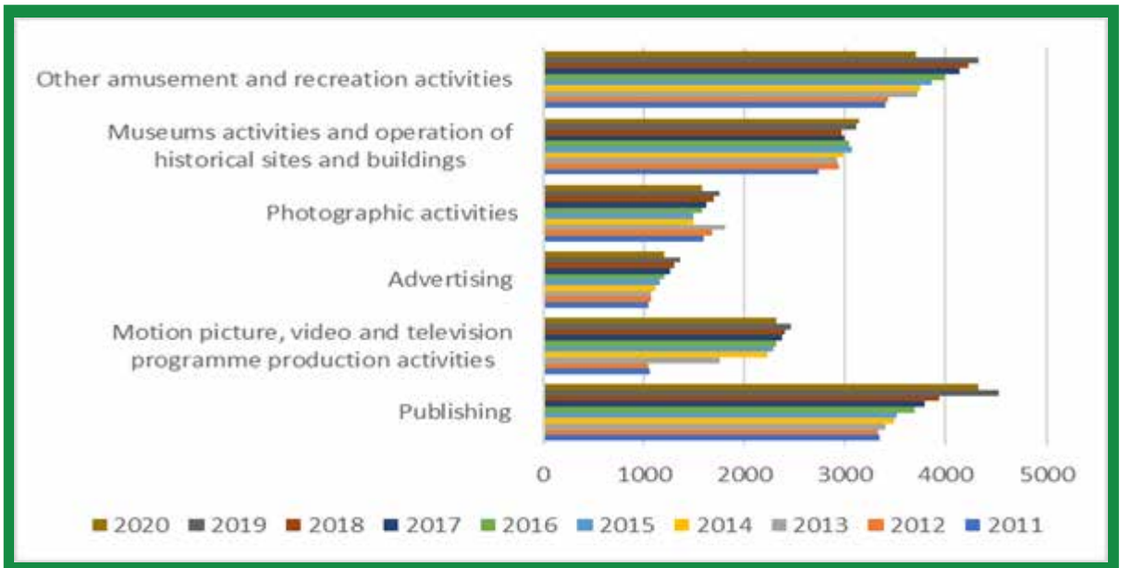
Though Kenya's arts, entertainment and recreation and publishing, broadcasting, other IT and information activities represent the largest share of the creative economy industrial classes, it omits visual arts (painting, photography and sculpture) and design (fashion, jewelery and other creative services such as architectural) and new media including video gaming. Arts, entertainment, and recreation are largely informal, accounting for 76.4 per cent of industry players. Of those that are licenced, majority (93.3%) are micro and 50 per cent are not registered businesses (KNBS, 2016). The informal arts, entertainment and recreation industry players are largely (70%) operated by the owner, with majority (92.9%) male-owned/operated. About half of players are youth (between 18-34 years of age) (KNBS, 2019). That said, businesses in the arts, entertainment and recreation sector have the highest average life of 10.1 years compared to all other industries (KNBS, 2016).

There is under-reporting of activities undertaken by artists in Kenya due to weak creative and cultural sector statistics. Obtaining an accurate and comprehensive estimation of the contribution of Kenya's creative economy to the national economy remains a challenge.

9.2.2 Employment trends

The labour force engaged in creative economy industries in Kenya has been expanding over the years, but with COVID-19 all activities except for museums saw a decline (Figure 9.3). The top in terms of employment include publishing, accounting for 26.6 per cent of the categories represented in Figure 9.3, then amusement and recreation activities (22.8%), and museums activities and operation of historical sites and buildings. This data includes only wage employment, which include casual employees, part-time workers, directors and partners serving on a regular basic salary contract, thus omitting those from the informal sector, which account for majority of industry players.

Figure 9.3: Employment trends in creative economy industries in Kenya (2011-2020)



Note:

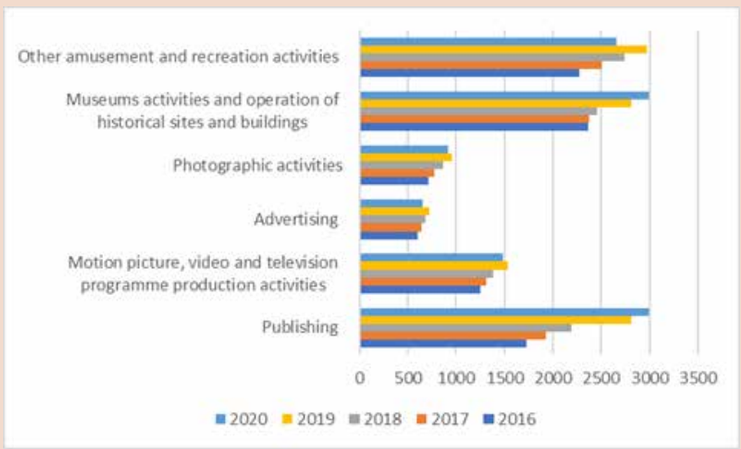
The graph covers five of the eight creative economy classes:
(i) Adverting, amusement and recreational facilities fall under creative services;
(ii) Museum activities and operation of historical sites and buildings is under traditional and cultural expression and cultural sites classification;
(iii) Photography is one of the activities under visual arts classification; (iv) Motion picture, video and television programme production activities are audio visuals; (v) Publishing is under published a

Data source: Kenya National Bureau of Statistics (Various), Statistical Abstracts

9.2.3 Annual earnings

Except for museum and publishing, the rest of the activities saw a decline in earnings in 2020. Annual earnings in publishing grew by 6.3 per cent from Ksh 2.8 billion in 2019 to Ksh 2.9 billion in 2020. Average annual earning for arts, entertainment and recreation declined to Ksh 5,652.3 million in 2020 from Ksh 5,772.9 million in 2019. This is attributed to decline in number of working hours with COVID-19. In the First Wave of KNBS COVID-19 Socio-Economic Survey, the sector reported working seven hours less in a week while in the Second Wave survey, this worsened to 18 hours less a week compared to pre-COVID-19 times (KNBS 2020a; 2020b). Arts, entertainment and recreation industry player typically work 56 hours a week for enterprises operating informally and 49 hours for licensed enterprises (KNBS, 2019; KNBS, 2016); therefore, 18 hours less a week accounts for 32 per cent less earning opportunities for informal sector players and 36 per cent for those that are licensed.

Figure 9.4: Average annual earnings in Ksh million



Data source: Kenya National Bureau of Statistics (2021), Statistical Abstract

9.3 Development of the Creative Economy

9.3.1 Traditional and cultural expression and cultural sites

Cultural festivals in Kenya are convened by the public and private sector. The key cultural events convened by the public sector include Mombasa International Cultural festivals, and Turkana Tourism Cultural festivals. The National Museums of Kenya has since 2013 hosted the Nairobi International Cultural Festival annually, with exception to 2020 and 2021 due to COVID-19. This is not unique to Kenya, as evidenced by the cancellation and/or postponement of events in different parts of the world. COVID-19 and the containment measures in Kenya further contributed to a substantial decline in number of visitors to museums and cultural sites. Between 2019 and 2020, visitors to key sites such as Nairobi National Museum, Fort Jesus in Mombasa and Kisumu Museum declined by 83.4, 86.6 and 92.3 per cent, respectively (KNBS, 2021b). Visitors to the museums in the country declined by 516 per cent from almost a million visitors in 2019 to 160,701 in 2020. In 2021, however, the overall number of visitors more than doubled to 403,700 (KNBS, 2022).

Though there is some cultural infrastructure around the country, there are weaknesses in mapping, management and marketing of cultural and heritage sites. Counties also experience inadequacies in provision of cultural infrastructure. Mombasa County, for instance, despite its tourism attraction, lacks cultural centres, while Kisumu County cultural heritage sites suffer total neglect (County Government of Mombasa, 2018; County Government of Kisumu, 2018). Kenya's historical sites and monuments require sufficient resources for maintenance.

9.3.2 Visual arts

Kenya's visual arts, including paintings, photography, sculpture comprises of traditional and contemporary pieces established by artists around the country who display or sell their products in creative infrastructure such as art markets, galleries, exhibitions and online platforms (latter largely for photography). Inefficiencies in the country's creative infrastructure and high costs associated with importation of art supplies, however, introduce impediments to these creative industries.

9.3.3 Performing arts

Kenya's performing arts in music, drama, dance and comedy and other live performances are undertaken in various venues. These include theatres by the private sector, including schools or public facilities including the Kenya National Theatre. Other facilities are restaurants, bars and recreation facilities. These facilities are, however, limited and where available, centralized in Nairobi. Further, live performances are not major revenue earners in Kenya. Expenditure in live music, for instance, accounts for only 10 per cent of music revenues (PWC, 2013). Additionally, with the effects of COVID-19, as established in Figure 9.4, demand for live performances declined, and thus the earnings.

9.3.4 Published and printed media

As established earlier, published and printed media industry is a top employer and top export earner within Kenya's creative economy. Publishing accounts for 50 per cent of all creative products exported within Africa and the East African Community (EAC) (UNCTAD, 2018, UNCTADstat, nd). The key products are school text or course books. It is the only industry that appears to have remained resilient given the increased earnings even with the effects of the COVID-19 pandemic. Book piracy is, however, a challenge the industry experiences. According to the Anti-Counterfeit Authority (2020) National Baseline Survey on Counterfeit and other Forms of Illicit Trade in Kenya, Ksh 2 billion is lost annually through book piracy, while piracy accounts for 21 per cent of total investment opportunity lost in 2018. Inefficiencies in combating piracy and copyright infringement can further limit their market access.

9.3.5 New media

The video games market in Kenya is reliant on traditional gaming, with growth being boosted by the growth of smartphones. Payment for games has further been facilitated by mobile money platforms such as M-Pesa. The market as established by the entertainment and media outlook was worth US$ 63 million in 2017, expected to grow to US$ 118 million in 2022 (PWC, 2018). The video game market in Kenya comprises those who participate in leisure or competitive video gaming, and game developers. Competitive video gaming is a fast-growing e-sport. The Olympic Agenda 2020+5, which aims to introduce unique Olympic products and experiences, reports that the gaming industry experienced a 75 per cent growth in gaming usage in 2020 during the COVID-19 pandemic (International Olympic Committee, 2021).

Video gaming and animation industry is at nascent stages in Kenya. There are individuals and institutions that provide the service and offer training or inputs such as equipment. Another new media domain is digital creative content and

interactive media, including Internet podcasting, content on social media and mobile content. In Kenya, digital content providers use WhatsApp, Facebook Messenger and Telegram for social issues and Instagram, Snapchat, YouTube, TikTok, Vimeo and Pinterest for entertainment (SIMElab Africa, 2020). Despite the growth in digital creative content in Kenya, the country experiences limited bandwidth, power outages, hight costs of mobile phones and infrastructure constraints. Video gaming and animation face similar challenges, coupled with high cost of equipment and capacity constraints.

Video game development requires specialized skills in fields such as game design, game programming, game art, narrative designers, audio engineers, among others, but with limited capacity building opportunities locally.

9.3.6 Audio visual

Business operations under radio and TV broadcasting industry have expanded over the years. This is evidenced by the increased number of licensed radio and television stations, where for instance by 2013, there were 13 digital television stations and 107 FM stations, which increased to 186 free to air (FTA) commercial television stations (FTA TV) and 131 FTA radio stations in June 2021 (Communications Authority, 2013; 2021c). FTA commands a large proportion of Kenya's broadcasting services. Of these, 118 licensed TV and FM stations broadcast programmes either fully or partly in vernacular or foreign languages, specifically in twenty-six (26) vernacular languages and four (4) foreign languages. The increase was in part a 'result of the digital migration, which opened opportunities in the television industry. Local broadcasting stations are critical in promoting and protecting local culture, heritage, and indigenous languages. Video on-demand (VoD) services such as VIUSASA and ShowMax further provide additional content options through paid subscriptions facilitated by ICT investments (Communications Authority, 2018). VoD is offered under Subscriber Broadcasting Services Licence to provide pay TV services, which is regulated by the Communications Authority of Kenya. There are 17 licensed subscriber broadcasters in Kenya. Africa's leading VoD operators include Netflix, ShowMax, and Amazon Prime (UNESCO, 2021b). These VoD services purchase local content for distribution on the platform, thus making the content accessible to a wider, global audience. In May 2022, the Government signed a two year Memorandum of Understanding with Netflix to strengthen the country's creative industry through support and capacity development in audio visual. With COVID-19, digital adoption has grown particularly with "over the top" (OTT) streaming services (UNESCO, 2021a). With the growing number of local television stations, the local content requirement presents an opportunity to promote Kenya's growing film industry. The current statistics reveal that 92 per cent of broadcasting stations sampled are complying with the 40 per cent local content quota as of June 2021. This is an improvement from 64 per cent in June 2017. Broken by segment, however, Kenya's film and drama is still under-represented, with compliance established at 2.5 per cent, while that for music is 27 per cent, documentaries 9.5 per cent, talk shows 10.8 per cent as at March 2021 (Communications Authority, 2021d). Music streaming of local content from Kenya is also increasingly available through digital distribution platforms and aggregators (music streaming platforms) as Spotify, Apple Music, Boomplay, and Deezer. Content providers on these platforms earn through streaming royalty payments.

Film festivals, which have been organized around the world to celebrate and showcase film products, were disrupted with the effects of COVID-19 with a quarter of the film festivals scheduled for 2020 canceled (UNESCO, 2021a). Kenyan films have worn awards in various international film awards, including the Sundance Film Festival, Sao Paulo International Film Festival, Cannes Film Festival, International Film Festival Rotterdam, Durban International Film Festival, Africa Magic Viewers Choice Awards. Kenya is a film location to an average of 100 foreign films or commercial shoots annually (UNESCO, 2021b). The effects of COVID-19 in Kenya is reflected by the lowered earning for motion pictures, video and television programme production to Ksh 1.48 billion in 2020 down from Ksh 1.53 billion in 2019 (KNBS, 2021b). Cinema revenue in Kenya is, however, lower compared to countries such as South Africa and Nigeria (GPP Consulting, 2020).

The film industry players are vast, supporting the sector directly or indirectly. This is established at the film development and production stage, which includes actors and actresses, film production crew, directors, wardrobe, writers and editors (KFC, 2020); and the marketing and distribution, which is done through the various distribution and exhibition platforms including VoD and OTT platforms, broadcast stations, cinema theatres. Broadcasting services are licensed by the Communications Authority of Kenya, while film exhibitors and film distributors are licensed by the Kenya Film Classification Board (KFCB).

Broadcasting services are licensed by the Communications Authority of Kenya, while film exhibitors and film distributors are licensed by the Kenya Film Classification Board (KFCB).

There are 2,308 establishments in Kenya involved in motion picture, video and television programme production activities (KNBS, 2021b) and 28,596 licensed establishments that exhibit and distribute films.

Table 9.2: Film sector players

Category	2018	2019	2020	2021
No. of film licenses	689	847	586	735
No. of film agents	153	163	137	136
No. of film distributors	6,077	5,611	2,330	2,111
No. of film exhibitors	3,371	3,606	2,421	3,069

Note:
- A film agent provides logistical support for foreign film and television producers. They facilitate film production including location scouting, talent and equipment acquisition.
- A film distributor is one who sells, supplies, or lets for hire films within Kenya. They include movie shops, video libraries, video shops, video game shops and online film vendors.
- A film exhibitor is one who displays a film to the public or a section of the public they include cinema theatres, outdoor exhibitors, video shows and PlayStation/video game

Source: Kenya Film Classification Board (KFCB)

The film industry is faced with multiple and costly licensing requirements and limited Government interventions, such as subsidies (FSD Kenya, 2021). The National and County Governments have film industry licensing roles, which may increase film business costs. A further challenge is the institutional overlaps between KFC and KFCB, yet there is limited presence of both institutions outside Nairobi (GPP Consulting, 2020). The film industry also has regulatory weaknesses that contribute to piracy through illegal download or access to films through the Internet. The film industry further lacks appropriate film development infrastructure or sites, limitations of business and skills training for industry players (Manyala, 2016).

9.3.7 Design

As much as there is limited data and statistics on Kenya's design industry is among Kenya's top export earners under the creative economy. Kenya's fashion industry is challenged by lack of competitive advantage with respect to textile production due to the higher capital and electricity costs, and inadequacy of necessary skills. This contributes to vulnerabilities associated with long-term sustainability of the fashion and clothing industry (Staritz et al., 2015). Further, textile, apparel and leather industries are among those that are vulnerable to counterfeiting (ACA, 2020).

9.3.8 Infrastructure supporting creative economy activities

Creative infrastructure is spread around the country, established by the public and private sector. They include libraries, museums, heritage and cultural sites, theatres, cinemas, video shops, entertainment establishments, social halls, parks, and art and craft markets such as Maasai market. The private sector provides various additional creative infrastructure such as studios, art galleries, recreational and amusement parks. Kenya, for instance, has 22 cinema screens

located in three main counties: Mombasa, Kisumu and Nairobi (UNESCO, 2021b). Cinema theatres, however, is just one category of the established film exhibitors in Kenya, as indicated in Table 9.1.

The private sector provides further creative infrastructure, which supports in the exhibition and dissemination of creative products. This includes the establishment of "pop-up shop", which are markets for vendors established in a location, typically commercial spaces such as malls and shopping centres with high or expected traffic for a short amount of time, which could be a few days or weeks.

The management and maintenance of public libraries is the ambit of Kenya National Library Service (KNLS), public museums are under the National Museum of Kenya (NMK) while social halls, public parks and public markets are under County Governments. There are over 20 public museums, 9 sites and monuments and 7 World Heritage Sites in Kenya, and 64 public libraries located in 33 counties. An ultra-modern national library, Maktaba Kuu, was completed in 2019/2020.

The protection and promotion of cultural activities is also the mandate of the county. Review of County Integrated Development Plans (CIDPs) reveals the different priorities of various counties. Nairobi City County, for instance, is host to 10 museums and 40 cultural sites, which form part of the county's tourist attractions and income earner, while Embu County has prioritized the mapping of cultural and heritage sites for purpose of preservation (County of Nairobi, 2018; County of Embu, 2018). The cultural activities undertaken by the different counties include cultural tourism and cultural festivals, development of museums and cultural sites, and establishment of talent academies.

Despite the diversity of cultural and creative infrastructure in Kenya, they are inadequate or under-developed, and utilize outdated technology (Government of Kenya, 2012).

9.4 Kenya's Legal, Policy and Institutional Framework

The policy and legal framework on Kenya's creative economy has led to the establishment of institutions and in some instances incentives that promote and/or protect certain industries as described below. The summary below, however, reveals that there are some implementation successes and weaknesses.

9.4.1 Traditional and cultural expressions and cultural sites

The Constitution of Kenya recognizes culture as the foundation of the nation and as the cumulative civilization of the Kenyan people and nation. This is established in Article 11(1), (2a) and (3), which requires the State to "promote all forms of national and cultural expression through literature, the arts, traditional celebrations, science, communication, information, mass media, publications, libraries and other cultural heritage;" and further to enact legislation to establish a mechanism for compensation or royalties for communities for the use of their cultures and cultural heritage and for the protection on indigenous knowledge. The Fourth Schedule to the Constitution of Kenya establishes that the promotion and protection of cultural activities including cinemas, video shows, museums and recreation facilities is the function of county governments.

Protection of Traditional Knowledge and Cultural Expression (Act No. 33 of 2016), which gives effect to Article 11 of the Constitution of Kenya, recognizes the role of cultural expressions and indigenous knowledge in Kenya's development. The county is mandated by the law to maintain a register on traditional knowledge and cultural expressions, while the national government is mandated to maintain a comprehensive Traditional Knowledge Digital Repository. The law further establishes the rights of communities with respect to protection, use and exploitation of traditional knowledge and the equitable benefit sharing.

Implementation inefficiencies in the operationalization of the Traditional Knowledge Digital Repository may, however, lower the government's efficiency in managing the country's cultural heritage.

The goal of the National Culture and Heritage Policy (2021) describes creative industries in Kenya as cultural sites and monuments; cultural expressions; publishing and printed media; design; visual arts; performing arts; audio-visuals; new media; and creative services. The policy also recognizes the role of culture in enhancing national cohesion and diplomacy, through trade in cultural goods, in enhancing regional and international interactions and relations. The policy aims to protect and promote cultural expressions locally, regionally and internationally using different mechanisms, including intellectual property, information communication technology (ICT), and comprehensive reliable statistics. The

policy recognizes the role of exiting institutions in implementation of the policy at the national level, while also proposing the introduction of additional institutions, which include community cultural centres, a National Kiswahili Council, a National Arts Gallery and digital incubation centres for cultural entrepreneurs.

