



# KENYA NATIONAL BIOECONOMY STRATEGY

2026-2036



Government of Kenya. 2026 *Kenya National Bioeconomy Strategy 2026–2036*. Office of the Prime Cabinet Secretary.

**Copyright © 2026 Government of Kenya**

Reproduction of this publication for educational, research or other non-commercial purposes is authorised without prior written permission from the copyright holder, provided that the source is fully acknowledged. Reproduction of this publication for resale or other commercial purposes is prohibited without the prior written permission of the copyright holder.

**To obtain copies of this publication, please contact:**

**The Principal Secretary**  
**State Department for Science, Research and Innovation**  
**Office of the Prime Cabinet Secretary**

Kenya Railways, Block A  
Haile Selassie Avenue  
P.O. Box 30551–00100  
Nairobi, Kenya

**Telephone:** +254 (0)20 2214482

**Website:** [www.sri.go.ke](http://www.sri.go.ke)

**Email:** [info@sri.go.ke](mailto:info@sri.go.ke)

## FOREWORD



Kenya's future prosperity will increasingly depend on our ability to harness science, technology and innovation, as well as our rich biological resources, to drive sustainable economic transformation. As the world transitions towards greener and knowledge-based economies, the bioeconomy presents an important opportunity to create jobs, strengthen food and nutrition security, enhance climate resilience, promote environmental sustainability and improve livelihoods. Kenya is endowed with exceptional biodiversity, diverse ecosystems, extensive agricultural, livestock, marine and freshwater resources, and a growing science, technology and innovation

ecosystem. Together with our entrepreneurial capacity and strategic position within East Africa and the wider African market, these assets provide a strong foundation for building a competitive, inclusive and sustainable bioeconomy.

The Kenya National Bioeconomy Strategy (2026–2036) provides a coordinated national framework for realising this potential. It seeks to sustainably harness our biological resources and scientific capabilities to strengthen research and innovation, increase value addition, develop competitive bio-based industries and enterprises, mobilise investment and expand market opportunities. In doing so, Kenya can progressively move beyond primary production towards higher-value products, technologies, manufacturing and knowledge-intensive industries.

Realising this ambition will require coordinated action across national and county governments, academia and research institutions, the private sector, development partners, civil society and local communities. It will also require sustained investment and a shared commitment to ensuring that our biological resources are sustainably utilised while generating greater economic, social and environmental value for present and future generations.

I commend all institutions, experts and stakeholders whose commitment and valuable contributions made the development of this Strategy possible. The task before us now is to translate this Strategy into action. I call upon all stakeholders and partners to support its implementation as we work together to position Kenya as a leading bioeconomy hub in Africa and a globally competitive bioeconomy.

**H.E. Musalia Mudavadi, E.G.H Cabinet Secretary,  
Office of the Prime Cabinet Secretary and Ministry of Foreign & Diaspora Affairs**

## PREFACE



The development of the Kenya National Bioeconomy Strategy (2026–2036) marks an important milestone in Kenya's efforts to harness science, research, technology and innovation for sustainable economic transformation. The Strategy provides a coordinated framework for converting Kenya's biological resources, scientific knowledge and innovation capabilities into greater economic, social and environmental value. Kenya has significant capabilities in agriculture, biotechnology, health, environmental sciences, natural resource management and other bioeconomy-related fields. However, these capabilities have yet to be fully realised. Research and innovation do not always translate into commercially viable technologies and enterprises, biological resources are often utilised with limited value addition, and stronger linkages are required between research, industry, investment and markets.

The Strategy responds to these challenges by providing an integrated pathway from sustainable biological resource management and research, through technology development and commercialisation, to enterprise growth, industrial development and market access. It also recognises that a competitive bioeconomy requires appropriate financing, infrastructure, skills, effective governance and strong partnerships across national and county governments, academia, research institutions, industry, communities and development partners.