The Kenya Cultural Centre Act (CAP 218) established the centre in 1952 to provide for the expression of performing art and for the exhibition of works of art and craft. This Act further establishes the Kenya Cultural Centre Council, with strategic and oversight roles. The Centre's first project was the development of the Kenya National Theatre in 1952. Kenya Cultural Centre incorporating Kenya National Theatre (KCC-NT) is the oldest State cultural institution. It provides creative facilities that include the National Theatre, a gallery, dance studio and spaces for performances, rehearsal, exhibitions and meetings. The National Theatre, being the single national theatre, which is located in Nairobi, is often inundated with requests. Over the last few years, it has hosted an average of 28 theatre productions, 17 musical concerts among other events such as festivals, concerts and awards. A taskforce was appointed, though a Gazette notice dated 29th March 2022, to undertake a comprehensive review of the 1952 law, Kenya Cultural Centre Act, and propose appropriate policy, legal and institutional reforms. The Kenya National Library Service (KNLS) Board is another long standing statutory body. It was established by an Act of Parliament, Kenya National Library Service Board Act (CAP 225) in 1965 to manage, maintain, develop and coordinate library services. Other critical institutions in the protection of Kenya's cultural heritage is the National Museums. According to the National Museums and Heritage Act (No. 6 of 2006), among the functions of National Museums is to identify, protect, conserve and transmit the cultural and natural heritage of Kenya and promote cultural resources for social and economic development. The Act establishes for the conditions and provisions for an exploration licenses, antiquities and protected areas and licensing for private museums.

Public archives play an important role in documenting national culture and heritage. The Public Archives and Documentation Service Act (CAP 19) established the Kenya National Archives and Documentation Service (KNADS) with the overall mandate of the preservation of public records and archives. The government has, however, yet to put in place a comprehensive records management policy to promote, coordinate and standardize management of knowledge.

The government agency charged with the responsibility of formulation, coordination and implementation of national policies and programmes on culture as established through the Executive Order No. 1 of 2022 on the Organization of the Government of the Republic of Kenya is the Ministry of Tourism, Wildlife and Heritage. The Ministry is host to a number of departments and institutions that promote and protect culture and heritage. The Ministry and the other institutions presented above are among those that will inform implementation of National Policy on Culture.

The government has introduced a Heritage and Museums Bill 2021 to provide for the protection and management of cultural and natural heritage in line with the Constitution of Kenya by establishing the functions of the National and County Governments, thus repealing the 2006 National Museums and Heritage Act. The Bill presents the role of the county in documentation, conservation, promotion and exhibition of heritage and culture, establishing and maintaining county museums and licensing of private museums. Among the functions of the National Museums established in the Bill is to provide a national repository for culture; to protect and conserve heritage sites in liaison with National and County Governments, and regional and international institutions on heritage management. Protection of ancient and historical monuments of national importance is the function of the National Government as established in the Fourth Schedule of the Constitution of Kenya (2010).

As much as cultural sites are widespread throughout Kenya, they are not effectively mapped out. With the operationalization of the Draft National Addressing Policy (2021), however, social cultural activities and infrastructure will be captured within the proposed national addressing framework. This will facilitate location identification and mapping of cultural sites within the proposed centralized database of address information. Once undertaken, this will enhance efficiency in the promotion and preservation of cultural diversity and heritage.

9.4.2 Visual arts

The legislative framework that supports Kenya's visual arts, though limited, is established in the National Museums and Heritage Act (No. 6 of 2006), given the role of National Museums in facilitating exhibits and protect antiquities.

9.4.3 Performing arts

The Kenya National Music Policy (2015) promotes the development of Kenya's music industry, provides for a national award scheme in the local music industry and provides protection from piracy. The policy further calls for the development of infrastructure and platforms for expression of music, including music festivals and for teaching and learning music, such as centres of excellence. To nurture music talent within the education system, the policy calls for curriculum review to include music from pre-primary education and the use of extra-curricular activities, such as orchestras, choirs and inter-school festivals or competition.

9.4.4 Published and printed media

Though dated, the National Textbook Publishing Policy of 1998 is an important policy instrument for the publications sector as it introduced a pragmatic approach to the selection and supply of textbooks within Kenya's school system (Rotich, 2000). Prior to the introduction of the policy, core textbooks were predominantly published by parastatal publishing houses. The policy, however, introduce a new challenge where the price of textbooks has a 40 per cent mark up to accommodate the bookseller's profits, which affects the final price of textbooks. Booksellers are an important channel in the distribution of books. However, from 2002, the Government of Kenya started purchasing approved course books from respective publishers and delivering them to public primary schools. This had the effect of lowering unit cost, given that books are purchased directly from publishers at 40 per cent less than if purchased from a bookseller.

Kenya Institute of Curriculum Development (KICD) established by KICD Act No.4 of 2013 evaluates, vets and approves the local and foreign curricula and curriculum support materials for application in Kenya. This forms the list of approved textbooks for use in primary and secondary schools. The list includes literature setbooks by Kenyan authors.
The government has further enhanced access to learning materials through the Kenya Education Cloud (KEC), an online platform facilitated by KICD. One of the mandates of KICD as established in the KICD Act No. 4 of 2013 is the collection, documentation and dissemination of curriculum support materials and innovation and the creation of a databank.

9.4.5 New media

The creative economy leverages on digital economy for the production and transmission of creative content, products and services. Kenya's 2020 National ICT Policy aims at creating appropriate infrastructure, including payment, e-commerce and infrastructure platforms. The policy calls for the establishment of integrated infrastructure plans at the national and county level to facilitate ICT infrastructure. The policy aims to promote the development of high quality local digital content that captures and preserves local knowledge and culture. The policy also aims to ensure the management of information and knowledge resources as a national heritage; to support incubation labs for animation and film production; and to promote the development of game software. The Digital Economy Blueprint (2019) identifies five pillars of the digital economy: digital government; digital business; infrastructure; innovation-driven entrepreneurship and digital skills and values. Innovation-driven entrepreneurship applies to businesses that utilize new digital technologies.

9.4.6 Audio visuals

Kenya's legislative framework requires that all films made within Kenya for public exhibition or sale be governed by the Films and Stage Plays Act (CAP 222), which established the Kenya Film Commission Board (KFCB). The Act further provides for the licensing of stage plays, theatres and cinemas. KFCB is also mandated to regulate content through classification of films, protection of children and development of standards and guidelines for the film industry. The promotion of Kenya's film industry locally and internationally is, however, the responsibility of the Kenya Film Commission (KFC), which was established through Legal Notice No. 10 of 2005.

The establishment of Kenya Film School is provided for in the first and second medium-term plans of the Kenya Vision 2030 (MTP I and MTP II), aimed at promoting indigenous Kenyan creativity and production of talent; developing an international arts and culture centre; developing a centre of excellence for development of music, art and theatre for the youth; and provide exhibition and performance halls. One of the flagships of the Kenya Vision 2030 is the establishment of a programme to identify, nurture and develop talent in music and performing arts. The 2019 Kenya Youth Development Policy calls for a youth talent

identification and nurturing policy to achieve this. As such, the Kenya Film School has been established at Moi International Sports Centre, but the International Arts and Culture Centre is yet to be established.

The draft National Film Policy (2022) calls for investment in film studio complexes, incubation centres, film hubs and digital media cities to address film infrastructure shortfalls. Capacity constraints are to be addressed through demand-driven holistic capacity building programmes, skills transfer activities and the integration of a national film curriculum into the country's education system. Market access interventions include establishing and enhancing film fairs, exhibitions, domestic festivals and awards to promote awareness and recognition of Kenyan films locally and internationally. The policy further provides clarity on the role of the different film industry players in the public sector.

The government, in line with the Kenya Vision 2030 third medium-term plan, introduced the Ajira Programme, which provides infrastructure by way of Studio Mashinani and Constituency Innovation Hubs to the youth to support recording and production needs of the youth around the county. The local content provisions for broadcasting as established in Communications Authority of Kenya's Programming Code for free-to-air ratio and television services in Kenya (2016) states that "Broadcasting stations shall ensure, within one year of award of license, not less than 40 per cent of their station's programming is local content. Broadcasters' local content programming should increase to 60 per cent within four years after receipt of license." The implementation of this requirement is monitored by the Communications Authority of Kenya, which reveals improved compliance over the years.

9.4.7 Design

The objective of the Buy Kenya Build Kenya strategy (2017) is to increase competitiveness and consumption of locally produced goods and services, including design creative products. The strategy further aims to enhance market access, through the Mark of Identity Initiative to give Kenyan goods an identity. This leverages on Public Procurement and Asset Disposal Act No. 33 of 2015, which establishes that preference by all procuring entities are given to "manufactured articles, materials and supplies partially mined or produced in Kenya or where applicable have been assembled in Kenya". According to this law, the Cabinet Secretary is to prescribe preferences and reservations for public procurement, which is to be applied by procuring agency to an amount not less than 30 per cent of the procurement budget. In the published Preferential Procurement Master Roll No. 1 of 2020, a few creative products have been identified. These include woven fabric, selected garments and leather footwear. The government further developed a Buy Kenya Build Kenya Apparel and Textile Sector Integrated Marketing Communications Plan 2021.

The Kenya Export Promotion and Branding Agency (KEPROBA) facilitated the development of the Mark of Identify Initiative; "Made in Kenya" Brand Mark, which was launched in 2018. The creative economy industry players, including fashion, leather bag and luggage and jewelry design, have adopted the Brand Mark. KEPROBA has partnered with industry associations such as the Kenya Fashion Council to implement the mark.

The public sector, in line with the Buy Kenya Build Kenya initiative and the "Big Four" manufacturing pillar has put in place initiatives to encourage staff to dress in smart casual Kenyan produced and tailored attire on Fridays.

9.4.8 Other supportive legislations

The creative economy outputs are often intangible property, and therefore need to be protected through intellectual property rights. Legislation focusing on intellectual property address patents, industrial design rights, trademarks and copyrights. Copyrights are established in the Copyright Act No. 12 of 2001 and administered by the Kenya Copyright Board (KECOBO). Copyright industries form part of the creative industries, and copyrights apply to original creative works expressed in tangible form (Nyariki et al., 2009). The Act also establishes Collective Management Organizations to manage copyrights in terms of licenses and remuneration for use of their copyright works in third party commercial entities. The Industrial Property Act No. 2 of 2001 and the Trademark Act CAP 506 are administered by the Kenya Industrial Property Institute (KIPI). The Industrial Property Act establishes the industrial property Kenya protects legally, which include patents, utility models, and industrial designs. The law therefore covers what is new, that involve an inventive step and, is industrially applicable which are patents, inventions that allow a better or different functioning, use, or manufacture of the subject matter or that gives some utility, which are referred to as utility models and the overall appearance of a product resulting from one or more visual features of the shape, configuration, pattern or ornamentation of a product, which are industrial designs. The Trademark Act provides for trademarks and service marks, which are the registered mark that distinguishes a good or service.

9.5 Government Initiatives

There are various government initiatives that support Kenya's creative economy.

9.5.1 Establishment of the Creative Economy Taskforce

The Government through a Gazette notice dated 11th May 2022, constituted a taskforce with representation from the government and private sector to develop a strategy to revitalize the creative economy; establish an effective coordination mechanism for all creative economy actors, and come up with monitoring tool to support the growth and development of Kenya's creative economy.

9.5.2 Performance arts in schools and out of schools

The Kenya Drama and Film Festivals and Kenya National Music Festivals were established in the late 1950s by the British Council, building a tradition of British colonialism dating back to the 1930s, and later adopted as an initiative of the Government (Plastow et al., 2009). This is achieved through inter-school, inter-college and inter-university competition at local and regional levels, and culminating in a national event. The Kenya Music and Cultural Festival is another government initiative targeting out of school performing groups or individuals. It is carried out at the county and national level. These festivals are, however, undertaken within in a policy vacuum, as partially alluded to in the Kenya National Music Policy (2015), that inter-school music festivals are to be integrated in the education sector and further the national and county government are to provide platforms such as festivals for the expression of music and culture.

From a policy point of view, therefore, support of youth talent, school-based music or drama clubs or extra-curricular activities or dissemination of top drama or film has been limited. The Kenya Institute of Curriculum Development (KICD) in a 2009 evaluation established that Kenya's 8-4-4 education system did not adequately accommodate co-curriculum and extra-curricular programmes in schools, given the emphasis on academics. It recommended special schools for talents such as music (Ministry of Education, 2018). The 2017 Basic Education Curriculum Framework recognizes extra-curricular activities such as sports and music, which enrich middle level education when undertaken within school hours (KICD, 2017). According to the Basic Education Act No. 14 of 2013 and Basic Education Regulations (2015), co-curricular activities are to be facilitated at county and within an institution of basic education and training. The regulation mandates the County Director of Education to promote recreational and competitive sports, performing and creative arts and talent shows within institutions of basic education and training. The County Director is to facilitate access to adequate facilities and accord opportunity to all. A committee is to be established consisting of county representatives, Teachers Service Commission and representatives from basic education institutions within the county to manage and coordinate co-curricular activities. Most school co-curricular activities include physical education, creative arts and music. These activities should be undertaken competitively through inter-school activities.

In summary, while the government has introduced initiatives that promote creative economy industries at the school, college and university level, the policy provisions are insufficient in terms of ensuring growth, sustainability and impact of the programmes.

9.5.3 Design-Ushanga Kenya Initiative

This initiative is implemented by the State Department of Culture and Heritage, with the aim of enhancing capacity of women in producing quality competitive beadwork products that can contribute to their livelihood. The initiative focuses on seven counties: Baringo, Marsabit, Narok, Kajiado, Samburu, Turkana and West Pokot. Among the pastoralist communities, handicraft making is a prevalent non-farm livelihood activity undertaken by women to supplement family income. Ushanga Kenya Initiative developed a draft policy to define and strengthen the bead craft industry, and promote commercialization and entrepreneurship of beadwork.

9.5.4 Audio visuals

Communication is an important function of government. Communication by the government has been achieved over the years through various mechanisms, including publications and broadcasting facilitated by different government entities. For instance, the Kenya News Agency (KNA) gathers and disseminates news on government policies and generates relevant video and photos. The Department of Film Services (DFS), established through Executive Order in 1982, is responsible for production and dissemination of film for the government.

The Kalasha International TV and Film Award is an initiative of the Kenya Film Commission (KFC), aimed at acknowledging, celebrating and rewarding achievements in the industry, especially film directors, actors, writers, producers and technicians. In 2020, KFC launched the Film Empowerment Programme, which provides

funding to support the development, production and marketing and distribution of film with the aim of increasing the quality of local films. A total of Ksh 25 million was awarded to 12 successful projects.

9.5.5 Visuals arts

In 2007, the Government of Kenya though the Kenya Yearbook Order established the Kenya Yearbook Editorial Board (KYEB), a State Corporation with the mandate of compiling and publishing the Kenya Yearbook to document achievements and potential of Kenya. In undertaking the publications, KYEB seeks accompanying images from numerous various sources, especially different government entities that have their own photo databases.

9.5.6 New media

The Finance Act 2021 introduced an amendment to the Second Schedule to the Excise Duty in Part II, exempting excisable services supplied in Kenya by a mobile telecommunication service provider on the sale of a ring back tune to a subscriber from the 25 per cent excise duty.

9.5.7 Support to artists, musicians and actors during pandemic

In April 2020, the Government of Kenya through a Presidential directive allocated Ksh 100 million stimulus package to local artists, musicians and actors as mitigation towards income losses occasioned by COVID-19 containment measures. The Permanent Presidential Music Commission (PPMC) also spearheaded the support for musicians, dancers and DJs while the Kenya Cultural Centre spearheaded the support for theatre artists. PPMC is established through a Presidential Order of 1988 and is mandated to nurture and promote music in Kenya. These initiatives supported over 7,000 artistes.

9.6 Talent Promotion by the Private Sector

The private sector has also played a significant role in identifying and showcasing talent. Broadcasted talent shows over the last 10 years have included KTN's Talanta Mtaani; Tusker Project Frame Academy, a singing competition show; Airtel Trade Music Star; Ultimate choir competition; Ultimate comic competition; Sakata Mashariki dance competition; East Africa's Got Talent, which is part of the global got talent franchise; among others. Such televised and non-televised talent shows, and competitions organized by religious and community groups, have been used in Kenya and other countries to provide entertainment while also showcasing talent in performing arts. In most, the ultimate winner receives a prize, which can be monetary or aimed at promoting the artist(s).

Other talent promotion activities supported by the private sector are in dance, drama, music, poetry, comedy, photography and visual art by nurturing and showcasing talent. The festivals, fairs and tournaments that promote visual and performing arts in Kenya, and organized by the private sector, have been on the increase over the years, but were affected by COVID-19. The private sector also plays a hand in capacity building programmes, inputs, equipment and materials.

9.7 Cross Cutting Constraints, Vulnerabilities and Risks

The cultural and creative industries are exposed to vulnerabilities, risks and shocks due to the nature of industries. The arts, cultural and heritage sector globally is considered a vulnerable sector due to the interactive nature of the activities. Additionally, they tend to be consumer-demand driven (Johnston et al., 2020). Therefore, lowered demand from interconnected industries such as tourism, hotel, accommodation, food and beverage service with COVID-19 introduce vulnerabilities to the sustainability of associated creative industries. As established by KNBS (2020e), 41.9 per cent of households cut down on expenditure on commodities households can do without. Almost half of households in Kenya, therefore, cut expenditure on creative products and services because of COVID-19. The COVID-19 pandemic also introduced disruptions in physical platforms that facilitate the expression and presentation of performance and visual arts, experienced though postponement or cancellation of events. This is evidenced by the shrinking of the sector by 28.3 per cent in 2020, and reduction in the number of hours worked with COVID-19, leading to lowered output and lowered demand, thus reduced revenue. In some instances, industry players have not performed or produced, leading to job losses. This has considerably weakened the working, social and economic conditions of creatives.

Additional vulnerabilities in the creative economy relate to informality, which is high among creative industries. Informality contributes to vulnerability of jobs due to weak labour protection, low and/or inconsistent earnings. Informal sector players also face challenges associated with ensuring compliance to standards, thus contributing to low quality. This is attributable to limited access to appropriate technology and infrastructural support. The cultural and creative industries specifically experience challenges with infrastructure, characterized by inadequate and poorly integrated infrastructure, outdated

technology and insufficient technical skills and personnel. The latter is because of weaknesses in the linkage between the education system and the cultural industry sector in Kenya (Government of Kenya, 2012).

Literature reveals that the growth of digital technology and new and emerging technologies has supported the development, marketing and sale of creative products. However, in Kenya, there is limited use of Internet-enabled platforms among informal arts, entertainment and recreation industry players, thus presenting technology risks. For those that leverage on ICT, some experience challenges associated with online access, especially piracy and the effects of digital divide, where not all members of the public have access to digital platforms, or due to charges (FSD Kenya, 2021). The creative ecosystem is exposed to additional risks with advancements in technology, such as piracy on copyrighted products (infringement risks). Awareness and utilization of intellectual property rights is also limited. The creative economy is exposed to risks such as piracy, plagiarism and loss of community indigenous knowledge.

The business risks experienced in the ecosystem relate to reliable accessible input, including human resource and an enabling business environment with appropriate infrastructure. Some creative economy industries such as fashion, audio visual and new media rely on imported inputs. In the event of external shocks, such as COVID- 19, which introduced disruptions of global value chains, the industry risks within such industries was exposed.

Skills inadequacies are also experienced within creative industries. The training opportunities within the universities in Kenya are established in three key clusters: (i) arts and related, which include drama, theatre studies, film technology, performing arts; (ii) fashion design; and (iii) music and related studies, which are offered private and public universities. University training on new media, such as gaming and animation is, however, limited. Public universities in Kenya face financial constraints, which limits the resource allocation to some of these disciplines, and further impacts on the quality of the programmes (World Bank, 2019). Within TVET, there are course offerings in animation and digital media, fashion design, film production, fine arts, graphic design, and interior design. These disciplines, however, do not cover all creative economy industries. Video gaming, for instance, is largely underdeveloped. With limited and or low-quality training, therefore, meeting industry demands will be a challenge.

Development of creative products, especially film and photography production, has a heavy resource requirement, while others such as fashion experience high cost of raw material, yet access to finance in a challenge faced by enterprises operating in Kenya. In creative industries, however, assets are often intangible or insufficient to meet the collateral requirements. Credit provision by majority of the formal financial service providers in Kenya is largely collateral-based. In creative industries, however, assets are often intangible or insufficient to meet the collateral requirements. As indicated above, the Sports, Arts and Social Development Fund for the development of sports, arts and social development in Kenya is managed by an Oversight Board, who consist of five Principal Secretary's; the Principal Secretary responsible for finance, sports, arts, health and education; and three non-State representatives. The Oversight Board is mandated to provide guidelines for disbursement, fund priorities and criteria for allocation. This may, however, introduce a bias to government programmes or projects crowding out non-State individuals or organizations seeking funding.

9.8 Key Messages and Policy Recommendations

9.8.1 Key messages

1. The creative economy activities in Kenya are established in traditional and cultural expression, visual arts, performing arts, published and printed media, new media, audio visual, design and creative services, though some industries, especially design, new media including video gaming, visual arts such as painting, photography and sculpture have a dearth of information.

2. Kenya's creative economy, though faced with vulnerabilities, risks and challenges also presents opportunities for development and policy intervention. The potential of the creative economy is motivated by the high level of interconnectivity with other sectors, thus presenting great potential for multiplier effects, and has the potential of engaging creative youth, thus leveraging on the country's youth dividend. This is evidenced in Kenya's publishing industry, which was safeguarded from the effects of COVID-19 due to the demand from the education sector. The interconnectivity, however, also establishes vulnerability of the creative economy, which can contribute to or result in knock-on impacts.

3. The creative economy can contribute to enhancing more inclusive economies by enhancing awareness to social and economic issues, enhancing social cohesion and integrating the marginalized communities through economic activities. Music and drama have, for instance, been used in Kenya for development, to communicate, impart patriotism and other national values, and entertain. Cultural festivals promote cultural heritage, and have the potential for promoting cross-cultural interactions and exchanges that can foster collaborations and relationships. The creative economy can also introduce income diversity to communities.

4. The importance of cultural and creative industries is evidenced in regionally and global development agenda by the policies, institutions, and creative actors in place. Kenya is steadily addressing the policy gaps through adoption of relevant policies, including the Kenya National Music Policy, Kenya National Culture Policy while others such as National Film Policy are yet to be operationalized. Additionally, there are other aspects that require further policy attention, especially as relates to skills shortages, inadequate infrastructure, inadequate financial services, insufficient policy and institutional support to key creative industries and data gaps that, when addressed, will contribute to the reduction of vulnerabilities and risks in Kenya's creative economy.

5. Investment in the digital economy and technology has enhanced access to creative economy products. In the wake of COVID-19, audio visual and interactive media (including video games), which are established on digital technology, portrayed resilience through digital distribution mechanisms such as digital technology platforms, Over-the-Top (OTT) services and non-fungible token (NFT) platforms. In 2021, global brands in the fashion sector invested in NFT, digital assets and/or virtual fashion catwalks to exhibit and market their products.

9.8.2 Policy Recommendations

1. Promote creative skills and capacity at two levels: At the school level by mainstreaming creative economy activities, festivals and awards in school and county extra-curriculum initiatives and strengthening institutes of higher learning to provide relevant capacity building programmes to address the capacity gaps within Kenya's creative ecosystem. This calls for enhanced policy and resource support, and establishment of special programmes and schools for nurturing talent. This will further strengthen the mechanism for identification and nurturing of talent. The second level is through promotion of capacity building programmes that nurture creative industries, thus investing in specialized schools and relevant higher education programmes.

2. Develop sustainable creative industry infrastructure that allow the expression of creativity, enhance interactions and networks, and strengthen innovation capacities, which can be achieved through investments and sufficient resource allocations. In informing the implementation of the National ICT Policy 2020, the National Integrated Infrastructure Plan recommended in the policy should ensure creation of infrastructure designed to maximize on interconnect innovative interactive creative hubs, spaces, halls, or cities that can facilitate exchanges and dissemination in various forms. This guideline will also be beneficial to County Governments as they revamp and establish critical cultural infrastructure. Continued investment by the Government in digital infrastructure and technology will facilitate the electronic exchanges in creative economy and digital transmission of creative content.

3. Facilitate identification and promotion of appropriate innovative financial products for the creative economy players to meet the specific needs within the entire creative ecosystem. The government's continued interventions to promote financial inclusion, through credit guarantee schemes and IP-backed financing facilitated by the Movable Security Rights Act, 2017, need to be aimed at creative economy products that are often intangible, thereby needing flexible and innovative collateral requirements. Capacity building among players on valuing intangible assets is therefore a priority. The second approach to enhancing access to funds is through review of existing funds to cater to the specialized needs of the creative economy industry.

4. Promote the development and preservation

of museums, cultural sites, cultural centres, theatres, and recreation facilities and facilitate and institutionalize cultural festivals at the national and county levels. This will empower and enhance social cohesion and inclusion. This calls for identification and mapping of cultural and heritage assets and initiatives and hastening of relevant policy and regulatory reforms such as the National Addressing System Policy and the Heritage and Museums Bill, 2021.

5. Through government support, creative industry associations can be strengthened to undertake and enhance industry interactions and linkages; to support market access through collaborations to benefit from economies of scale; to facilitate skills and knowledge transfer and to lobby the government. Cultural cooperatives and societies play an important role in building the capacity of members, particularly the vulnerable, especially the youth and women, in developing and marketing cultural products that are commercially viable. The capacity development of industry associations, cooperatives and societies can be achieved through sensitizations and training, and empowerment through expansion of initiatives such as the Ushanga initiative and Ajira Digital.
6. Continued policy support and effective implementation and coordination of existing provisions and commitments is essential. Policy gaps need to be addressed, especially to strengthen Intellectual Property Rights (IPRs), introduction of a records and knowledge management policy, a youth talent identification and nurturing policy, an e-commerce policy, and local content policy framework for the protection and promotion of creative goods. Policy coordination is essential, given the various institutions and incentives that support the diverse creative industries in Kenya.

7. Enhance capacity in culture and creative industry data collection and reporting to inform policy and undertake a comprehensive survey on Kenya's cultural and creative industries. This calls for the development of sector statistics that will provide for a comprehensive survey on Kenya's cultural and creative industries

10

10 NATIONAL VALUES

THE ROLE OF NATIONAL VALUES IN ENHANCING SOCIO-ECONOMIC RESILIENCE

National values are important for development and resilience of an economy. Since independence, Kenya has seen a period with ad hoc system of promoting national values until the promulgation of the constitution in 2010 that builds in institutional structures to mainstream national values. The national values are well anchored in institutions, laws and programmes implemented by various Ministries, Counties, Departments and Agencies (MCDAs). However, outcomes of the interventions are in some cases not satisfactory as evidenced by scores of indicators that measure values. It is suggested that among the key issues the country needs to address include embracing transformative leadership in the espousal of national values by persons in leadership positions. There is room to enhance the role of the Annual Presidential Report as a monitoring tool by adopting measurable and time-bound commitments, and providing feedback to MCDAs. In addition, there is need to promote and sustain inclusive economic growth, with equity as a means and as a key foundation in the inculcation of national values.

10.1 Introduction

This chapter focuses on national values, but acknowledges that values can be categorized in many distinct or overlapping ways, including personal values, community or cultural values, or even public service values. National values, in this context, refer to generally acceptable qualities, standards, or ideals shared by members of the same nation or country. In Kenya, values are espoused in the Constitution, and a specific set of values referred to as National Values and Principles of Governance (NV&PG) are identified in Article 10. In addition, Article 232 identifies an additional set of values referred to as Values and Principles of Public Service.

The chapter examines how national values interact with socio-economic outcomes for sustainable and resilient development. The NV&PG are: patriotism, national unity, sharing and devolution of power, the rule of law, democracy and participation of the people; human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination and protection of the marginalized; good governance, integrity, transparency and accountability; and sustainable development. These values are important in shaping the conduct and actions of individuals, communities, and nations. It is generally acknowledged that failure to espouse positive values among members of a society or nation could lead to socio-economic breakdown and adverse impacts on the economy. This acknowledgement resonates with the conceptual framework presented in the introduction of this report, which identifies national values as one of the enablers that can support transformation following a shock.

The importance of values in influencing development outcomes partly explains their inclusion in global goals – such as the Sustainable Development Goals (SDGs) and in regional and national development blueprints such as the African Union Agenda 2063 and the Kenya Vision 2030 (Box 10.1).

Box 10.1: National values in international, regional, and national frameworks

At the international level, instruments such as the Sustainable Development Goals (SDGs) and the African Union Agenda 2063 speak to values. With respect to the Sustainable Development Goals (SDGs), Goal 16 seeks to build effective, accountable and inclusive institutions at all levels. Some of the key targets of Goal 16 are to develop effective, accountable and transparent institutions; substantially reduce corruption and bribery in all their forms; ensure responsive, inclusive, participatory and representative decision-making at all levels; ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements; and promote and enforce non-discriminatory laws and policies for sustainable development. At the regional level, the aspirations of the
AU Agenda 2063 include an Africa of good governance and one with values and ethics, and resilient.

In Kenya, national values are espoused in the Constitution, the Kenya Vision 2030, and in other institutional and regulatory frameworks. Kenya's constitution identifies a specific set of values referred to as National Values and Principles of Governance (NV&PG) in Article 10. In addition, the constitution identifies Values and Principles of Public Service in Article 232. The Constitution directs that the NV&PG bind all State organs, State officers, public officers and all persons when making or implementing public policy decisions.

10.2 Values, Economic Performance, and Resilience

For purposes of discussing the diverse national values, the focus shall be on the values espoused in the Constitution. The 17 national values contained in Kenya's constitution are grouped into five broad themes as elaborated in Box 10.2.

Box 10.2: Thematic classification of national values and principles of governance

The 17 national values and principles of governance are grouped into five broad categories. This follows the same manner they are thematized in the annual Presidential Reports. These five themes are:

i). **Creation of National Identity and Exercise of Sovereign Power**
- Patriotism, National Unity, the Rule of Law, Democracy and Participation of the People (Article 10(2)(a))

ii) **Sharing and Devolution of Power**
- Sharing and Devolution of Power (Article 10(2)(a)

iii) **Protection of the Bill of Rights**
- Human Dignity, Equity, Social Justice, Inclusiveness, Equality, Human Rights, Non-Discrimination and Protection of the Marginalized (Article 10(2)(b)

iv) **Good Governance, Transparency and Accountability**
- Good Governance, Integrity, Transparency and Accountability (Article 10(2)(c)

v) **Realization of Sustainable Development**
- Sustainable Development (Article 10(2)(d)

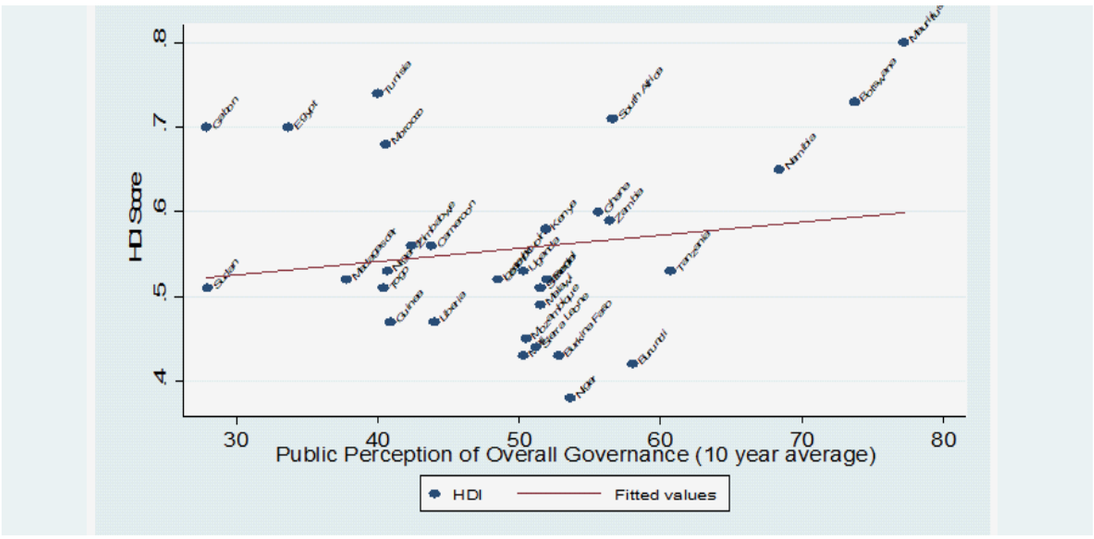
There are many studies that link national values to development outcomes and resilience. The findings of studies suggest that there is a dynamic relationship between values and economic performance and resilience. Studies on the socio-economic success of Nordic countries (which include Denmark, Finland, Iceland, Norway, and Sweden) indicate that the countries have avoided the economic problems and social ills bedeviling the rest of the globe. One of their success factors can be traced to their well-grounded values, including but not limited to democratic decision-making, equality before the law, respect for diversity, equity, and, inclusion and social justice. The link between values, development and growth goes beyond national values. The other set of values such as personal values, community or cultural values, or even public service values are also important for development and resilience. As an example, a study by Tanti (2015) found that for 43 European countries, nations with stronger work ethic values were economically resilient, that is, had higher average growth following a shock. The European countries with stronger work ethics were found to recover and achieve higher average growth rates after the 2008 Global Financial Crisis.

There are also numerous studies that link development to specific values such as good governance, transparency and accountability (Engjell, 2015; Rachid and Ahmed, 2017; Fosu, 2018 and Al-Naser and Hamdan, 2021).

Usually, the components of good governance vary across studies, but include integrity, transparency and accountability. There is wide evidence that presence of transparency and accountability is important for development and for sustainable and resilient growth paths across the globe. The absence of transparency and accountability may impact on investment, which would be transmitted to lower economic growth and lower resilience (Gould and Amaro-Reyes, 1983; United Nations, 1989; Klitgaard, 1991; Gyimah-Brempong, 2002; Hanoushek and Kochanova, 2015 and Enste and Heldman, 2017).

Besides the studies, the link between values and development can be gleaned from data. Figure 10.1 represents a scatterplot of the Human Development Index (HDI) data on the vertical axis and the Ibrahim Index of African Governance (IIAG) on the horizontal axis. The scatterplot indicates that higher development (as measured by the 2019 HDI scores) is associated with better values (as measured by the 10-year average, 2010-2019, scores of the IIAG). For the IIAG index, governance, a proxy of values, is defined broadly to include provision of political, social and economic public goods and services that every citizen has the right to expect from the government. A similar relationship is observable for all the measurable individual national values, including: patriotism, the rule of law, equity, and transparency.

Figure 10.1: Association between development (HDI) and values among African countries



10.3 Developments and Status of National Values in Kenya

This subsection provides a broad and chronological status of national values in Kenya, spanning the period before and after independence.

10.3.1 Pre-independence period through 2010

Before Kenya obtained her independence, it was a collective of multiple cultures with diverse values, some of which were common across ethnic groups. There was a tight fabric of positive values eschewed within these communities. Some of the common positive values in the pre-independent Kenyan communities include: good leadership, rule of law, morality, and respect for human life and people's property.

In the pre-independent period, the colonial government practiced forms of governance and tactics that impeded the development of desirable national values. A case in point was the use of divide and rule tactics, and hiring of specific communities as mercenaries against other communities, both of which undermined broad values such as the creation of a national identity, the protection of rights (such as non-discrimination), good governance and formation of nationhood (Gatheru, 2005; Wanguhu 2006). These tactics resulted in the weakening of some of the positive values in the pre-independence communities.

At independence, the government adopted strategies aimed at promoting and integrating values into the national psyche. These include: the Harambee movement of pooling resources together for development projects after 1963; the working nation (Uhuru na Kazi) that was aimed at promoting hard work, innovation and thrift among Kenyans; and later in the 1980s the Nyayo philosophy of peace, love and unity to rally Kenyans towards peaceful and harmonious coexistence. Some of these initiatives, such as the Harambee movement, were instrumental in rallying communities to work together to achieve national development goals and enhance national values.

Notwithstanding these initiatives, many ethnic communities and societal groups felt marginalized, and the country became characterized by political patronage and exclusion, which undermined the emergence of values rooted in national principles. These are acknowledged in Sessional Paper No. 8 of 2013 on National Values and Principles of Governance, and Sessional Paper No. 9 of 2013 on National Cohesion and Integration

The challenges in inculcating national values were manifested in shocks and stressors, including the attempted coup in 1982, the clamour for multi-partyism in the 1990s and the post-election violence in 2007/08, which slowed national development and impacted on resilience.

10.3.2 Foremost interventions to foster national values in Kenya

As alluded to previously, the initiatives to foster positive national values after Kenya's independence included the Harambee movement, Uhuru na Kazi, and the Nyayo Philosophy. Others were the National Anthem and the Loyalty Pledge. During the earlier decades of Kenya's history, these initiatives achieved only modest outcomes with respect to inculcating values. Some of the reasons for this performance include:

i) The initiatives were ad hoc in nature and were not grounded in specific national programmes. Although some of these initiatives endured over time, such as the Harambee movement, most of the earlier initiatives ebbed away due to a wide combination of factors, such as the sharp contrast between the initiatives and the country's socio-economic status.

   The harsh economic realities especially in the 1990s were linked to the rise in poverty and inequality, which have diminished the role of the initiatives such as the National Anthem, the Loyalty Pledge, and the Nyayo Philosophy in enhancing the inculcation of national values. This harsh reality may have affected the spontaneous expression of values such as patriotism. This may explain the diminishing role of patriotic songs and the emergence of subversive songs.

ii) Some of the initiatives were affected by lack of a legal framework and limited participation by all stakeholders. An example is the broad attempt to decentralize government operations using the 1983 District Focus for Rural Development. Although the strategy had great potential in enhancing values under the theme on Protection of the Bill of Rights, including equity, inclusiveness, non-discrimination and protection of the marginalized, it was hampered by, among others, lack of a legal framework and participation of ordinary citizens.

iii) There was a narrow focus on national values. With respect to the five broad themes alluded to earlier, the interventions in the earlier decades of Kenya's independence focused on creation of a national identity and exercise of sovereign power (that is mainly enhancing patriotism, and national unity). The values under the theme on Protection of the Bill of Rights, including equity, inclusiveness, non-discrimination and protection of the marginalized were accorded little focus.

Box 10.3: Lessons from a recent campaign – the Najivunia Kuwa Mkenya

The Najivunia Kuwa Mkenya campaign is an example of a relatively successful initiative that was pioneered by the then government spokesman in 2010. It was aimed at enhancing patriotism among Kenyans in a period where "pride for one's nation" was perceived to be low. The campaign seems to have diminished over time, since it was not grounded within a clear institutional framework and was not taken up by successive spokespersons. The campaign sought to enhance patriotism among the populace. Critiques point out that a more enduring path to enhance pride in one's nation should stem from improvements in socio-economic realities rather than a State ideology. The campaign enables an appreciation of the role of leadership, combined with clear programmes and institutions to inculcate values.

10.3.3 Recent interventions to foster national values in Kenya

More recent interventions on values, that is since 2007/08, are characterized by a greater appreciation of the role of national values in national development and resilience. This recognition is evident in the Kenya National Dialogue and Reconciliation Agreement (2008), which was negotiated after the post-election violence in 2007/08. The Agreement articulated the factors that led to the conflict to include not only socio-economic factors (such as unresolved land issues, poverty and inequality) but also lack of values encompassing "impunity combined with a lack of transparency and accountability."

In the period after the 2007/08 shock, there was stronger impetus to set up frameworks that incorporated the important role of national values and national cohesion and integration in development. This resulted in more robust institutional frameworks encompassing the promulgation of the Constitution of Kenya in 2010, and the establishment of elaborate national policy and legislative frameworks. Broad policy developments included the development of the Kenya Vision 2030, which was launched in 2008, the Sessional Paper No. 8 of 2013 on National Values and Principles of Governance, and the Sessional Paper No. 9 of 2013 on National Cohesion and Integration.

With respect to the planning function, the Kenya Vision 2030 catapulted the country to an improved long-term planning framework that recognized the crucial role of national values. The Kenya Vision 2030, which is anchored on three pillars (economic, social, and political governance), recognizes that the achievement of its objectives is pegged on inculcation of desirable values. The social pillar, for example, seeks to create a just, cohesive, and equitable social development while the political pillar aims to realize an issue-based, people-centred, result-oriented and accountable democratic system. The Kenya Vision 2030 clearly links resilient development to inculcation of values across individuals and groups.

The Vision's successive 5-year Medium-Term Plans (MTPs) indicate there was consistent progress in the role ascribed to national values in achieving overall development (Table 10.1).

Table 10.1: Progress, milestones and challenges facing national values across the medium-term planning periods

	MTPI - 2008 to 2012	MTPII - 2013 to 2017	MTPIII - 2018 to 2022
Progress or status	Less prominent appreciation of the role of national values in development	More prominent appreciation of national values in national development	Prominent appreciation of national values in national development
	National values not identified as one of the 7 foundations of national development	National values identified as one of the 9 enablers or foundations of national development	National values remain one of the 9 enablers or foundations of national development
Key interventions and broad milestones	The Constitution promulgated in 2010 with extensive provisions on national values Kenya School of Government established	Many laws and policies developed and enacted on national values mainly to implement the constitutional provisions	Greater emphasis put on operationalization and enforcing laws and policies that enhance national values and ethical behaviour
Challenges identified in MTP	Inadequate commitment to patriotism, national values and norms that uphold good governance	Weak national identity, negative ethnicity, impunity; manipulation of political process by abuse of political office by powerful elite; human rights violations; discrimination; corruption, abuse of office and unethical practices	Inadequate compliance with policy, legal and institutional provisions; inadequate institutional capacity and coordination; and inadequate monitoring and evaluation

Source: Author's construction

The MTP I, which covers the period 2008-2012, ascribed a less prominent role to national values in influencing development. MTP I identified seven foundations for national development, but these excluded national values. Even so, one of the identified seven foundations for national development was public sector reforms and under this foundation, the inculcation of national values and ethics were identified as key. The MTP I thus had a narrower meaning attached to national values, that is focusing on "public service values", which were identified to encompass transparency, accountability, participation, and the rule of law as integral part of public sector reforms. In addition to this, "national values and norms" were identified as an emerging issue and challenges under the political pillar of MTP I. Specifically, "inadequate commitment to patriotism, national values and norms that uphold good governance" were isolated as emerging issues.