Importantly, implementation will build on Kenya's existing strengths while identifying and developing priority bioeconomy value chains based on resource availability, technological readiness, market potential, sustainability and national and county comparative advantages. This will enable Kenya to support opportunities that are ready for commercialisation while progressively building capabilities in emerging and higher-value areas of the bioeconomy.

The State Department for Science, Research and Innovation is committed to providing the coordination and leadership required to advance this agenda in collaboration with relevant Ministries, Departments and Agencies and other stakeholders. I wish to acknowledge all institutions, experts and partners whose contributions have shaped this Strategy and call upon all stakeholders to work collectively towards its effective implementation.

**Prof. Shaukat Abdulrazak PhD, E.B.S**

**Principal Secretary, State Department for Science, Research and Innovation**

# TABLE OF CONTENTS

|                                                                                                         |            |
|---------------------------------------------------------------------------------------------------------|------------|
| <b>EXECUTIVE SUMMARY .....</b>                                                                          | <b>VII</b> |
| <b>DEFINITIONS OF KEY TERMS .....</b>                                                                   | <b>X</b>   |
| <b>ACRONYMS AND ABBREVIATIONS .....</b>                                                                 | <b>XI</b>  |
| <b>1 INTRODUCTION .....</b>                                                                             | <b>2</b>   |
| 1.1 Background .....                                                                                    | 2          |
| 1.2 Rationale for the Strategy .....                                                                    | 4          |
| 1.3 Vision.....                                                                                         | 4          |
| 1.4 Mission .....                                                                                       | 5          |
| 1.5 Strategic Objectives .....                                                                          | 5          |
| 1.6 Guiding Principles .....                                                                            | 5          |
| 1.7 Scope of the Strategy .....                                                                         | 6          |
| 1.8 Strategy Development Process.....                                                                   | 6          |
| 1.9 Structure of the Document .....                                                                     | 7          |
| <b>2 SITUATIONAL ANALYSIS.....</b>                                                                      | <b>9</b>   |
| 2.1 Introduction.....                                                                                   | 9          |
| 2.2 Global Bioeconomy Landscape .....                                                                   | 9          |
| 2.3 Continental and Regional Context.....                                                               | 10         |
| 2.3.1 African Context.....                                                                              | 10         |
| 2.3.2 East African Community Context .....                                                              | 10         |
| 2.4 Status of the Bioeconomy in Kenya .....                                                             | 11         |
| 2.4.1 Overview .....                                                                                    | 11         |
| 2.4.2 Bioeconomy Resource Base .....                                                                    | 11         |
| 2.4.3 Policy and Regulatory Environment.....                                                            | 12         |
| 2.4.4 Science Technology and Innovation Landscape.....                                                  | 13         |
| 2.4.5 Investment and Enterprise Ecosystem.....                                                          | 14         |
| 2.4.6 Human Capital and Skills Development .....                                                        | 15         |
| 2.5 Policy Gaps and Issues .....                                                                        | 15         |
| 2.6 Emerging Opportunities and Strategic Positioning.....                                               | 16         |
| 2.7 Conclusion .....                                                                                    | 18         |
| <b>3 STRATEGIC FRAMEWORK FOR OPERATIONALISING THE BIOECONOMY IN KENYA .....</b>                         | <b>21</b>  |
| 3.1 Introduction.....                                                                                   | 21         |
| PILLAR 1: Policy, Governance and Institutional Coordination.....                                        | 22         |
| PILLAR 2: Sustainable Biological Resource Management and Circular Bioeconomy .....                      | 24         |
| PILLAR 3: Research, Innovation, Cluster Development, Technology Transfer and<br>Commercialisation ..... | 26         |
| PILLAR 4: Bio-Based Industrial Development Based on Priority Value Chains .....                         | 28         |
| PILLAR 5: Investment, Competitiveness and Market Development .....                                      | 30         |
| PILLAR 6: Human Capital Development, Inclusion and Public Awareness .....                               | 32         |