The "national values and norms" are expounded to encompass democracy, ethics and integrity, human rights, justice for all and respect for the rule of law.

Regarding its milestones, the government established the Kenya School of Government (during this period) with the objective of inculcating public service values and ethics and enhancing transformative leadership.

In MTP II covering 2013-2017, building "National Values and Ethics" was identified as one of the enablers or "Foundations of National Transformation". The other enablers or foundations include: infrastructure (roads, rail network, sea ports airports and pipeline); Information Communication and Technology (ICT); Science Technology and Innovation (ST&I);

Land Reforms; Human Resource Development, Labour and Employment; Security; Public Sector Reforms; and Ending Drought Emergencies (EDE).

Thus, MTP II had a more prominent appreciation of the role of national values in building a more resilient country. Among the emerging issues and challenges flagged under this enabler were: lack of strong national identity, negative ethnicity, impunity; manipulation of political process by abuse of political office by powerful elite; human rights violations; discrimination; corruption, abuse of office and unethical practices. The government sought to enhance national unity in line with the values and principles of the Constitution during MTP II.

During MTP II, significant progress was made in achieving the planned objectives. One of the broad planned objectives was that every State organ was required to establish systems, structures, programmes and guidelines for the promotion of National Values and Principles of Governance. The National Values and Ethics Sector implemented numerous programmes and projects in the MTP II (2013 to 2017). Some of the key programme achievements are highlighted in Box 10.4.

Box 10.4: Selected programme achievements of the MTP II with respect to national values

i) Development of an institutional framework, including the preparation and adoption of the Sessional Paper No. 8 of 2013 on National Values and Principles of Governance; Sessional Paper No. 9 of 2013 on National Cohesion and Integration Policy, and the creation of the Directorate of National Cohesion and Values in 2014.

ii) Besides these frameworks, Kenya has also developed various policies and legislations to enhance national values and hence resilience. These include: The enactment of the Public Officer Ethics Act of 2013, which requires all public officers to declare their incomes, assets and liabilities biennially. The Act aims to instil a culture of accountability in the public service; the creation of the Ethics and Anti-Corruption Commission in 2011.

(iii) Realization of numerous programmes and guidelines, including review of educational curricula to incorporate national values and principles of governance; establishment of: complaints handling infrastructure in public institutions and 44 anti-corruption desks in Huduma Centres.

(iv) A legal, policy and institutional review of laws, including the development, enactment and/or amendment of: The Bribery Act (2016); the Anti-Corruption Laws Amendment (2015); the Whistle Blower Protection Bill (2017); and False Claim Bill (2017). In addition, the policy and institutional framework for fighting corruption in Kenya was reviewed. The Mwongozo Code of Governance for State Corporations (2015) to address issues of poor corporate governance, ethics and integrity in State Corporations was developed, among other laws/regulations.

Some observable positive outcomes comprise: increased investigations on corruption, recovery of assets that were corruptly acquired; introduction and use of vetting of officers, including police officers. Others are: adoption of the use of Citizen Service Delivery Charters across all MDAs; mainstreaming of National Cohesion and Values in the performance contracting processes of MDAs, and establishment of Monitoring and Evaluation (M&E) mechanisms. These mechanisms include the Annual Presidential Reports on the measures taken and the progress made in the realization of National Values and Principles of Governance, referred to in Article 10; National Baseline Survey on National Values and Principles of Governance; and annual evaluation report on the extent to which values and principles in Articles 10 and 232 were complied with in the public service submitted to the President and Parliament.

Despite these programme achievements during the MTP II period, the MTP III covering the period 2018 to 2022 identifies several emerging issues and challenges related to national values and ethics to include non-compliance with policy, legal and institutional provisions; inadequate institutional capacity and coordination; and inadequate monitoring and evaluation. The intention of the plan period was to enhance the

level of awareness on national values and ethics and to build partnerships among institutions in promotion of national values and ethics.

In the MTP III period, greater emphasis was put on operationalization and enforcing laws and policies that enhance national values and ethical behaviour. In the 2018-2022 plan period, the government planned to: fully operationalize the Public Service Values and Principles Act (2015) by developing its regulations; implement a programme to institutionalize national values and ethics to promote advancement of national values and ethics through institutional capacity building; and promotion of integrity and ethical leadership and implementing frameworks for rewards and sanctions. Institutional reforms envisaged the strengthening of the enforcement institutions; capacity build the institutions and stakeholders through training and technical support; and developing and institutionalizing a collaborative framework among oversight institutions for effective coordination.

Besides the MTP frameworks discussed above, there are other constitutional provisions that require attention. Article 132 (1)(c)(i) requires the President to: "report, in an address to the nation, on all the measures taken and the progress achieved in the realization of the national values, referred to in Article 10." In fulfillment of these constitutional imperatives, the President has to date issued eight such reports for each year, including 2013/14 through 2020/21. The annual reports feature the projects, programmes and activities to enhance the promotion of national values and principles of governance.

The reports present the progress made by MCDAs in implementing the Government commitments and way forward. The commitments to be implemented in a subsequent year are in turn identified in each report. MCDAs are expected to implement and report on progress made on these commitments and the way forward in the next reporting cycle. This provides a good implementation, monitoring and evaluation framework. A cross-cutting commitment is the commitment for MCDAs to put in place "continual public awareness creation, capacity building, enforcement and monitoring of national values and principles of governance"

10.3.4 Outcomes of recent interventions to foster national values in Kenya

A key question that is examined in this sub-section is whether the diverse initiatives to foster national values achieved their desired outcomes. Although positive results have occurred, a broad outcome is that the inculcation of national values in everyday life and within the public service has remained a challenge. However, NV&PG have been mainstreamed in institutional frameworks, including in public sector performance contracting framework and the national education curricula.

Box 10.5 summarizes a measure of the performance or status of national values as measured by diverse indicators and indices. Based on the indices, most of the national values and principles of governance have remained in the low range, and this has continued to suppress not only investment but also public trust in and resilience of political and governance institutions. This status may be reflective of the long turnaround time it can take to inculcate values. It may also be reflective of the need to give the interventions firm support through leadership, and more so by the practice of transformational leadership.

The assessment relies on indices computed across the globe and regionally.

Theme 1: Creation of National Identity and Exercise of Sovereign Power

- This theme encompasses, Patriotism, National Unity, the Rule of Law, Democracy and Participation of the People. With respect to the rule of law, the World Justice Project Rule of Law Index, 2020 ranked Kenya in position 102 out of 128 countries globally, suggesting much room for improvement. The index has 8 factors (see Table) and among these, Kenya's performance was relatively better for "open government" but weak regarding the "absence of corruption" factor and "order and security."

Box 10.5: The status of National Values based on indicators and indices

Rule of Law Factor Scores for Kenya in the World Justice Project Rule of Law Index, 2020

Factor	Factor score	SSA rank	Global rank
Absence of corruption	0.27	27/31	122/128
Order and Security	0.58	26/31	117/128
Fundamental Rights	0.47	18/31	95/128
Regulatory Enforcement	0.45	15/31	93/128
Civil Justice	0.46	16/31	91/128
Criminal Justice	0.38	14/31	80/128
Constraints on Government Powers	0.49	16/31	78/128
Open Government	0.48	7/31	72/128
Rule of Law Index	0.45	18/31	102/128

Source of data: World Justice Project Report available at: https://www.transparency.org/en/cpi/2020/index/nzl

In the lower middle-income category, Kenya was ranked 17th out of 30 while in SSA, Kenya ranked 18th out of 31 countries. Within Africa, Kenya lags some of its competing investment destinations, including South Africa and Tanzania, which were ranked 5th and 12th out of 31 countries, respectively.

The 2018 Democratic Perception Index (DPI) conducted from 6th June to 18th June 2018 ranks countries on how they are perceived to be delivering core democratic benefits in the eyes of their citizens, including: 1) Political Voice: Sense of participation in politics; 2) Public Interest: Trust that government is working for the people; 3) Free Speech: Freedom to express opinions; 4) Information: Access to balanced and neutral information. More information is available at https://oidp.net/en/publication.php?id=1489 accessed in February 2022

When Kenyans were asked if they think their voice matters in politics, 44% of citizens said their voices "rarely" or "never" matter in politics. We can interpret this as indicating the need to deepen democratic values and participation of the people. This can enhance the other related national values, including patriotism, national unity and rule of law.

Theme 2: Enhance Sharing and Devolution of Power

- This theme includes sharing and devolution of power. Good progress has been made and Kenya has put in place good institutional frameworks including the establishment of the intergovernmental Relations Technical Committee in 2016 after the lapse of the tenure of the Transitional Authority. Kenya has also put in place the Citizen Accountability Audit (CAA) Engagement Framework. There is also a platform that collates, shares and promotes home grown innovations from counties. See https://maarifa.cog.go.ke/

Theme 3: Enhance the Protection of the Bill of Rights

- This theme encompasses: Human Dignity, Equity, Social Justice, Inclusiveness, Equality, Human Rights, Non-Discrimination and Protection of the Marginalized. With respect to equity, social justice inclusiveness and equality, we can get a glimpse of Kenya's progress through the Commitment to Reducing Inequality Index (CRI) 2020. More information is available at https://www.inequalityindex.org/#/ accessed in February 2022
- The overall index monitors what governments are doing through their policy commitments to reduce inequality. In the 2020 report, Kenya's overall performance was described as low, with a rank of 76 out of 149 countries. The index combines 3 core pillars on: social spending, progressive taxation and labour rights. The respective rank for Kenya for each of these pillars were: (i) public service pillar (ranked 110th and classified as low performance), progressive tax pillar (ranked 9th and classified as good performance) and worker rights pillar (ranked 105th or moderate performance). More information is available at https://www.inequalityindex.org/#/ accessed in February 2022 This would suggest need for enhanced enforcement of the institutional provisions on the public service. Overall, the CRI recommends that all governments adopt strong anti-inequality policies on public services, tax and labour rights, to radically reduce the gap between the rich and poor.

Theme 4: Good Governance, Transparency and Accountability

- The fourth theme encompasses good governance, integrity, transparency, and accountability. Based on international indices that compare countries, Kenya has been weak with respect to these indices. As examples in 2000 and 2010, Kenya was ranked 82nd out of 90 countries and 154th out of 178 countries, respectively, in the Corruption Perception Index. In 2020, the country was ranked 124th out of 179 countries in this perception index. More information is available at https://www.transparency.org/en/cpi/2020/index/nzl accessed in February 2022 This poor rank is suggestive of weak values with respect to good governance, integrity, transparency, and accountability. These weak values have continued to suppress not only investment but also public trust in and resilience of political and governance institutions.

Theme 5: Measures Taken to Enhance Realization of Sustainable Development

- A comparative indicator that can be used is the Sustainable Development Index ranking, which measures the ecological efficiency of human development. More information is available at https://www.sustainabledevelopmentindex.org/ accessed in February 2022 Kenya's index has been improving steadily since 2003 and the country was ranked 69th out of 151 countries in 2019 with a score of 0.647. A score of 0.8 to 1 is considered very high.

10.3.5 The presidential report on measures taken and progress achieved in the realization of national values and principles of governance

The presidential reports have emerged as a key monitoring tool for progress made regarding national values. The reporting has ensured that MCDAs focus on tracking measures and achievements of all the national values and principles of governance and their reporting. The presidential report is strong in identifying the measures taken to enhance values. Much has been done to deliver on the recommendations of the earlier reports, and civic education has continued to raise the level of awareness of the issues surrounding NV&PG, not only among the public, but also among public servants.

However, a few challenges remain. The NV&PG study in 2016 found relatively weak awareness of the resident's report (at 32% among Kenyans), and similarly, weak awareness of measures taken towards the realization of the values and principles (37%). The report can be improved further especially in its assessment of achievements, which can be made less subjective by incorporating progress made by providing specific measures, using indicators and indices for its thematic areas. In Table 10.2, observations about the Presidential report and proposals on improving it are highlighted.

Table 10.2: Proposals on improving the annual presidential report

Observations	Proposals on way forward
• The elaboration of progress achieved is relatively subjective as it does not make use of indicators and indices such as corruption perception index or a sustainable development index	• Besides listing progress achieved using counts, objectivity may be enhanced by incorporating the reporting of the progression of indicators of specific national values. This implies the need to make use of tools/indicators that can track progress achieved. Possible tools include: 1. Extracting and using indices/indicators from the Public Service Commission annual report on compliance with the values and principles of governance and values and principles of public service. 2. Use of baseline and follow-up surveys, such as indicators reported in the Report on the Status of National Values and Principles of Governance in Kenya, 2015. 3. Use of indexes (such as the national values index)

Observations	Proposals on way forward
• Report does not track indicators of well-being, such as poverty and inequality, which are important in tracking progress in values such as equity, inclusiveness, and sustainable development.	• Include reporting of well-being indicators that measure poverty and inequality over time, since these are linked to the achievement of national values such as Human Dignity, Equity, Social Justice, Inclusiveness, Equality, Human Rights, Non-Discrimination and Protection of the Marginalized, and Sustainable Development.
• Numerous institutions, including laws were put in place especially since 2012	• The coverage of the progress achieved may benefit from periodic institutional analysis using a predetermined framework (an example of such a framework is discussed in Box 10.5). The key components of this analysis may include quality standards and compliance, and data collection, information management and monitoring systems.
• Each report provides government commitments for the next reporting cycle, but it is not clear if achievement of commitments is objectively reported in subsequent cycles	• There is need to ensure that the commitments adopted in the reports cover all aspects of national values and principles of governance. • It is important to pair the commitments with measurable indicators and indices through follow up surveys and clear M&E frameworks • There is need to provide feedback to MCDA on areas of improvement regarding national values

10.4 Lessons from other Countries

This sub-section focuses on some of the determinants and drivers of national values across countries, and lessons that can be picked from these experiences. Countries are at varying levels of development and progress with respect to inculcation of values. There are many reasons provided for the varying success levels achieved in inculcation of values across countries. Some of the broad factors associated with national values include quality of institutions, public policies, including nation building policies, and politics and the political system.

10.4.1 Quality of institutions

Studies indicate that the quality of institutions measured in various forms, such as rule of law index or the risk of expropriation, is associated with better values such as higher levels of transparency (Dreher et al., 2009 and Mocan, 2008). The institutional quality works through lowering the scope of the shadow economy. One of the important dimensions is the role of institutions in enforcing laws through sanctions. Indeed, enforcement of laws and the sanction and reward system is a key weakness in Kenya. This system seems to work better in more developed countries (Box 10.6).

Box 10.6: The sanction and reward system

Using data from Transparency International, a relatively high proportion of Kenyans pointed out that there is no risk at all in giving or receiving a bribe in the country (relatively to a comparator group of countries). This is suggestive of weaknesses in enforcement mechanisms. The overriding finding is that in countries with functioning democratic institutions, such as media freedom, there are adequate checks and balances that cause players to uphold values and for example abstain from corrupt behaviour. If these institutions are weak, vices such as corruption will be higher owing to few sanctions and a lower likelihood to be held accountable (Kotera et al., 2010; Shleifer and Vishny, 1993).

10.4.2 Nation building policies

Specific nation building policies matter for inculcation of values. Lessons can be picked from Tanzania, which demonstrates that education policies and promotion of a unifying language may create greater feelings of oneness and diminish politicization of ethnicity. Tanzania, despite having many more ethnic groups in comparison to Kenya, had divergent outcomes in the relationship between ethnic groups. Some of the decisive policies are highlighted in Box 10.7, but it is important to note that Kenya was at a greater disadvantage with respect to ethnic relations at the attainment of its independence.

Box 10.7: Experiences from Tanzania on nation building policies

Some of the decisive policies that resulted in apparently more unity include:

i) The promotion of a unifying language, Swahili: there was not only promotion but also universal use of Swahili, which led to a more united population. Use of local ethnic languages was strongly discouraged in government offices and national businesses (Whiteley, 1969).

ii) The quota system of education: though both countries used the quota system, Kenya's system produced fairly ethnically homogenous classes in secondary schools. Tanzania's quota system was designed to equalize educational attainment across ethnic groups (Cooksey et al., 1994). Tanzania's government forced secondary school students to study in provinces far away from their home areas. The "forced co-mingling" of students from different ethnic groups strongly promoted the use of Swahili to communicate, and provided the future elite of the country with a truly national perspective.

Tanzania was able to build social trust among its diverse peoples. Social trust is loosely defined as a belief in the honesty, integrity, and reliability of others. Trust and corruption have been examined in some studies, and the overriding finding is that countries with a high score on the level of trust have lower corruption. This is explained by the fact that trust facilitates and encourages cooperation between all members of society, improving the governments, and the economy's quality and in turn reducing corruption (e.g. La Porta et al., 1997; Uslaner, 2004).

10.4.3 Politics and the political system

Politics and political institutions play a key role in redistributing public goods and in all forms of development in many countries. In many jurisdictions, these institutions are ethnic-based, and this explains why the relationship between ethnic diversity and conflict (in form of riots, pogroms, genocides, and wars) has been a significant research theme. A major concern for most ethnically diverse nations revolves around how political power is acquired. Different countries have attempted to address this issue by instituting specific structural techniques and institutional reforms that have focused on how to reorder the institutional design and restructure polity. Overall, federalism and consociational systems represent the main structural techniques practiced globally. Consociation is one form of power sharing or form of government involving guaranteed group representation. In consociational systems, minorities are given a pre-assigned share of political power, and a minority veto is guaranteed on key cultural matters, including schools, language policy and religious practice. Consociational arrangements include the governance structure of Austria, Belgium, The Netherlands, and Switzerland. Usually, this type of democracy is practiced in States with non-homogeneous ethnic, religious or linguistic groups.

There are observations that consociation has enabled the countries practicing it to avoid the political pitfalls caused by winner take all polity. It has also helped promote peaceful co-existence even with minorities (Lijphart, 1977). The Swiss example is usually cited as one that shows that it is possible for language groups and religious groups to grow together into one nation without destroying the individual culture of any other group, through several factors, including elite accommodation and espousal of certain social values such as a tolerant culture (see Box 10.8 on explanations of how the system works).

Box 10.8: Lessons on consociation from Switzerland

Switzerland has about 7.3 million inhabitants, of which 64% speak Swiss-German, 20% speak French, about 8% speak Italian and less than 1% speak Romansch. The French Swiss are the only group that speaks and writes in one common dialect. There are over 20 distinct dialects of Schwyzerdutsch (German) while the Romansch speakers have 4 dialects. The Italian Swiss speak 3 distinct dialects. The country has 26 geographic divisions called Cantons. 17 Cantons are officially German speaking, 4 are French speaking, 1 is Italian speaking while the remaining 4 speak 2 or 3 official languages (Wilner, undated).

The country has largely practiced a consociational system of governance. As pointed out by a number of authors, consociation works in particular circumstances. As an example, Wilner (undated) notes that there are many theoretical explanations for the stability observed in Switzerland, including:

i) Elite accommodation, i.e. the presence and active mingling of social and political elites from each ethnic group throughout Switzerland's history, which helped establish a thick web of multi-ethnic civil society organizations that allow elites and non-elites to unite in a common set of interests and goals, helping guide the process of inter-ethnic nation building at lower social levels. Examples of these clubs and associations include: the Swiss Society for Historical Research (founded in 1811), and the Swiss Society for the Public Good (founded in 1810);

ii) The actual or perceived presence of an external threat to commonly shared interests acted to unite divergent groups in Switzerland;

iii) The will of the nation to survive - developed through a number of processes, including: familial education, development of tolerant culture, love of liberty and self-respect.

From the experience of other countries, it is clear that contexts differ and countries follow unique paths in promoting values. A key lesson for Kenya is the need to create institutions that are flexible, and respond to signals and changes across society well before conflict.

10.5 Key Messages and Recommendations

10.5.1 Key messages

Kenya is on the right path as the country is more open and transparent about the problems and their causes. The country has also built institutions that promote and that can enforce the rules/requirements and codes of conduct on values put in place.

1. Studies indicate that values, including national values, are important for development and resilience. Indeed, the inclusion of provisions on values in international accords and global goals (such as the Sustainable Development Goals), regional charters and development blueprints (such as the African Union Agenda 2063) and local instruments, including the constitution, policy papers and development blueprints demonstrate the importance of values for development.

2. Kenya has a well-defined and progressive institutional framework regarding national values that encompasses the constitution, legislations, and the national development blueprint and its medium-term planning frameworks. However, the inculcation of national values has remained a challenge in Kenya. This is demonstrated by indicators and indices of national values and principles of governance, which have for the most part remained in the low range.

3. The relatively modest performance in inculcation of values has continued to suppress not only investment but also public trust in and resilience of political and governance institutions. There are several explanations as to why only modest results were achieved in inculcating national values. These include: inadequate monitoring and evaluation, inadequate coordination across MCDAs, inadequate role modelling, weak transformational leadership, non-compliance with policy, legal and institutional provisions, and poor socio-economic development.

4. The annual Presidential Report on measures taken and progress achieved in the realization of national values and principles of governance is a key monitoring tool that has room for improvement in tracking progress in achievement of national values. These are provided in the recommendations.

10.5.2 Recommendations

In this section, initiatives that could enhance the inculcation of national values are suggested. There is great potential to nurture national values by:

1. Enhancing the role of the annual Presidential report on measures taken and progress achieved in the realization of national values and principles of governance as a key monitoring tool for promoting and inculcating national values. This can be done by:

i) Incorporating use of specific indicators that track the progression of specific national values and principles of governance, using several tools/indicators, including: use of baseline and follow-up surveys, such as indicators reported in the PSC Report on the Status of National Values and Principles of Governance in Kenya, and use of indexes (such as the national values index).

ii) Incorporating the reporting of socio-economic indicators of well-being, such as indices for measuring poverty and inequality over time.

iii) Setting up a clear feedback mechanism, clearly outlining areas of improvement for each MCDA. This could be through a self-assessment among other mechanisms.

iv) Enhancing continuous improvements through periodic institutional analysis of actors in national values and principles of governance using predetermined frameworks.

2. Enhancing the role of transformational leadership in inculcating national values through, among others: ensuring zero tolerance towards promotion of negative values, adhering strictly to the provisions of Chapter 6 of the Constitution on Leadership and Integrity, applying the sanction and reward system more rigorously, and promoting training on transformative leadership.

3. Promoting and sustaining economic growth with distribution to reduce poverty and inequalities – growth with equity is one of the overarching means of achieving some of the national values. It is also a necessary condition for sustaining positive national values.

4. Enhancing the use of education programmes to promote patriotism, ethnic cohesion and shape positive cultural practices and values, by enhancing the use of the quota system of education to ensure maximum co-mingling.

GOOD GOVERNANCE IN BUILDING RESILIENCE

Corruption poses significant risks in development of various sectors of the Kenyan economy, and thus can derail initiatives to bolster resilience of the economy. Though there are elaborate laws and regulatory institutions involved in the fight against corruption, it still persists, leading to massive loss of public funds and resources, and diminished private sector and foreign direct investment. Various reports by the Ethics and Anti-Corruption Commission (EACC), Asset Recovery Agency (ARA), World Bank and Transparency International have shown consistent low rankings in control of corruption. This has been occasioned by inadequate focus on prevention as opposed to response. The evolving nature of corruption offences through use of sophisticated means and technology without corresponding new innovations and poor use of technology at the institutional level is also weakening the fight against corruption. Challenges in prosecution of corruption cases include lengthy process in conducting investigations, and the complex, multi-layered nature of corruption cases. Jurisdictional conflict has also undermined anti-corruption initiatives. Nonetheless, the multi-agency taskforce (MAT) that brought on board a partnership with anti-corruption agencies has improved speedy exchange of information and ease of tracing proceeds of corruption through other regulatory institutions. Investment in asset recovery institutions, strategies and resourcing is, therefore, key to effective control and collaboration with other oversight institutions such as the Commission on Administrative Justice, Inspectorate of State Corporations, Public Procurement Regulatory Authority and Public Service Commission to facilitate detection, investigation, and prosecution of corruption-related offences. Increased use of corruption prevention systems would also enhance control of corruption to sustain resilience of the Kenyan economy.

11.1 Introduction

A critical component of resilience is the existence of good governance, which has been identified as a process of decision-making that is accountable, transparent, lawful, responsive, inclusive and participatory (Bedi, 2014). Briguglio et al. (2009) argue that good governance is essential for an economic system to function properly and hence to be resilient. Good governance consists of the main indicators of voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law; and control of corruption. Increasingly, economic resilience is being associated with a country's pursuit of an agenda based on good governance and institutional development.

Indeed, resilience is seen as the opposite of vulnerability and, as the debate on economic vulnerability has evolved, scholars and global governance institutions, including the United Nations Conference on Trade and Development (UNCTAD, 2006), have agreed that strategies for building resilience include: improving the competitiveness of the economy; building a sound macroeconomic environment; improving governance; diversifying the economy to reduce excessive reliance on a narrow range of exports; and strengthening transportation and communications infrastructure. Without these measures in place or being implemented effectively, it may be relatively easy for adverse shocks to result into economic disruptions, and social chaos and unrest. Therefore, the effects of vulnerability to external shocks would be exacerbated in an environment that is characterized by poor governance.

The Kenya Vision 2030 aspires to promote good governance and a corruption-free transparent environment for economic development in both public and private organizations in Kenya. This underscores the prominence given to eliminating corruption in Kenya. According to literature on good governance (World Bank, 1989; 1997), corruption is a by-product of poor governance and, as such, it could undermine or even erode the pursuit of sound economic policies, such as those geared towards building economic resilience. Moreover, it has been argued that corruption is not only an ethical issue, but its pervasive presence in a country could have a deleterious effect on the country's level of economic growth and development. It undermines quality of life, quality of provision of services and hinders the achievement of government goals, such as Kenya's "Big Four" agenda, Kenya Vision 2030 and the Sustainable Development Goals.

In building good governance for resilience and sustainable development, control of corruption is one of the main areas of focus in the Kenyan context. Corruption is one of the most serious obstacles to development. Recent econometric studies show that indicators of corruption are negatively correlated with important economic outcomes. Mauro (1995) and Burki and Perry (1998) claim that corruption reduces economic growth through reduced private investment. Kaufman et al. (1999) find that corruption limits development, per capita income, child mortality, and literacy and Bai and Wei (2000) argue that corruption affects the making of economic policy. This chapter focuses on control of corruption as one of the main challenges in development and resilience in various sectors of the Kenyan economy. In Kenya, the EACC traced public assets worth Ksh 25.3 billion and recovered others worth Ksh 12.1 billion in 2019/2020 (KNBS, 2021). This indicates the potential impact of corruption on the development of the economy. Corruption is a major hindrance towards sustainable development and to realization of programmes and activities aimed at building resilience.

11.2 Understanding the Dimensions of Corruption

Corruption is popularly defined as the use of public office for private gain (Gray and Kaufmann, 1998). However, Rose Ackerman (1999) defined corruption as the "abuse of power for private economic gain". In this case, private gain needs not be pecuniary or financial, but might include access, loyalty, power, or valuable information. Munroe (2002) has sought to broaden the conceptual framework from the abuse of public power to the "use of position whether formal office or otherwise for illicit benefit to secure advantage whether personally or for one's connections (political, family, business, etc)." This includes civil society, non-governmental organizations, and the private sector. This definition also accords with the definition proffered by Transparency International, which states that corruption is the "misuse of entrusted power for private gain". Similarly, the Asian Development Bank (1998) argues that corruption "involves behaviour on the part of officials in the public and private sectors in which they improperly and unlawfully enrich themselves and/or those close to them or induce others to do so by misusing the positions in which they have been placed."

Over time, various efforts have been made to address corruption in Kenya, including enactment of various laws and establishment of various regulatory institutions. The Constitution of Kenya 2010 led to the enactment of the Leadership and

Integrity Act (No. 19 of 2012) pursuant to Article 79 of the Constitution and standards outlined in Chapter Six of the Constitution of Leadership and Integrity. Besides the Constitution of Kenya, there are several legal instruments that directly or indirectly facilitate the fight against corruption. The international legal instruments include United Nations Convention Against Corruption, 2003 (UNCAC) and the African Union Convention on Preventing and Combating Corruption, 2003 (AUCPCC) both of which Kenya has ratified. Kenya has also ratified the East African Community Protocol on Preventing and Combating Corruption (EACPPCC). Kenya has domesticated the provisions of the UNCAC by enacting various domestic legislation, which are the Anti-Corruption and Economic Crimes Act, 2003 (ACECA); Public Officers Ethics Act, 2003; Ethics and Anti-Corruption Commission Act, 2011; Leadership and Integrity Act, 2012; Public Finance Management Act, 2012; Public Procurement and Asset Disposal Act, 2015; Proceeds of Crime and Anti-Money Laundering Act, 2009; Public Audit Act, 2015; and the Bribery Act 2016. Others include the Elections Act, 2011; Mutual Legal Assistance Act, 2011; Commission on Administration of Justice Act, 2011; Access to Information Act, 2016; and the Fair Administrative Action Act, 2015, among others.

The Anti-Corruption and Economic Crimes Act 2003, which is the operational law on corruption in Kenya, defines corruption to mean *inter alia* bribery, fraud, embezzlement or misappropriation of public funds, abuse of office, breach of trust; or an offence involving dishonesty in connection with any tax, rate or impost levied under any Act; or under any written law relating to the elections of persons to public office and other offences prescribed under the Act, including improper benefits to trustees for appointments, secret inducements for advice, engaging in a project without prior planning and bid rigging.

The main institutional framework for anti-corruption efforts in Kenya is based on a tripartite model whose key pillars are on investigation, prosecution, and adjudication. The Ethics and Anti-Corruption Commission (EACC) investigates reported incidents of corruption and assesses the evidential threshold of such cases. Once evidence of corruption is found to meet the threshold, EACC forwards the reports to the Office of Director of Prosecutions (ODPP), who determines if the case is fit for prosecution. If a case is determined to be fit for prosecution by ODPP, formal charges are prepared and official court pleadings are filed in the relevant court for prosecution, trial, judgment and finally sentencing by the Judiciary. Other institutions that are complementary in the fight against corruption and economic crimes, abuse of office, financial crimes and money laundering, misuse of public expenditure, non-compliance with public procurement regulations on goods and service and monitoring compliance with public finance management laws are the Office of the Auditor General, Commission on Administrative Justice, Assets Recovery Agency, Financial Reporting Centre, Public Procurement Regulatory Authority, Inspectorate of State Corporations, Public Service Commission, Parliamentary Committees and County Assemblies.

While acknowledging that corruption exists in both the public and private sectors, most legal frameworks and interventions have focused on public sector corruption, while concepts of ethics and corporate governance have been construed as malfeasance and unethical behaviour on the part of corporate executives and management. Corruption has often been seen as a demand and supply side issue, with private sector actors considered as being on the supply side as “bribe-givers” while public sector officials are considered to be on the demand side as “bribe-takers”. The legal framework in Kenya has evolved over time to capture the dynamic nature of corruption, its actors and its linkages with other criminal acts, including financial crimes and money laundering, which may be perpetuated by both private and public sector actors. Thus, in 2016, the Bribery Act was enacted to provide general bribery offences that include giving a bribe, receiving a bribe, bribery of foreign public officials and function and activities that relate to a bribe. In this regard, it prescribes offences for both giving and receiving of bribes. The Bribery Act recognizes corruption and bribery where the parties involved are not necessarily public or government officers.

As the understanding of corruption has evolved over time, so have the anti-corruption interventions. Thus, it is not just misuse of public finance management that form part of corruption but also bribery by corporations, and private sector institutions. The increased nexus between financial crimes and money laundering are predicate offences of corruption behaviour at the workplace, and also include financial improprieties, buying of votes/voter bribery, giving or receiving a bribe to facilitate a process, nepotism or favouritism, abuse/misuse of office, and trading in influence (using your position or power of influence to gain/give undue favours. Due to these emerging issues, the interventions on anti-corruption have evolved to keep in tandem.

11.3 Status of Corruption in Kenya

The World Bank Worldwide Governance Indicators include the following dimensions of governance: voice and accountability; political stability and absence of violence; government effectiveness; regulatory quality; rule of law and control of corruption. An interconnectedness has been demonstrated between corruption and transparency and accountability, with transparency and accountability emerging as enabling factors to control or reduction of corruption (Lederman et al., 2001). In assessing the constraints corruption may pose to building resilience, the level of corruption in Kenya will be highlighted through various studies.

This section provides an overview of the status of corruption in Kenya using different sources from World Bank Governance Indicators, Transparency International Corruption Perception Index, World Economic Forum's Global Competitiveness Index (GCI) and Ethics and Anti-Corruption Commission reports that measure corruption perception. In addition to this, the Kenya Institute for Public Policy Research and Analysis (KIPPRA) undertook a Study on Tracing the Effectiveness of Kenya's Anti-Corruption Strategies in 2021 (KIPPRA, 2021), which sought to analyze the effectiveness of anti-corruption strategies by institutions along the continuum of corruption from prevention, detection, investigation, prosecution, and adjudication, and providing insights on corruption from an institutional perspective.

The World Bank Country Policy and Institutional Assessment (CPIA) rates countries against a set of 16 criteria grouped in four clusters:

i) Economic management
ii) Structural policies
iii) Policies for social inclusion and equity
iv) Public sector management and institutions.

Cluster D, also referred to as the governance cluster, covers property rights and rule-based governance; quality of budgetary and financial management; efficiency of revenue mobilization; quality of public administration; and transparency, accountability, and corruption in the public sector. The CPIA index on Transparency, Accountability and Corruption in the Public Sector (ranging from 1 as the lowest to 6 as the highest) assesses the extent to which the executive can be held accountable for its use of funds and for the results of its actions by the electorate and by the legislature and judiciary, and the extent to which public employees within the executive are required to account for administrative decisions, use of resources, and results obtained. The three main dimensions assessed here are the accountability of the executive to oversight institutions and of public employees for their performance, access of civil society to information on public affairs, and state capture by narrow vested interests (World Bank, 2021).

The following indicators are assessed under the CPIA Index: policies and institutions for environment sustainability; quality of budgetary and financial management; efficiency of revenue mobilization; quality of public administration and transparency, accountability and corruption in public sector. Over the years, there has been no change in Kenya's rating for Transparency, Accountability and Corruption in the public sector despite various measures that have been put in place, whereas the scores for both Rwanda and Tanzania improved after 2006 and maintained their consistency. Nonetheless, Kenya performed better than average Sub-Saharan Africa score (Table 11.1). Rwanda and Tanzania have consistently performed better than Kenya, as compared to other East African countries.

Table 11.1: Select countries CPIA transparency, accountability and corruption in the public Sector

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
SSA	2.8	2.8	2.8	2.8	2.7	2.7	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.2	3.5
Kenya	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.7
Rwanda	3.0	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	4.1
Tanzania	3.0	3.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	2.5	3.0	3.5

Source: World Bank (2002-2020)

The World Bank Worldwide Governance Indicators for control of corruption are reported from a range of -2.5 to 2.5. Kenya's performance (as indicated in Table 11.2) has been below average, compared to other countries in the East African region.

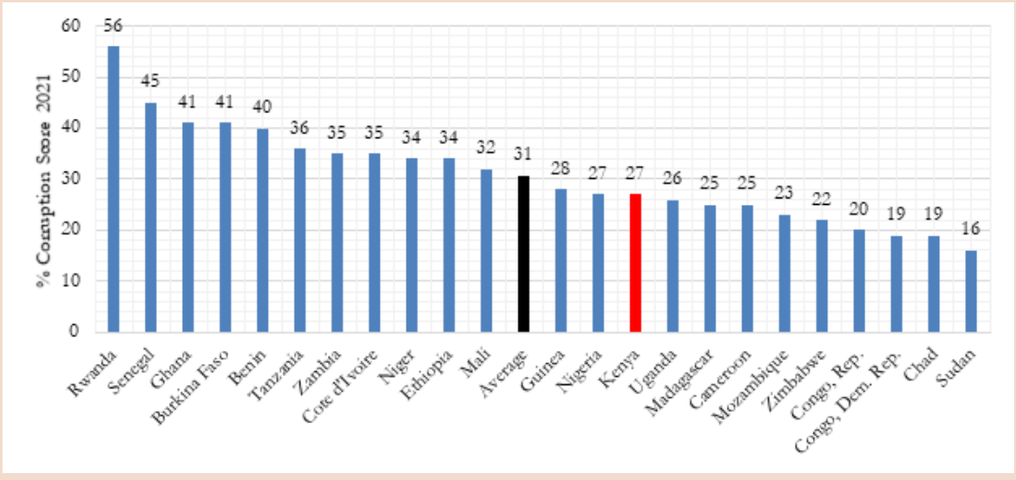
Table 11.2: Select countries control of corruption ranking

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Kenya	-1.1	-1.0	-0.9	-1.0	-0.9	-1.0	-1.0	-1.1	-0.9	-1.0	-1.1	-1.0	-0.9	-1.0	-0.9	-1.0	-0.9	-0.8
Rwanda	-0.42	-0.47	-0.44	-0.62	-0.21	0.00	0.10	0.09	0.35	0.36	0.56	0.63	0.76	0.64	0.64	0.63	0.58	0.56
Tanzania	-0.80	-0.68	-0.56	-0.60	-0.23	-0.34	-0.42	-0.45	-0.54	-0.59	-0.76	-0.77	-0.75	-0.69	-0.51	-0.46	-0.45	-0.39
Uganda	-0.91	-0.81	-0.78	-0.82	-0.79	-0.82	-0.83	-0.90	-0.92	-0.92	-0.99	-1.04	-1.09	-1.05	-1.06	-1.04	-1.04	-1.17

Source: World Bank (2002-2019)

There are widespread perceptions that corruption permeates all sectors of the public service in Kenya, as evident in various international and local studies, reports and surveys that have tracked the existence of corruption in Kenya over time. Over the last 20 years, Transparency International's Corruption Perceptions Index (CPI) has been evaluating countries corruption levels, scoring them between 1 (most corrupt) and 100 (least corrupt). No country in the world has ever achieved a score of 100, signaling that corruption remains an issue experienced globally, albeit to varying degrees. An analysis of Transparency International's Corruption Perception Index (CPI) 2018 report shows that Kenya's score was slightly below the average of countries under the IMF's 'Low-Income Developing Sub-Saharan Africa (SSA)' classification, where Kenya falls. Kenya scored 27 out of 100, which is lower than the average of 31. Out of the 23 countries under this Low-Income Developing SSA category, Rwanda emerged as the least corrupt country with a score of 56 out of 100 and Sudan was the most corrupt country with a score of 16 out of 100 (Figure 11.1).

Figure 11.1: A comparative analysis of corruption in low-income developing Sub-Saharan African countries

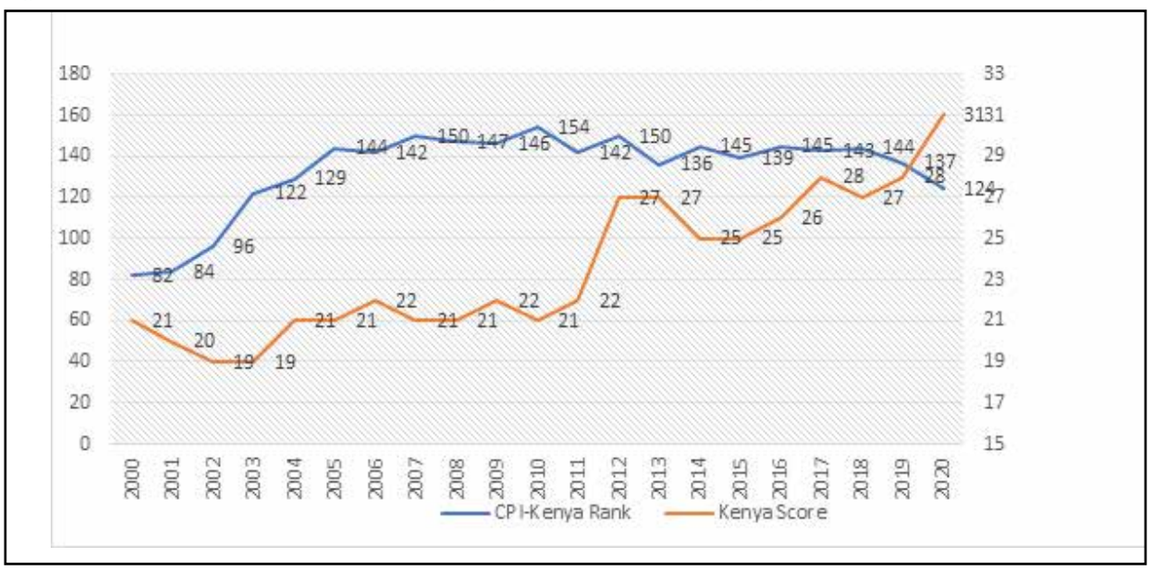


Source: Transparency International (2021)

According to the Transparency International CPI 2018, perceptions of corruption were higher in Kenya out of 13 of its comparator countries: Rwanda, Senegal, Ghana, Burkina Faso, Benin, Tanzania, Zambia, Cote d'Ivoire, Niger, Ethiopia, Mali, Guinea and Nigeria. At the same time, however, corruption levels were perceived to be better in Kenya than in 9 of its comparator countries, namely: Uganda, Madagascar, Cameroon, Mozambique, Zimbabwe, Democratic Republic of Congo, Republic of Congo, Chad and Sudan (KIPPRA, 2021).