|                                                                                                                |           |
|----------------------------------------------------------------------------------------------------------------|-----------|
| PILLAR 7: Partnerships, Regional Integration and International Cooperation .....                               | 34        |
| <b>4 IMPLEMENTATION FRAMEWORK .....</b>                                                                        | <b>37</b> |
| 4.1 Introduction.....                                                                                          | 37        |
| 4.2 Institutional Arrangements.....                                                                            | 38        |
| 4.2.1 National Bioeconomy Steering Committee.....                                                              | 38        |
| 4.2.2 National Bioeconomy Executive Committee .....                                                            | 39        |
| 4.2.3 National Bioeconomy Working Group .....                                                                  | 39        |
| 4.2.4 Technical Secretariat.....                                                                               | 40        |
| 4.2.5 National Bioeconomy Institute .....                                                                      | 40        |
| 4.2.6 County Governments .....                                                                                 | 41        |
| 4.3 Legal and Regulatory Framework.....                                                                        | 42        |
| 4.4 Financing Framework.....                                                                                   | 42        |
| 4.5 Monitoring, Evaluation, Reporting and Learning Framework .....                                             | 44        |
| 4.6 Risk Management .....                                                                                      | 46        |
| 4.7 Review of the Strategy.....                                                                                | 46        |
| <b>ANNEX 1: THE NATIONAL BIOECONOMY STRATEGY IMPLEMENTATION MATRIX .....</b>                                   | <b>49</b> |
| Strategic Pillar 1: Policy, Governance and Institutional Coordination .....                                    | 49        |
| Strategic Pillar 2: Sustainable Biological Resource Management and Circular Bioeconomy ....                    | 52        |
| Strategic Pillar 3: Research, Innovation, Cluster Development, Technology Transfer and Commercialisation ..... | 56        |
| Strategic Pillar 4: Bio-based Industrial Development based on Priority Value Chains.....                       | 61        |
| Strategic Pillar 5: Investment, Competitiveness and Market Development .....                                   | 66        |
| Strategic Pillar 6: Human Capital Development, Inclusion and Public Awareness.....                             | 72        |
| Strategic Pillar 7: Partnerships, Regional Integration and International Cooperation .....                     | 78        |
| Literature Cited .....                                                                                         | 82        |

## EXECUTIVE SUMMARY

The bioeconomy encompasses the sustainable production, utilisation, conservation and regeneration of biological resources, together with the application of science, technology, innovation and indigenous knowledge to generate sustainable products, services and economic opportunities. Globally, the bioeconomy is increasingly recognised as an important pathway for sustainable development, industrial transformation, food and nutrition security, climate resilience and inclusive economic growth.

Kenya has a strong foundation for bioeconomy development. The country possesses rich biodiversity, diverse agricultural and livestock production systems, extensive marine and freshwater resources, a growing science, technology and innovation ecosystem, an entrepreneurial private sector and strategic access to regional and continental markets. Biological-resource-based sectors already contribute substantially to economic activity, employment, livelihoods and exports, while Kenya's research and innovation capabilities provide opportunities to develop new technologies, products, enterprises and industries.

However, Kenya has yet to fully translate these assets into greater sustainable economic and societal value. Biological resources are often utilised or traded with limited value addition, while research and innovation do not consistently progress into validated technologies, commercially viable products and enterprises. Fragmented policy and institutional arrangements, pressures on biological resources, inadequate commercialisation and scale-up infrastructure, limited access to appropriate

finance, skills gaps, uneven enterprise capabilities and market constraints further limit the development of an integrated and competitive bioeconomy.

The Kenya National Bioeconomy Strategy (2026–2036) provides a coordinated national framework to address these challenges and harness Kenya's biological resources, knowledge, science, technology and innovation for sustainable economic transformation. The Strategy seeks to strengthen the connections between sustainable resource management, research and innovation, technology development and commercialisation, value addition and industrial development, enterprise growth, investment, human capital and markets. In doing so, it aims to support Kenya's transition from predominantly primary production and low-value utilisation of biological resources towards greater value addition, competitive enterprises, bio-based manufacturing and knowledge-intensive economic activity.