Across time, Kenya's CPI score over the last 20 years has ranged between 19 (her lowest score) and 28 (her highest). With the advent of Kenya's political devolution in 2012, Kenya's performance with regard to perceived corruption level has improved, with scores ranging from 25 to 28. In the latest CPI report 2018, Kenya scored 27, 1 score lower than the highest score (28) it has ever achieved since the inception of this perception survey (Figure 11.1). This indicates that, in the region, corruption is perceived to be highest in Kenya.

Figure 11.2: TI Corruption Perceptions Index–Kenya's score over the last 20 years



Source: KIPPRA (2021)

Kenya's ranking has fluctuated over the last 20 years. In the latest CPI report of 2020, Kenya ranked 124 out of 179 countries surveyed, a deteriorating performance in its ranking by 1 position compared to the prior year. There has been marginal improvement in scores for Kenya over time, recording an average of 24 scores out of 100. The lowest scores was 19 in 2002 and 2003, the highest score of 31 in 2020. Transparency International's Corruption Perception Index (CPI) has continued to increase the number of countries under evaluation. Between 1998 and 2020, the number of countries evaluated doubled from 85 to 180. Over the last 12 years, 180 countries have been evaluated, during which Kenya's ranking has continued to improve.

As part of the KIPPRA Study on Anti-Corruption Strategies, KIPPRA undertook a survey on corruption perception from January to March 2021 (KIPPRA, 2021). The survey targeted institutions charged with managing corruption activities in the country; 56 institutions were sampled. They were categorized in terms of their functions, mandates, and jurisdictions. Out of the 56 institutions, the survey sampled 35 institutions based on duplication of roles, functions, non-existence, functions of personnel and core functions. A total of 29 institutions were reached out of the targeted 35 institutions. These represented 83 per cent achievement rate; those interviewed were in charge of the organizations; had experience of many years working under the organizations and many years of training in anti-corruption activities and were responsible for managing the feedback mechanisms regarding corruption activities. The survey collected data under the following thematic areas: Understanding Corruption; Detection, Deterrence and Prevention; Policy, Legal and Institutional Framework; Compliance and Regulatory; and Sanctions or Dismissal (Anti-Corruption Penalties). Others included Auditing, Monitoring and Evaluation; Reporting and Complaints Handling; Investigation and Apprehension; Prosecution and Legal Proceedings; and Civic Education.

The results from the survey show that it is not just financial-related transactions that form part of corruption, but also behaviour at the workplace.

Majority of the respondents 'strongly agreed' that the following are acts of corruption: Financial improprieties (88%), buying of votes/voter bribery (88%), giving or receiving a bribe to facilitate a process (84%), nepotism or favouritism (giving a job opportunity to a friend or relative, 84%), failing to pay taxes/submission of tax returns (84%), abuse/misuse of office (80%), being paid without delivery of goods and services (80%), and trading in influence (using your position or power of influence to gain/give undue favours, 80%) as shown in the Table 11.3.

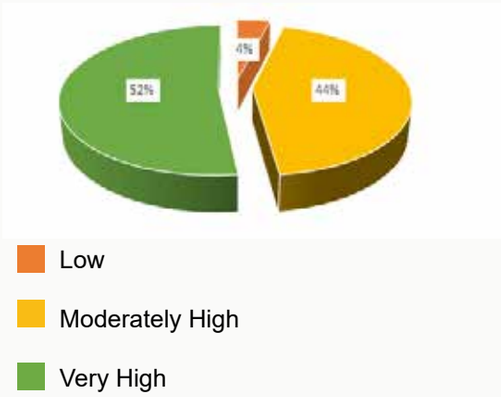
Table 11.3: Perceptions of acts of corruption (%)

	Strongly Disagree	Disagree	Indifferent	Agree	Strongly Agree
Financial improprieties	0	4	0	8	88
Buying of votes/ voter bribery	0	0	8	4	88
Giving or receiving a bribe to facilitate a process.	0	0	4	12	84
Nepotism or favoritism (giving a job opportunity to a friend or relative)	4	0	4	8	84
Failing to pay taxes/ submission of tax returns	4	0	4	8	84
Abuse/misuse of office	0	0	4	16	80
Mary being paid millions of shillings without delivery of goods and services	0	0	4	16	80
Trading in influence (using your position or power of influence to gain/give undue favors)	0	0	4	16	80
Receiving and not declaring gifts from customers to appreciate service delivery to them	0	0	8	24	68
Delay in opening public offices	0	4	12	24	60
Coming to work late	8	4	8	24	56
Sneaking out of office to attend to personal matters.	4	0	16	24	56
Time wasting at the workplace	4	4	20	20	52
Internet misuse at work	8	0	16	24	52
Lobbying	0	8	20	20	52
Engaging in a project without proper planning		8	16	24	52
Personal phone calls when at work	4	20	12	32	32

Source: KIPPRA (2021) survey on corruption

From the KIPPRA survey, 52 per cent of the respondents believe that the level of corruption in the country is 'Very high' and 44 per cent believe it is 'Moderately high'. Notably, only 4 per cent of the respondents reported believing corruption is 'Low' (Figure 11.4). Cumulatively, 96 per cent of the respondents believe corruption is common in the country, with a notable difference in perceptions about the intensity (level). This result corroborates the perception corruption index.

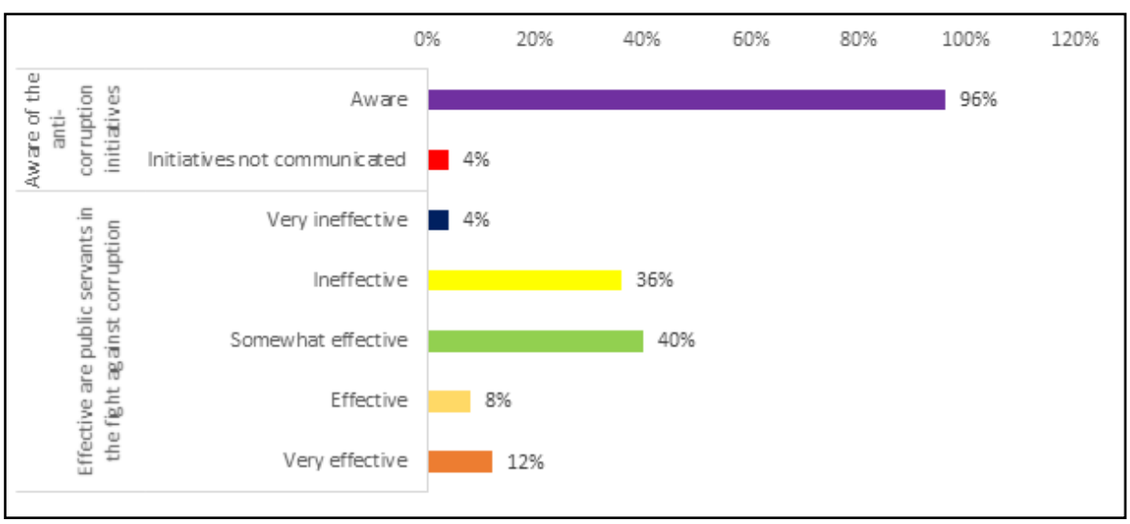
Figure 11.3: Level of corruption in the country



Source: KIPPRA (2021) survey on corruption

The KIPPRA Survey on Corruption looked at awareness of corruption in the public service. According to survey findings, majority of public servants are aware of anti-corruption initiatives in the public sector. However, a significant proportion of the initiatives are ineffective in the fight against corruption. All the respondents 'affirmed' that public servants are aware of corruption in the public sector, out of which majority of them reported being aware (96%) of the anti-corruption initiatives that are in place by the relevant institutions and government. However, a few of the respondents indicated that the anti-corruption initiatives are not communicated effectively (4%)

Figure 11.4: Awareness about corruption and anti-corruption initiatives

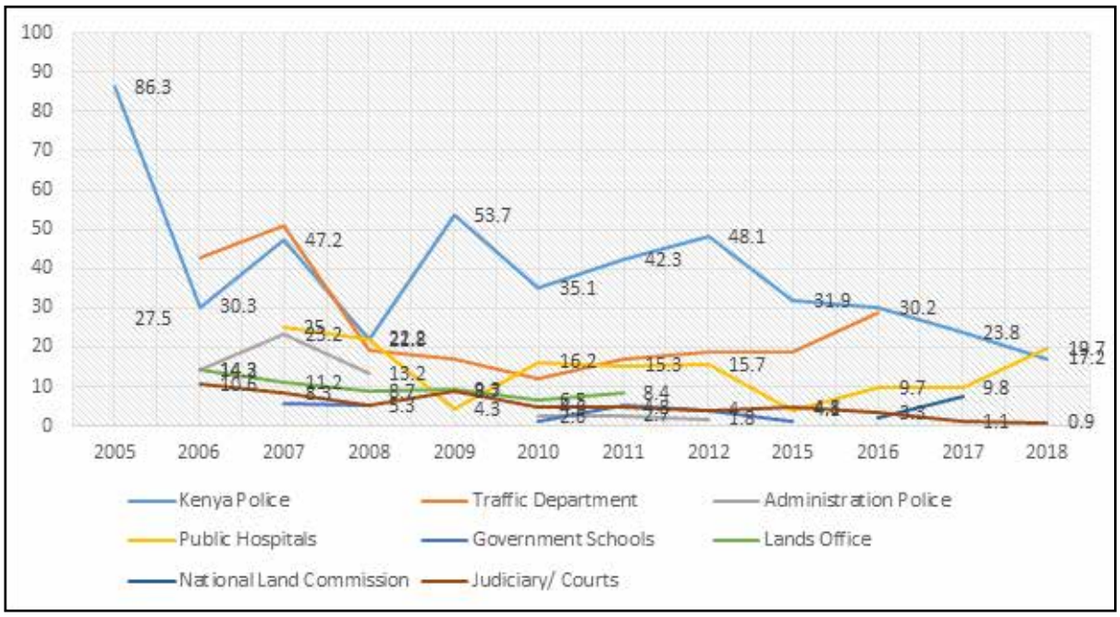


Source: KIPPRA (2021) survey on corruption

11.3.1 Corruption incidents in public sector institutions

Various publicly reported corruption incidents involving public institutions have brought to light the estimated loss of public funds and thus non-completion of public projects, programmes and activities. According to the Ethics and Anti-Corruption 2018 Corruption Perception report, the Kenya Police, Traffic Police, Judiciary, Ministry of Lands, Public Hospitals and Ministry of Interior and Coordination of Government were perceived to be the most corrupt government ministries, departments and agencies, thus hampering delivery of key public goods and services. This indicates that corruption continues to persist in the delivery of public services.

Figure 11.5: Perception of corruption (%) within government ministries



Source: KIPPRA (2021) survey on corruption

Incidents of corruption have been particularly rife in the context of public procurement, which is provided for in the Public Procurement and Disposal Act, 2015. The Public Procurement and Asset Disposal Act 2015 provides for use of direct procurement whenever there is an urgent need, which was the main method of procurement during COVID-19. The Act defines urgent need as "a need for goods, works or services in circumstances where there is an imminent or actual threat to public health, welfare, safety, or damage to property." This is because engaging in tendering procedures or other procurement methods would be impractical due to the urgency of the matter. Other circumstances where a procuring entity may use direct procurement include instances of war, invasion, disorder and natural disaster. Under these urgent circumstances, the act provides that an accounting officer of a procuring entity shall appoint an ad hoc evaluation committee that would be responsible to negotiate with suppliers of goods and works and ensure procurement needs are met.

During COVID-19 pandemic, the Executive Order No. 2 of 2018 states in part that pursuant to the Public Procurement and Disposal Act, and other enabling legislation, public procurement of public goods, works arising from the declaration of a national emergency or national disaster, shall be exempt from publication and updating on the public procurement information portal. This means procuring entities that are currently in the frontline fighting against the pandemic (or any other emergency) are not obligated to publish any information on the procurement being undertaken. Further, the Public Procurement Regulatory Authority also issued a circular instructing accounting officers to review approved procurement plans and methods and, where necessary, re-allocate resources that fast-track procurement and facilitate the delivery of essential services during the COVID-19 pandemic.

Another risk in public procurement is in storage of goods and supplies. Even when goods are procured in compliance with relevant public procurement laws and regulations, there is still an attendant risk that such goods upon arrival and while in storage may be illegally intercepted and thereafter used for personal gain. These emergency procurement procedures provide loopholes for incidents of corruption to occur.

Corruption in public procurement within various sectors is one of the impediments that is hampering Kenya's efforts to build resilience. The persistence of corruption has adversely impacted the delivery of health, education and other socio-economic benefits, and is a contributing factor to the persistence of poverty and other inequalities. It has also impeded access by the public to quality, affordable and functional public services.

The creation of devolved units of government was meant to bring services and resources closer to the public. However, County Governments are also not devoid of corruption. A study by EACC in 2015 indicated perceived levels of corruption in county governments to be at 20 per cent. The study also pointed out that bribery, theft of county revenue, procurement irregularities, misappropriation of

public funds, nepotism, shoddy roads and bridges construction, forgery of documents, conflict of interest in awarding of tenders, and recruitment were the most prevalent forms of corruption experienced in counties. These forms of crime are outlawed by the ACECA 2003. As such, procurement, finance and economic planning, public service boards and roads and public works were the county departments most perceived to be prone to corruption.

Similarly, the Auditor General reports have revealed widespread financial anomalies in counties, unsustainable projects and that governors and Members of County Assemblies have been implicated in loss of funds running into millions of shillings mainly through procurement irregularities and exorbitant expenditures. It is estimated that Ksh 3 billion were lost by counties in 2015 as reported by EACC and 33 cases are being investigated by EACC in corruption allegations in counties (Njagi, 2016).

These incidents indicate that corruption is rampant in Kenya and has led to significant loss of public finances and resources and remains a risk to implementation of interventions to build resilience.

The challenges in various anti-corruption interventions have been faced in various points of the anti-corruption continuum. There is inadequate focus on prevention as opposed to response by institutions along the continuum of points of intervention. Further, the complex and interrelated nature of corruption-related offences and other predicate offences such as financial crimes and money laundering through use of sophisticated financial channels to conceal proceeds of crime hamper anti-corruption initiatives. The evolving nature of corruption offences through use of sophisticated means and technology without corresponding new innovations and poor use of technology at the institutional level is also weakening the fight against corruption.

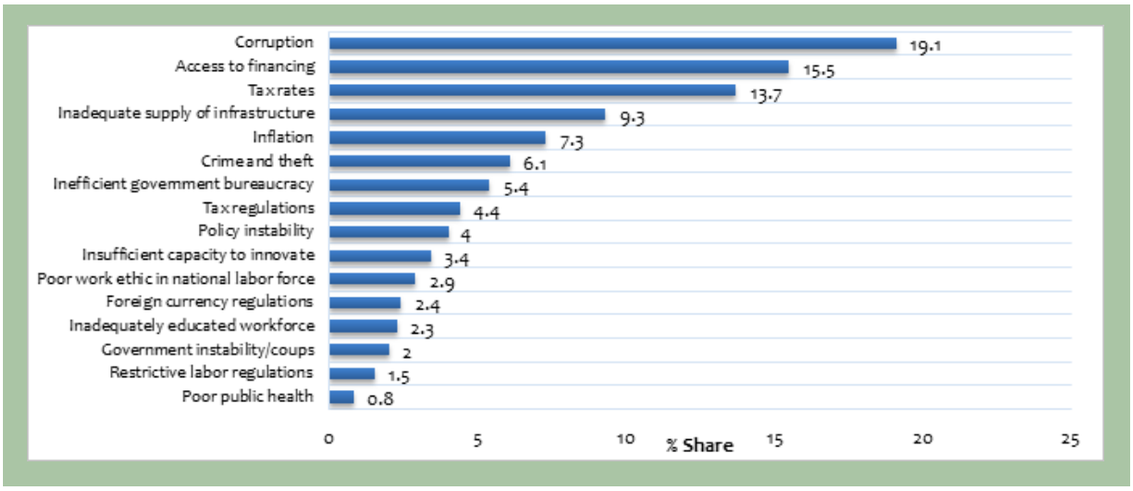
11.3.2 Corruption and the business environment in Kenya

Corruption has continuously been raised as a challenge to private sector development and foreign direct investment as it increases the cost of doing business, creates unfair competition, and generally discourages private sector investments or foreign direct investments. Despite these negative effects, the private sector has not been successful in eliminating or reducing corruption. Instead, the private sector plays a major role in the supply-side of corruption by financing corrupt transactions and generating opportunities for unlawful public procurement activities, the latter of which accounts for 70 per cent of corruption in the public sector (KIPPRA, 2021).

Low levels of transparency and accountability have been a characteristic feature among the Kenyan public institutions. This has had a detrimental effect on service delivery, loss of public funds and low levels of economic development. Various reforms and initiatives have taken place to restore transparency in public institutions, for example vetting of public officials, erecting large notice boards at institutional entrances declaring corruption-free zones, erecting corruption complaint boxes, identifying corruption risk related behaviours and even providing training sessions on corruption prevention. In addition, various laws are in place on financial management and the conduct of public officials towards corruption prevention.

According to the World Economic Forum's Global Competitiveness Index (GCI), corruption is the leading problematic factor for doing business in Kenya. The index measures the competitiveness of 137 economies by assessing institutions, policies and factors that determine levels of productivity. From the index, corruption is the leading problem for business in Kenya, both in score and rank, based on data spanning the last 10 years, inclusive of the most recent report (2017-2018). Between 2017 and 2018, corruption continued to be the most problematic factor for doing business with a percentage of 19.1 followed by 'access to financing' with a percentage share of 19.1 and 15.1, respectively. According to the findings (2017), other factors that were of importance in impeding business competitiveness are tax rates, inadequate supply of infrastructure, inflation, crime and theft and other factors as shown in Figure 11.5. The figures may discourage foreign direct investment or investment in projects or businesses in Kenya.

Figure 11.6: Global Competitive Index - Most problematic factors for doing business



Source: KIPPRA (2021) Study on Anti-Corruption Strategies

Further, a study by KIPPRA on County Business Environment for Micro and Small Enterprises in Kenya found that corruption, governance and security issues tend to increase the cost of doing business for Medium and Small Enterprises (MSEs) (Musamali et al., 2019). These and other factors also contribute to a good number of MSEs closing shop before their third anniversary in business.

The World Bank Enterprise Survey 2018 reveals that firms in Kenya were faced with side payments or informal gifts. The bribery incidence (the percentage of firms of whom payments or informal gifts were requested in at least one of six regulatory and utility transactions decreased from 26 per cent in 2013 to 23 per cent in 2018. Despite this positive trend, the bribery incidence is still higher in Kenya than globally (17%). The bribery depth index, the percentage of these six transactions involving a bribe request, is also higher in Kenya at 16 per cent compared to 13 per cent globally (World Bank, 2018).

In 2016, the Bribery Act was enacted and provides general bribery offences that include giving a bribe, receiving a bribe, bribery of foreign public officials and function and activities that relate to a bribe. The Act prescribes offences for both giving and receiving of bribes. It defines the offence of giving a bribe to mean if a person offers, promises or gives a financial or other advantage to another person, who knows or believes the acceptance of the financial or other advantage would itself constitute the improper performance of a relevant function or activity. It defines the offence of receiving a bribe as where a person requests, agrees to receive or receives a financial or other advantage intending that, in consequence, a relevant function or activity should be performed improperly whether by that person receiving the bribe or by another person; the recipient of the bribe requests for, agrees to receive or accepts a financial or other advantage and the request, agreement or acceptance itself constitutes the improper performance by the recipient of a bribe of a relevant function or activity in anticipation of or as a consequence of a person requesting for, agreeing to receive or accepting a financial or other advantage, a relevant function or activity is performed improperly by that person, or by another person at the recipients' request, assent or acquiescence. It does not matter if the recipient requests for, agrees to receive or receives or intends to request for, agree to receive or to accept the advantage directly or through a third party; or if the advantage is or is intended to be for the benefit of the recipient or another person.
The scope of persons towards who the Act and its provisions are directed to has been expanded compared to previous Acts. The Act applies to partnerships, private entities, private sector and extends to cover private persons and has a broad meaning of "advantage", which includes: money or any gift, loan, fee, reward, commission, valuable security or other property or interest in property of any description, whether movable or immovable; any office, employment or contract; any payment, release, discharge or liquidation of any loan, obligation or other liability whatsoever, whether in whole or in part; any other service, favour or advantage of any description whatsoever, including protection from any penalty or disability incurred or apprehended or from any action or proceedings of a disciplinary or penal nature, whether or not already instituted, and including the exercise or the forbearance from the exercise of any right or any official power or duty; any offer, undertaking or promise of any gratification, and, any facilitation payment made to expedite or secure performance by another person.