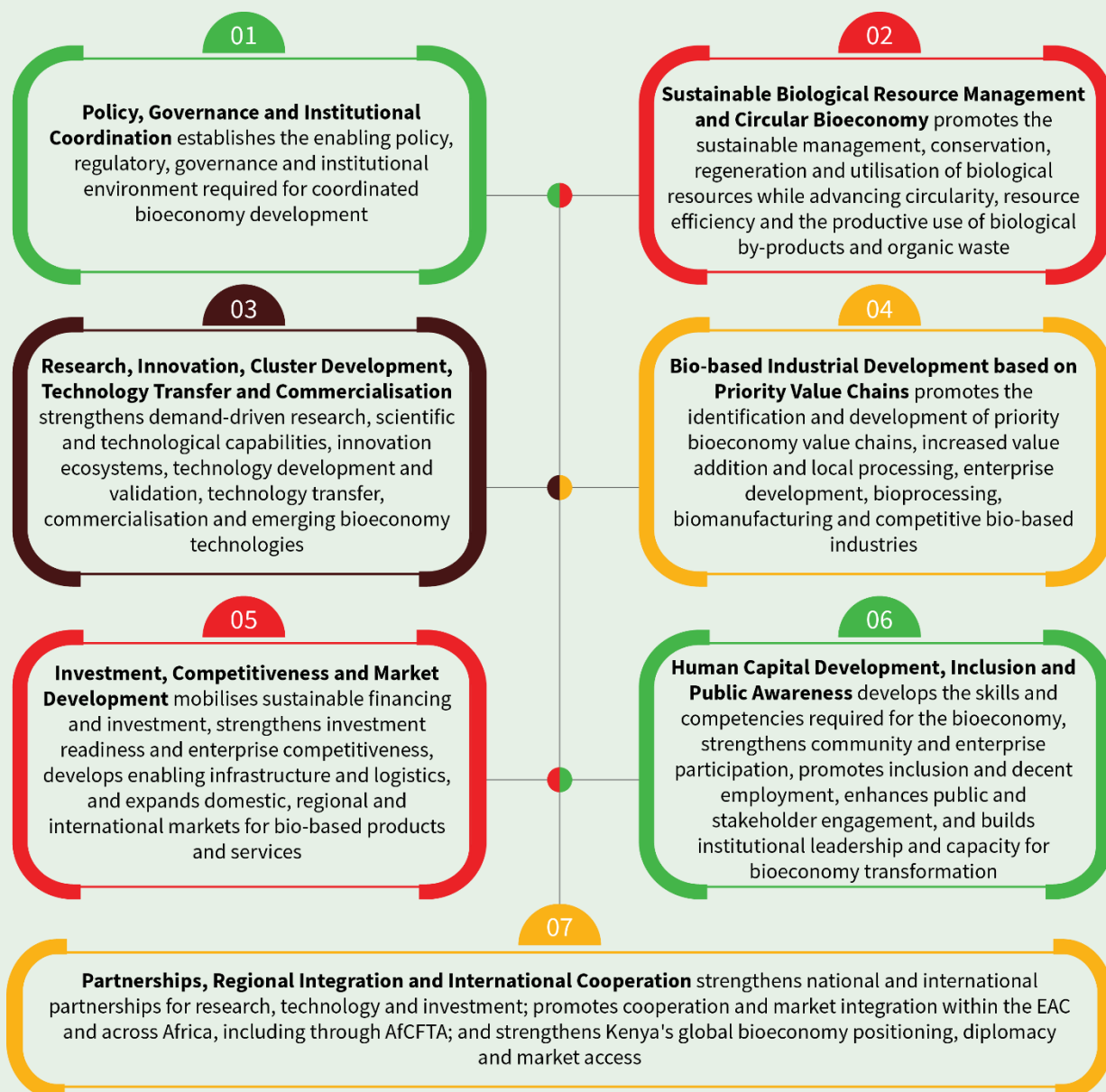
The vision of the Strategy is:

“By 2036, a sustainable, innovative and globally competitive bioeconomy that drives inclusive economic growth, environmental sustainability and improved livelihoods.”