The Bribery Act places a duty on both public and private entities to put in place procedures appropriate to its size and the scale and to the nature of its operation, for the prevention of bribery and corruption. A private entity commits an offence if a person associated with it, bribes another person intending to obtain or retain business for the private entity; or advantage in the conduct of business by the private entity. Where an offence is committed by a director or senior officer of a private entity, such private entity shall be deemed to have committed the offence. Section 2 of the Bribery Act defines private entity to mean any person or organization, not being a public entity, and includes a voluntary organization, charitable organization, faith-based organization, religious-based organization, community-based organization, company, partnership, club and any other body or organization howsoever constituted, and includes a body which is incorporated under the laws of Kenya and which carries on business within or outside Kenya; any other body corporate however established which carries on business, or part of business, in Kenya; a charity, or organization established for charitable purposes under the law of Kenya or any other law; a partnership which is formed under the law of Kenya and which carries on business, within or outside Kenya; or any other partnership on a business, or part of a business, in Kenya.

Every State officer, public officer or any other person holding a position of authority in a public or private entity shall report to EACC within a period of twenty-four hours any knowledge or suspicion of instances of bribery. Failing to report the act to EACC within the specified period amounts to commission of an offence. Consent to bribery or connivance to allow bribes by a senior officer of the public, private or partnership entity, or a person purporting to act in such a capacity creates a bribery offence where both the officer and the body corporate or partnership are liable for prosecution. The above offences are constituted even if only an attempt to bribe is made; both the offer of a bribe and the solicitation of a bribe are punishable. These offences concern, first and foremost, the individuals involved - but a body corporate may also be targeted if the offence was committed by the “controlling mind” of the corporate entity. In that latter case, its directors and senior officers may also be prosecuted if their consent or connivance to the bribe is proved.

Nonetheless, there is still weak oversight and surveillance mechanisms for corruption occurring within private entities.

11.3.3 Outcome of corruption-related reports

The cases that are reported to EACC for review and investigation undergo an analysis by EACC for recommendation on the action to be taken. These are recommendations for prosecution, administrative action, or closure. Thereafter, those recommended for prosecution are forwarded to ODPP, which provides the final determination on cases that should proceed for prosecution and filed in the courts for adjudication.

The Kenya Economic Survey (2021) reported that there was a decline in all the offences reported in Kenya, with the exception of corruption and other offences, which increased by 2.3 per cent in 2020. The number of reports forwarded by the Ethics and Anti-Corruption Commission (EACC) to the Office of Director of Public Prosecutions (ODPP) for investigations decreased by 36.2 per cent to 2,221 in year 2019/20. There were 163 files in 2019/20 forwarded by the EACC to the ODPP with recommendation to prosecute, representing 30.3 per cent decline, and out of which 41 files were accepted. Also, during the same period, ODPP accepted 20 files that were recommended for closure while 56 files were returned to the EACC for further investigations. The proportion of reports awaiting action by the Director of Public Prosecutions (DPP) decreased from 21.8 per cent in 2018/19 to 17.8 per cent in 2019/20 (KNBS, 2021).

The EACC traced public assets worth Ksh 25.3 billion and recovered others worth Ksh 12.1 billion in 2019/2020, compared to assets worth Ksh 2.7 billion traced and Ksh 4.5 billion recovered in 2018/19. The Commission averted loss of assets worth Ksh 10.0 billion in 2019/20 compared to Ksh 14.5 billion the previous year (KNBS, 2021). Table 11.6 presents the number of reports investigated by the EACC, status and outcomes of the investigation for the period 2015/16 to 2019/20. The total number of reports for investigation decreased by 36.2 per cent from 3,482 in 2018/19 to 2,221 in 2019/20. Similarly, reports referred to public organizations for appropriate action reduced from 921 in 2018/19 to 448 in 2019/20, while complainants who were advised on where to channel their grievances decreased from 3,803 to 2,308 over the same period. Reports whose investigations were completed and forwarded to the ODPP declined by 30.3 per cent from 234 to in 2018/19 to 163 in 2019/20 due partly due to change of focus by the commission to prioritize cases that were more complex and take a longer time to finalize in terms of investigations.

Table 11.4 Reports handled by EACC and action taken 2015/16-2019/20

	Action Taken	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
1.	Reports for investigation	3,856	3,735	2,898	3,482	2,221
2.	Reports referred to public organizations **Aggregate of categories "Reports referred to other investigative agencies" and "Reports referred to public service organizations for administrative intervention" in previous reports.**	848	736	493	921	448
3.	Reports pending more information	55	64	86	226	125
4.	Complainants advised where to report Aggregate of categories "Complainants advised on the right authority to report to" and "Complainants advised to s eek civil redress" in previous reports.	2,616	3,045	2,207	3,803	2,308
5.	Reports with no further action (terminated)	542	575	527	876	814
6.	Reports forwarded to ODPP	167	143	183	234	163

Source: Kenya National Bureau of Statistics (2021)

While there are several reports that EACC investigates, only a few are forwarded to ODPP for review while a significant number of complainants are advised on correct channels to report or referred to other public organizations. This indicates that although the EACC's mandate and functions in relation to corruption are broad, given the wide nature of corruption (including abuse of office), majority of reports may not amount to serious fraud crimes. There may be need to distinguish between the approach to administrative malfeasance and serious fraud crimes to reduce wastage of EACC resources, which may be directed towards matters that could be handled through other channels or by other public agencies.

This also indicates the likelihood of jurisdictional overlap or lack of clarity on mandates between complimentary institutions with a relevant role along the continuum of actions, offences or omissions that comprise corruption related offences and economic crime. Such obscurity in the scope of mandates could occur within institutions such as EACC, Commission on Administrative Justice, Inspectorate of State Corporations, Public Service Commission, Judicial Service Commission or Asset Recovery Agency. This could contribute to lengthy investigation processes. Offenders could also take advantage of the lack of clarity, perceived overlap and discordance on jurisdiction and mandates of these institutions to lengthen, frustrate or delay investigation or judicial processes by raising matters of procedural technicalities. The inadequate linkages among key and complimentary anti-corruption institutions also undermine the efforts towards a resolute fight against corruption.

The scope of functions to be performed by EACC is too wide in nature, which results in the spread and disperse of EACC's efforts and resources across a broad range of activities, such as on administrative and unethical malpractices (which may also fall under other public agencies) as opposed to serious fraud and economic crimes. There is also inadequate linkages among institutions to overcome these duplicative efforts.

The challenges and successes in prosecution of corruption cases include lengthy process in conducting investigations and the often complex, multi-layered and multi-faceted nature of corruption cases. Further, this has been hampered by jurisdictional conflict, non-cohesion, inadequate coordination and insufficient information

exchange between the key institutions in the fight against corruption, particularly at the investigation and prosecution stages. Nonetheless, there have been successes in terms of asset recovery and criminal prosecution, judgment and sentencing.

11.4 Corruption as a Risk in Building Resilience

It is sometimes argued that corruption has useful aspects, such as assisting in capital formation, fostering entrepreneurial abilities and allowing businesses to overcome administrative bureaucracies that are lengthy, slow and time consuming (Theobald, 1990). From recent studies, however, the overwhelming evidence suggests that the impact of the various forms of corruption is largely negative, and is a major obstacle to economic development (World Bank, 2001). Similarly, there is evidence that while corruption is a feature of all societies to varying degrees, countries with high levels of corruption usually experience poor economic performance, and the continual presence of corruption has a particularly devastating impact on the development progress, and good governance structures of developing countries (World Bank, 2001).

It is, therefore, clear that corruption has a direct and indirect adverse effect on a country's level of development. Theobald (1990) outlines some of the ways in which corruption hinders the development of a country, including that corruption reduces domestic investment and discourages foreign direct investment; diminishes investor confidence; leads to diversion of public funds from provision of public services to private use or for personal gain; and it raises the costs of doing business. As such, it stifles entrepreneurship, and it can also affect the competitiveness of businesses. Similarly, corruption reduces administrative performance, capacity and efficiency, results in the misuse of scarce public resources, diverts government spending from critical public services in education, health and infrastructure projects towards less efficient or impactful activities and shifts government priorities (Osei, 2011). Corruption also undermines revenue collection capacity.

The consequences of corruption as seen by Department for International Development (DfID, 1997) include: an immediate impact on the poor due to higher prices of goods and services and fewer employment opportunities due to the distortions that corruption can cause, while corrupt officials may demand payment for public services which ought to be free; the diversion of scarce public resources away from social and economic development into unproductive expenditure or into the repayment of public debts accumulated because of corrupt activities, and the loss of government revenues; the uncertainty and unpredictability of the investment climate to potential investors; and the indirect political impact that reduces poor people's representation as elites cling to power to exploit opportunities for corruption.

Corruption skews the composition of public expenditure and budgetary allocations away from key sectors such as health and education towards other public projects from which rents can be extracted with relative ease. Also, corruption may reduce tax revenue as it compromises a government's ability to collect taxes and other revenue sources. Further, such sources of revenue are equally susceptible to embezzlement, thus making the tax net porous. In addition, where revenue collection officers are engaged in corruption and other forms of fraud, this undermines the revenue collection system.
The risks posed by corruption in building resilience also include misuse of public funds, risks of budgeted corruption and shifting of government priorities to self-serving interests. In addition, corruption is a threat to security, rule of law and foreign investment as it undermines investor confidence, thereby discouraging investment in an environment marred by abuse of power, bid rigging, flouting of public procurement and public finance laws, and disregard for rule of law. In Kenya, this features prominently in misuse of public funds and irregular procurement of goods and services by the public.

Corruption also exists within and emanates from private sector. Some initiatives by the private sector include a training programme to address the supply-side of corruption, developed in collaboration with the Centre for International Private Enterprises (CIPE), Kenya Association of Manufacturers (KAM), and Global Compact Network Kenya (GCNK), where KAM serves as the secretariat. The training is based on CIPE's "Anti-Corruption Compliance: A Guide for Mid-Sized Companies in Emerging Markets."

11.5 Key Messages

It is evident from the various large scale, publicly reported corruption incidents and from various reports that corruption poses significant risks in development of various sectors of the economy, and thus can derail initiatives to bolster resilience of the Kenyan economy. Corruption has led to massive loss of public funds, inaccessibility of public funds and diversion of funds allocated for public projects, programmes and activities to personal use and gain.

1. Corruption is a major hindrance towards sustainable development and can derail the realization of programmes and activities aimed at building resilience. Given the extent of pervasiveness and deep-rooted corruption in Kenya (besides other elements of governance), it is a huge threat to any interventions that may be proposed or pursued to build resilience.

2. Poor control of corruption has been one of the main challenges in the development and resilience in various sectors of the Kenyan economy. This has been through excessive loss of public funds and resources intended for public use diverted to personal use and gains.

3. Corruption has been identified in various reports as the leading problematic factor for doing business in Kenya, thereby undermining private sector development and creating uncertainty and diminishing investors' confidence.

4. Anti-corruption institutions have faced challenges due to silo approaches, insufficient corruption prevention mechanisms, overlaps of institutional mandates and private sector overlooking anti-corruption measures to impose in their organizations.

5. Control of corruption in Kenya is instrumental in enabling and supporting initiatives to build resilience.

11.6 Recommendations

1. Given the potential of asset recovery, EACC could strengthen the asset recovery strategies related to corruption, bolster inter-agency collaboration, and create partnerships among anti-corruption institutions. Monitoring and evaluation of repatriated proceeds and assets is key to ensure the institutions have applied these funds for public use.

2. Establish an information exchange partnership between EACC, ARA and relevant complementary institutions such as Financial Reporting Centre, Commission on Administrative Justice, Inspectorate of State Corporations and Public Service Commission to support anti-corruption initiatives.

3. Promote the institutionalization of and investment in corruption prevention strategies, such as system reviews within both public and private sector institutions.

4. Re-engineer EACC resources to cases of serious fraud and economic crimes as opposed to cases that need administrative action and can be handled by existing oversight institutions.

5. Adopt and invest in social accountability mechanisms spearheaded and supported by citizens and local communities to hold public officials accountable at both levels of government through monitoring and reporting.

12

CONCLUSIONS AND POLICY RECOMMENDATIONS

Socio-economic development in Kenya is prone to exposures and vulnerabilities to various shocks and stressors at the households, firms and macroeconomic levels. The exposures and vulnerabilities are related to various hazards, some emanating from domestic economy and others from external markets due to linkages of the economy through trade, investments, business value chains and diaspora remittances. Using sectoral and macroeconomic performance analysis, the following are the conclusions and recommendations.

12.1 Conclusions

1. **Macroeconomic Performance and Medium-Term Prospects:** Kenya's economy remained resilient in 2021, emerging from the 2020 COVID-19 recession with output growth above the pre-pandemic levels. After a sharp contraction of 0.3 per cent in 2020, the economy rebounded strongly to grow at 7.5 per cent in 2021. The resilience of the agriculture sector exhibited in 2020 was threatened by the below average precipitation experienced in the country, leading to a contraction of 0.2 per cent. Notwithstanding, the enhanced COVID-19 mass vaccination and the easing of containment measures bolstered growth in contact-sensitive services sector, and industry. High frequency data from Purchasing Managers Index (PMI) showed rebound in business confidence and improvements in consumer demand.

2. The monetary accommodation advanced by the Central Bank supported the recovery process. Overall inflation remained within the government target band, but higher than 2020 prices at the backdrop of high international oil and commodity prices, and drought conditions experienced across the country. Interest rates remained stable while the maintenance of the policy rate at 7.0 per cent and cash reserve ratio at 4.25 per cent supported liquidity in the market. Exchange rate depreciation reflected developments in the international market, and with the IMF disbursements, foreign reserves remained within the statutory requirement.

3. Public finances showed strong recovery, with revenue exceeding targets following the reversal of COVID-19 tax measures and the reopening of the economy that boosted business activities. In the first half of fiscal year 2021/2022, total revenue inclusive of external grants amounted to Ksh 1,044.1 billion against a target of Ksh 1,015.5 billion, reflecting an over-achievement of Ksh 26.8 billion and a growth of 27.5 per cent compared to the same period in fiscal year 2020/21. PAYE, VAT imports and excise duty recorded the highest growth supported by economic recovery. Fiscal deficit is projected at 7.5 per cent of GDP in 2021/22 compared to 2020/21 when the deficit widened to 8.4 per cent of GDP. On the external position, current account deficit widened; however, diaspora remittances and secondary income from international travel continued to strengthen the external position.

4. The economy is projected to grow by 5.8 per cent in 2022 and, on average, 5.3 per cent in the medium-term, supported by a rebound in consumption and envisaged recovery in all sectors of the economy, save for agriculture. Notably, the agriculture sector is estimated to grow by 2.3 per cent in 2022 compared to a contraction of 0.2 per cent registered in 2021 caused by the drought experienced in the country. In the medium-term, the sector is envisaged to grow at an average of 3.0 per cent on assumption of improved weather conditions. Continued support of the health sector remains vital to consolidation of gains in the fight against the pandemic and to strengthen the health system. Looking ahead, the country faces downside risks, including uncertainty of the COVID-19 pandemic, weather-related shocks, political uncertainty with the August 2022 general elections, and a surge in commodity prices worsened by the Russia-Ukraine crisis. Nevertheless, the country is leveraging on mass vaccination drive, lifting of containment measures and digitalization to sustain economic recovery.

5. **The manufacturing sector** supports inclusive development by creating direct and indirect employment opportunities through backward and forward linkages with sectors such as agriculture, livestock, extractives, and trade. The sector accounts for 47.7 per cent and 54.7 per cent of the formal industrial GDP and employment, respectively. Between 2017 and 2021, manufacturing sector contribution to GDP declined by 1.1 percentage points while the contribution to the industrial sector GDP declined by 2.6 percentage points. Within the informal industrial activities, manufacturing accounts for 95.5 per cent of enterprises, 96.2 per cent of jobs and 75.4 per cent of gross value added. Manufacturing recorded a contraction of 0.1 per cent in 2020 owing to the adverse impacts of COVID-19, but it showed a sustained recovery in 2021, recording a growth rate of 6.9 per cent in 2021. Experiences from COVID-19 reveals that save for manufacture of food products that is a low technology activity and a basic need, other activities that were either resilient or showed positive transformation are the manufacture of chemical products, pharmaceuticals, optical and electronic equipment, which largely fall within medium and high technology manufacturing.

6. Manufacturing in Kenya is concentrated in low technology activities that are labour intensive and vulnerable to shocks with limited contribution to GDP and export

earnings. The realization of the Kenya Vision 2030 flagship programmes are constrained by limited budgetary allocations, while policy targets such as access to local and export markets are constrained by weak competitiveness. The classification of the EAC market as part of the domestic market further implies that firms operating in EPZs limit their exports to this regional market to only 20 per cent of their annual sales. The COVID-19 pandemic has exposed latent opportunities for exploitation, particularly within the manufacture of pharmaceuticals, medical ventilators, chemicals (hand sanitisers) and textiles and apparel with regard to the manufacture of Personal Protective Equipment (PPEs). Manufacturing faces negative shocks that include droughts, election-cycles, global recessions, surge in oil prices, and Kenya shilling depreciation; and positive shocks arising from rainfall abundance that boosts agricultural production, and policy reforms that catalyze private sector development. The resilience of manufacturing is compromised by the large share of MSEs mostly operating in the informal sector, dominance of low technology manufacturing, weak innovation ecosystem and technology adoption; and other aspects such as deficits of skills for technological upgrading, appropriate financing, and quality infrastructure, particularly among the MSEs.

7. **The Trade sector** is a key pillar in building resilience of the economy. The COVID-19 has negatively affected the global economy, thus pulling back on the role of trade in economic growth. The effect of COVID-19 has varied on the global stage, with decline in trade revenue as countries implemented health containment measures. In Kenya, the COVID-19 effects narrowed by March 2022 compared to March 2020 when the first case was reported. This has been driven by an uptake in vaccination rates. However, more effort is required to ensure full recovery of trade activities. This is evident with reduction in export revenues in 2020 and the erratic recovery of the trade sector in 2021. The findings show that the trade sector is sensitive to negative shocks that reduce trade activities.

8. In the 2020-2021 period of COVID-19, retail and wholesale trade contribution to GDP reduced by 0.3 per cent. During the same period, exports and imports reduced. The effect was heterogeneous across markets and products. The EAC market and cash crops such as tea, coffee and horticulture remained resilient relative to other markets and products. For example, tea, coffee and horticulture sub-sectors stabilized trade revenue during the period of increased COVID-19 infections, increasing from Ksh 22.2 billion in 2020 to Ksh 24.3 billion in 2021. This notwithstanding, 72 per cent of countries under the AfCFTA framework did not receive Kenyan exports for the period 2016-2020, although Kenya imported from them, thus corroborating the existing product concentration and limited services sector products to improve trade revenues. Moreover, the existing trade agreements have positively influenced trade revenue over the years with a favourable 60 per cent trade balance.

9. The services sector remains unexploited, with concentration in transports services. Furthermore, e-commerce remains a key driver to improving domestic trade through mobile money transactions. Between March 2020 and March 2021, the number of active Lipa na M-Pesa transactions and active merchant tills increased by 43 per cent and 75 per cent, respectively. Similarly, the e-commerce supported by mobile money transactions is estimated to be Ksh 120 billion, with business to business (B2B) and business to customer (B2C) accounting for 53 per cent and 24 per cent, respectively, of the total market share for the period 2019-2021.

10. **The Livestock sub-sector** plays a significant role in steering growth of the agricultural sector in Kenya and serves as a cornerstone for millions of livelihoods particularly in ASALs. The potential of the industry in ASALs is, however, curtailed by recurrent shocks and stressors in the form of extreme weather hazards, desert locust invasions and livestock diseases, conflicts/insecurity, and economic shocks. The shocks and stressors facing the production systems are complex as they rarely occur as independent events. Extreme weather conditions are identified as a threat multiplier either acting as a driver to other disturbances or magnifying their effects. The frequency, intensity and complexity of shocks and stressors in the fragile ASALs ecosystems are likely to increase with climate variability and change as highlighted in the sixth assessment report of the Intergovernmental Panel on Climate Change (IPCC). While there has been significant response action to mitigate the effects of shocks and stressors in ASALs ecosystems, there are gaps in the preventive, anticipative, absorptive, adaptive, and transformative capacities of

ASAL communities to deal with changing circumstances. This calls for approaches to improve the economic, social and ecological resilience of ASAL communities to deal with changing circumstances, as opposed to only focusing on the costly emergency response and relief strategies. As such, there is need to sustainably enhance economic returns (economic resilience), social inclusiveness, cohesion, and protection (social resilience) and sustainable management of the fragile ecosystems (ecological resilience) for a more robust and resilient pastoral system to shocks and stressors. The key lessons from Botswana's livestock value chain highlights the opportunities in: capacity building of farmers and extension workers; agribusiness promotion and strategies for strengthening food safety; enhanced partnerships; knowledge-driven development driven by quality data; input subsidization during disasters and increased fodder production in higher rainfall areas; strengthening livestock producers' associations/cooperatives; access to veterinary services that are effective in terms of traceability and compliance with market requirements; and access to adequate finance through Public-Private Partnerships(PPPs).

11. **The digital economy** sub-sector has seen the spread of Internet and the emergence of digital technologies in an interconnected youthful world, which has given rise to the conceptualization of a digital economy. The digital economy is not only important to economic growth and development but is also an important factor in building a resilient economy. Kenya has made significant progress on key digital economy indicators, which strengthens its capability to build social and economic resilience. This is evident given its ranking and recognition. The key areas globally where Kenya has recorded good performance include digital accessibility for persons with disabilities, the number of Internet users, mobile money use, cyber security, and artificial intelligence readiness.

12. However, there are still several areas where Kenya needs to improve in terms of transforming into a digital economy. These include: limitations in interoperability of government information systems, low e-commerce penetration especially on the household end, the geographical digital divide where households in certain parts of the country lack access to Internet, and inadequacy in intermediate and advanced digital skills among the population.

13. **Science, technology and innovation (ST&I)** supports building resilient knowledge-based economies through anticipation and smart preparedness for future shocks/stressors; and enhanced agility and responsiveness to shocks/stressors to lessen adverse impacts. Though there are efforts to develop necessary skills, is a huge gap in STEM-related skills, especially those necessary for anticipation and smart preparedness in the event of shocks/stressors. Although Kenya has made significant progress in developing infrastructure for ST&I, the country experiences challenges linked to inadequate resources to acquire, develop, and maintain infrastructure. Further, limited funding coupled by inadequate framework hampers innovators and innovation centres in nurturing and scaling up of innovations. This, coupled with limited R&D funding from the private sector and weak academia-industry linkages, limits innovations in the country and hence hampers resilience. Lack of sufficient and up to date data on activities of ST&I is also a bottleneck to enhancing resilience.

14. **The creative economy** presents opportunities that can promote inclusion and sustainability. Creative industries are, however, faced with vulnerabilities and risks that limit this potential. The risks, particularly infrastructural risks, finance risks and capacity and business risks can be mitigated through appropriate policy interventions and investments by the National government, County governments and private sector. If well targeted and implemented, these interventions and investments will contribute to robust creative economy industries that are able to provide employment opportunities, promote social cohesion and contribute to the country's overall economic growth.

15. **National Values** are generally acceptable qualities, standards, or ideals shared by members of the same nation or country and have a dynamic relationship with economic performance and resilience. Values are important for development and resilience as recognized in global, regional, and domestic frameworks, including the Sustainable Development Goals, the African Union Agenda 2063, and Sessional Paper No. 8 of 2013 on National Values and Principles of Governance.

16. However, the inculcation of values remains a challenge in Kenya despite the government's interventions since independence. Some of the challenges can be linked to: inadequate

monitoring and evaluation, inadequate coordination across MCDAs, inadequate role modelling, weak transformational leadership, non-compliance with policy, legal and institutional provisions, a failure to apply the sanction system, and poor socio-economic status. Some of the initiatives to inculcate values were difficult to sustain due to the sharp contrast between the initiatives and the country's socio-economic and political development, and inadequate role modelling from the top leadership.

17. **Corruption** forms a key factor in the governance structure, and is therefore critical in building resilience. Corruption has led to massive loss of public funds, misappropriation and inaccessibility of public resources and diversion of funds allocated for public projects, programmes and activities to personal use and gain. Corruption has been identified in various reports as the leading problematic factor for doing business in Kenya, which hinders exploitation of the potential of private sector development and foreign direct investments. Anti-corruption institutions have faced challenges due to silo approaches, insufficient corruption prevention mechanisms, lengthy investigation and prosecution procedures of corruption cases, the complex nature of corruption cases which are interlinked with other predicate offences, jurisdictional conflicts, insufficient awareness by the public on different reporting channels in oversight institutions, and limited private sector involvement. Implementation of EACC key functions in anti-corruption, fraud and economic crimes are curtailed by the spread of its efforts and resources to administrative, governance and value-related functions. Though these are interlinked, there is an array of oversight institutions whose mandate allows them to perform these functions. Nonetheless, there have been some successes in terms of asset tracing, aversion, and recovery and criminal prosecution, judgment and sentencing, which should continue to be harnessed and sustained.

12.2 Policy Recommendations

In promoting resilience at sectoral and macroeconomic levels in Kenya, the following recommendations are suggested:

Build resilience by enhancing macroeconomic stability with growth-oriented demand management policies

1. Implement a growth-oriented fiscal policy with targeted fiscal support to the services sector and industry to accelerate the recovery; provide adequate budget allocation to sustain growth in the agriculture sector, as a critical source of growth for Kenya.

2. Expand irrigated agriculture to enhance sustainable agricultural production. This will serve to mute imported inflationary pressures that arise from importation commodities such as sugar, wheat, maize, and other cereals that can potentially and adequately be produced locally. Intensify productivity of existing irrigation schemes to reduce over-reliance on rain-fed agriculture.

3. Given that revenue above target emanated from the existing tax base, stepping up revenue collection through tax base widening is critical for revenue enhancement. Moreover, spending efficiency at both national and county level and strict adherence to medium-term fiscal consolidation plan will play a fundamental role in de-escalating fiscal deficit risks and public debt distress risks.

4. Furtherance of monetary accommodation remains vital to ensure that inflation expectations are well anchored, and support the ongoing recovery. Further, retention of the 4.25 per cent cash reserve ratio will continue to ensure adequate overall liquidity in the market.

5. Scaling up credit supply to the private sector by fast-tracking a system-wide implementation of risk-based pricing will enhance conversion of the adequate liquidity into credit to support the ongoing economic recovery.

6. Lower costs related to remittance inflows while supporting international travel through enhanced adherence to Ministry of Health and WHO guidelines on COVID-19. Diversification of export destinations will also play a critical role in narrowing the trade balance. This will abate the widening current account deficit and secure external stability.

To build resilience in the manufacturing sector

7. Incentivize manufacturing diversification into medium and high technology activities through fiscal incentives and financing of R&D investments. The private sector can contribute to financing of R&D, leveraging on the second schedule of the Income Tax Act Cap. 470 that provides for tax deductibility of expenditures on scientific research and

contributions to universities and research institutes that undertake scientific research related to the line business.

8. 8.Facilitate access to markets through enhanced competitiveness and market diversification outside the EAC market. Besides eroded competitiveness, exports to the EAC market are constrained by the Customs Union Protocol that categorizes this regional market as part of the domestic market, thereby limiting exports by EPZ firms to 20 per cent of their annual sales.

9. Promote measures for supporting accelerated innovation under shocks and stressors. This can be achieved through incentives such as sustainable markets through public procurement preferences, export markets promotion, and fiscal incentives to compensate investors for risks assumed investing in innovation within frontier manufacturing, such as pharmaceuticals.

10. Mainstream within manufacturing policy documents measures for building resilience to the identified shocks and stressors, including droughts, global economic shocks linked to oil prices, economic downturns, exchange rate risks and supply chain disruptions. The key issues for consideration include risk reduction and mitigation plans, and mechanisms for early identification of hazards. Given that MSEs are disproportionately affected by shocks and stressors, it is imperative to fast-track implementation of the Sessional Paper No. 5 of 2020 on MSEs Policy, which provides for measures such as skills upgrading, infrastructure, financing, technology and innovation essential for building resilience.

11. Support adoption of industry 4.0 such as through supportive infrastructure and skills development, particularly those related to Science, Technology, Engineering and Mathematics (STEM) courses. Measures to promote financing of transition to industry 4.0 such as Internet of Things (IoT), artificial intelligence (AI), advanced robotics, and big data analytics are also imperative. A gradual shift to industry 4.0 through these supportive measures would help a gradual shift for overcoming incompatibility between the old and new technology.

To strengthen trade and build resilience of the economy

12. The National Trade Policy (NTP) of 2016 needs to be reviewed to enhance market and product diversification. The review could capture the trade dynamics by aligning with AfCFTA framework and other trade agreements that are entered into. This will mitigate Kenya's exports and imports to global shocks such as the COVID-19. The revision of the NTP will scale up market access under AfCFTA framework to countries such as Cape Verde, Tunisia and regional blocs (CEMAC and WAEMU).

13. Map out all the products exported to and imported from African countries to increase trade performance. The current export to only 28 per cent of African countries signals existence of a huge market that has potential to enhance trade revenue. The mapping out of these products will help improve export promotion strategies in Africa for Kenya. This can be achieved through collaboration of the Ministry of Industrialization, Trade and Enterprise Development and agencies such as the Export Promotion Council, Kenya Association of Manufacturers and the private sector to develop export promotion strategies.

14. The stability of the East Africa Community is important for Kenya's trade revenue as it is the key market in the region. Kenya needs to continuously collaborate with member countries to maintain regional stability. To take advantage of the EAC peace and stability, Kenya needs to improve the quality of exports to the region to enhance product competitiveness. This will scale up support of the manufacturing, service, and agricultural sectors.

15. Deepen information on products that utilize Customer to Government (C2G) and Customer to Business (C2B) mobile money services to support e-commerce. This can be achieved through mapping of government services and ministries that use online services and providing this information to all M-Pesa outlets and government offices. This will help boost efficiency and scale up domestic trade.

16. Pursue free trade agreements with focus on products that offer Kenya high returns for exports and imports. This can be achieved by identifying existing trade agreements and mapping current products to ensure

increased utilization of the liberalized tariff lines. There is also need for consideration of uncertainties during negotiations of future trade agreements, as this will ensure resilience of exports and imports during periods of negative shocks.

17. It is also important for the Government of Kenya in collaboration with the private sector to set up a development fund that advances financial support to traders in agriculture and services sectors at affordable interest rate relative to the market rate. The financial support provided to these two sectors will improve the quality and competitiveness of goods and services.

To enhance resilience and sustainability of the livestock industry

18. Enhance rural development of ASALs, where processes integrate both economic and social activities to include development of well-equipped local processing centres; mobile service delivery programmes, water and market infrastructure; livestock trekking/ migratory corridors; and grazing reserves.

19. Explore climate smart measures in livestock production systems such as the silvopastoral system, which entails intensification of livestock production based on sustainable natural processes. Climate smart approaches present an opportunity to respond to climate change and sustainable utilization of ASALs.

20. Explore partnerships for investments and adequate funding for successful implementation of livestock industry strategies. This includes enhancing private sector involvement in the development of the livestock industry in Kenya.

21. Enhance efficient and effective data management systems to support planning, decision-making, monitoring and evaluation for resource control. The livestock industry in the country needs to be supported by quality data throughout the livestock value chain. The data needs to be centralized and linked to disaster management systems.

22. Enhance economic and social resilience of ASAL livelihoods by integrating pastoralists in livestock value chains and commercial undertakings, and build their capacities to improve the quality of livestock and livestock products and implement the various strategies and programmes currently being developed.

23. Actors in livestock production systems are encouraged to diverse their livelihoods in sustainable programmes, and participate in the diverse livestock products value chains. Diversifying livelihoods is one of the key strategies in promoting resilience in ASALs.

24. Expand/diversify market opportunities from business-as-usual approaches to improve market flexibility, predictability and help reduce production losses in times of shocks as experienced with the COVID-19 pandemic. This can be achieved through linking livestock farmers to local, regional, and international livestock value chains.

25. Engage in cultural heritage activities to minimize social polarization that can escalate intercommunal conflicts between pastoral communities or between pastoral and non-pastoral communities.

26. Enhance access to support services to include adequate extension services and significant affordable livestock credit and insurance through partnerships. This can be achieved effectively and efficiently by strengthening the livestock producer organizations in ASALs for more organized service delivery.

To build resilience through the digital economy

27. To address the issue of interoperability of government information systems, the government will review and develop a framework for legal, technical, organizational and semantic layers of interoperability.

28. ICT infrastructure is exposed to vulnerabilities that affect availability and reliability during disaster. The government could develop and implement a National ICT emergency and contingency plan to build resilience

29. To address the issue of low e-commerce penetration, digital business could focus on increasing the B2C segment by building the e-commerce capability on the customer (household side) and enhance reach and last mile connectivity in the e-commerce value chain.

30. The digital divide could be addressed through implementation of programmes and projects to increase connectivity in underserved areas and measures to address affordability of broadband services and devices. This requires partnerships with the private sector and exploration of technologies to serve remote areas and renewable energy solutions

31. To enhance growth and entrenchment of digital skills across the country, existing programmes in the education sector such as digital literacy programme, KICD e-cloud among others need to be enhanced and reviewed for effectiveness for those in basic and higher education. For adult population in the formal and informal sector, targeted digital skills' development programmes need to be enhanced for basic, intermediate and advanced skills. Multi stakeholder collaboration will be applied, and a funding mechanism provided to build a critical mass of ICT experts with advanced digital skills.

32. To foster the growth and development of innovation-driven entrepreneurship, there is need to build advanced digital skills of entrepreneurs and provide a dynamic policy and regulatory environment responsive to the rapidly changing global technologies to ensure global competitiveness.

To leverage on ST&I and build a resilient knowledge-based economy

33. Promote Public Private Partnerships to invest in infrastructure and in skills development. There is need to complement government investments in infrastructure particularly in space, biotechnology and nanotechnology while skills development for anticipation and smart preparedness mainly relating on environmental shocks/stressors need to be prioritized. This calls for bringing the private sector on board to participate from the onset to the execution of the targeted projects. This can be done through public private partnerships in terms of financing, construction, development, operations and maintenance of such ST&I projects. To attract the private sector participation in such projects, there is need to create awareness and sensitization.

34. Develop and implement collaborative innovation frameworks for identifying, nurturing and scaling up various categories of innovations by involving all the key stakeholders, including innovators, government, industries and development partners. The developed framework needs to create an enabling ecosystem to support identification, nurturing and scaling up of innovations for smart and preparedness for shocks/stressors events by establishing accelerator programmes across counties.

35. Fast-track development of policy framework for adoption of emerging technologies and standards. The emerging technologies including Artificial Intelligence, Blockchain, Fifth Generation technology (5G), Internet of Things (IoT), Fourth Industrial Revolution (4IR) and Industry 4.0 technologies are critical in building economic resilience, hence the need to entrench them into the policy framework. Also, adopting the best practices and domesticating standards will guide the application of the emerging technologies and, therefore, enhance economic resilience.

36. Fast-track full development and implementation of National ST&I policy. The efforts to put in place a national ST&I policy started in 2014. The policy will guide the development of ST&I sector in Kenya. The envisioned policy will be critical for development of the ST&I sector, including coordination of ST&I activities and programmes necessary for building the economic resilience in the country.

To entrench resilience in the creative economy

37. Promote creative skills and capacity at three levels: At the school level by mainstreaming creativity in school-based and county extra-curriculum activities, and inter-school festivals and awards and strengthening institutes for higher learning to provide relevant capacity building programmes to address the capacity gaps within Kenya's creative ecosystem. This calls for enhanced policy and resource support and establishment of special programmes and schools for nurturing talent. This will further strengthen the mechanism for identification and nurturing of talent. The second level is among the youth, focusing on enhancing capacity on intellectual property (IP) and monetizing the creative products. The third level is through promotion of capacity building programmes that nurture creative industries, thus investing in specialized schools and higher education programmes.

38. Develop sustainable creative industry infrastructure that allows the expression of creativity, enhance interactions and networks, and strengthen innovation capacities, which

can be achieved through investments and sufficient resource allocations. This further calls for the development of national creative infrastructure guidelines to ensure that creative infrastructure is designed to maximize on interconnected innovative interactive creative hubs, spaces, halls, or cities that can facilitate exchanges and dissemination in various forms. This guideline will also be beneficial to county governments as they revamp and establish critical cultural infrastructure. Continued investment by the government in digital infrastructure and technology that will facilitate the electronic exchanges in creative economy is also of paramount importance. Digital transition of creative content and promotion of e-commerce of creative products is an opportunity the country can explore, particularly with the fourth industrial revolution. This can be facilitated with provision of relevant skills and digital infrastructure. Accelerated implementation of the pillars of Kenya's Digital Economy Blueprint will contribute to closing the digital infrastructure divide.

39. Facilitate identification and promotion of appropriate innovative financial products for the creative economy players to meet the specific needs within the entire creative ecosystem. The government's continued interventions to promote financial inclusion, though credit guarantee scheme and IP-backed financing facilitated by the Movable Security Rights Act, 2017, need to therefore be aimed at creative economy products, which are often intangible, thereby needing flexible and innovative collateral requirements. Capacity building among players on valuing intangible assets is therefore of priority. The second approach to enhancing access to funds is through review of existing funds to cater to the specialized needs of the creative economy industry.

40. Promote the development and preservation of museums, cultural sites, cultural centres, theatres, and recreation facilities and facilitate and institutionalize cultural festivals at the national and county levels. This will empower and enhance social cohesion and inclusion. It requires identification and mapping of cultural and heritage assets and initiation and hastening of relevant policy and regulatory reforms such as the National Addressing System Policy and the Heritage and Museums Bill, 2021.

41. Through government support, creative industry associations can be strengthened to undertake and enhance industry interactions and linkages; to support market access through collaborations to benefit from economies of scale; and to facilitate skills and knowledge transfer and to lobby the government. Cultural cooperatives and societies further play an important role in building the capacity of members, particularly the vulnerable, especially the youth and women, in developing and marketing cultural products that are commercially viable. The capacity development of industry associations, cooperatives and societies can be achieved through sensitizations and training while empowerment through expansion of initiatives such as the Ushanga initiative and Ajira Digital.

42. Strengthen intellectual property rights, e-commerce policy and local content policy framework for the protection and promotion of domestic and international trade of creative goods through necessary reviews. Further, implement the policy, legal and institutional commitments that support the creative economy and strengthen the coordination of promotion and implementation of creative economy activities to enhance inter-ministerial and national-county coordination and collaboration, with clear functions. Government communication can further be intentional through policy to promote the utilization of creative products to disseminate government programmes, initiatives, and national values.

43. Enhance capacity in culture and creative industry data collection to inform policy and undertake a comprehensive survey on Kenya's cultural and creative industries. This calls for the development of sector statistics plan that will provide for a comprehensive survey on Kenya's cultural and creative industries.

National Values have a role to play in enhancing socio-economic resilience

44. Enhancing the role of the annual Presidential Report on measures taken and progress achieved in the realization of national values and principles of governance as a key monitoring tool for promoting and inculcating national values. This can be done by:

45. Incorporating use of specific indicators that track the progression of specific national values and principles of governance. This can be done by using several tools/indicators, including: use of baseline and follow-up surveys such as the indicators reported in the PSC Report on the Status of National Values and Principles of Governance in Kenya; and use of indexes (such as the national values index).

46. Incorporating the reporting of socio-economic indicators of well-being, such as indices for measuring poverty and inequality over time.

47. Setting up a clear feedback mechanism clearly outlining areas of improvement for each MCDA. This could be through a self-assessment among other mechanisms.

48. Enhance continuous improvements through periodic institutional analysis of actors in national values and principles of governance using predetermined frameworks.

49. Enhance the role of transformational leadership in inculcating national values through, among others: ensuring zero tolerance towards promotion of negative values, adhering strictly to the provisions of Chapter 6 of the Constitution on Leadership and Integrity, and applying the sanction and reward system more rigorously and promoting training on transformative leadership.

50. Promote and sustain economic growth with distribution to reduce poverty and inequalities – growth with equity is one of the overarching means of achieving some of the national values. It is also a necessary condition for sustaining positive national values.

Apart from these interventions, other important areas of intervention include:

51. Enhance the use of education programmes to promote patriotism, ethnic cohesion and shape positive cultural practices and values. This can be achieved by enhancing the use of the quota system of education to ensure maximum co-mingling.

Good governance is an enabling factor in building resilience

52. Given the potential of asset recovery, EACC could strengthen the asset recovery strategies related to corruption. This could be enhanced by bolstering inter-agency collaboration and creating partnerships among anti-corruption institutions. Monitoring and evaluation of repatriated proceeds and assets is key to ensuring the institutions have applied these funds for public use.

53. Establish an information exchange partnership between EACC, ARA and relevant complementary institutions such as Financial Reporting Centre, Commission on Administrative Justice, Inspectorate of State Corporations and Public Service Commission to support anti-corruption initiatives.

54. Promote the institutionalization of and investment in corruption prevention strategies such as system reviews within both public and private sector institutions.

55. Re-engineer EACC resources to cases of serious fraud and economic crimes as opposed to cases that need administrative action and can be handled by existing oversight institutions.

56. Adopt and invest in social accountability mechanisms spearheaded and supported by citizens and local communities to hold public officials accountable at both levels of government through monitoring and reporting.

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APPENDIX

Appendix A1: Constructed macroeconomic performance index

Year	MEP Score	Efficient	Year	MEP Score	Efficient
1991	0.912		2006	0.905	
1992	0.796		2007	1.000	Yes
1993	1.000	Yes	2008	0.802	
1994	1.000	Yes	2009	0.830	
1995	1.000	Yes	2010	1.000	Yes
1996	0.946		2011	0.889	
1997	0.868		2012	0.871	
1998	0.943		2013	0.881	
1999	1.000	Yes	2014	0.914	
2000	0.891		2015	0.959	
2001	0.907		2016	1.000	Yes
2002	0.849		2017	0.971	
2003	0.861		2018	1.000	Yes
2004	1.000	Yes	2019	0.939	
2005	1.000	Yes	2020	0.689	
			2021	1.000	Yes

Data source: Kenya National Bureau of Statistics (various), Economic Surveys and Statistical Abstracts

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