Its mission is:

“To harness Kenya's biological resources, scientific knowledge, technology and innovation for sustainable development, industrial transformation and national prosperity.”

The Strategy is organised around seven mutually reinforcing strategic pillars:



A central feature of the Strategy is the development of competitive priority bioeconomy value chains based on Kenya's biological resource potential, technological and productive capabilities, market opportunities, socioeconomic impact, sustainability and national and county comparative advantages. The Strategy recognises opportunities across established and emerging areas, including biological agricultural inputs, food and feed, natural products, livestock and aquaculture, circular utilisation of biomass and biological residues, industrial biotechnology, biomanufacturing, biomaterials and health biotechnology.

National bioeconomy mapping and value chain assessment will provide the evidence required to guide prioritisation, investment and development over the Strategy period. The Strategy also recognises that bioeconomy opportunities vary across the country. Counties and regional economic blocs possess different biological resources, production systems, knowledge and economic capabilities. Implementation will therefore support county and inter-county bioeconomy development that builds on locally available resources and comparative advantages, strengthens local value addition and enterprise development, and expands

economic opportunities for producers, communities, cooperatives, MSMEs and other actors within bioeconomy value chains.

Implementation will be undertaken through a coordinated, whole-of-government and multi-stakeholder approach involving national and county governments, research and academic institutions, the private sector, financial institutions, communities, civil society and development partners. The governance framework will provide strategic oversight, coordination and technical support, while the implementation matrix defines interventions, activities, indicators, targets, responsible institutions, timelines and indicative resource requirements. Monitoring, Evaluation, Reporting and Learning will support

accountability, evidence-based decision-making, adaptive implementation and periodic assessment of progress.

Successful implementation of the Strategy will enable Kenya to derive greater and more sustainable value from its biological resources and knowledge systems, strengthen the translation of research and innovation into products and enterprises, develop competitive bio-based value chains and industries, mobilise investment, create employment and livelihood opportunities, and expand participation in regional and global markets. In doing so, the Strategy provides a pathway for positioning Kenya as a leading, sustainable and globally competitive bioeconomy in Africa by 2036.

## Kenya's Bioeconomy Ambition by 2036



## DEFINITIONS OF KEY TERMS

| Term                                    | Definition                                                                                                                                                                                                                                                       |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Access and Benefit Sharing (ABS)</b> | The fair and equitable sharing of benefits arising from the utilisation of genetic resources and associated traditional knowledge, in accordance with national legislation and applicable international agreements.                                              |
| <b>Bio-based Product</b>                | A product wholly or partly derived from renewable biological resources, including plants, animals, microorganisms, or organic waste.                                                                                                                             |
| <b>Bioeconomy</b>                       | The sustainable production, utilisation, conservation and regeneration of biological resources, together with the application of science, technology, innovation and indigenous knowledge, to produce sustainable products, services and economic opportunities. |
| <b>Bioeconomy Value Chain</b>           | The sequence of activities involved in the production, processing, transformation, commercialisation, and marketing of bio-based products and services.                                                                                                          |
| <b>Biorefinery</b>                      | An integrated facility that converts biomass into a range of marketable products such as food ingredients, chemicals, biomaterials, fertilisers, biofuels, and bioenergy.                                                                                        |
| <b>Biosecurity</b>                      | Measures and systems designed to prevent, detect and manage risks associated with biological agents, invasive species, pests and diseases that may threaten human, animal, plant or environmental health.                                                        |
| <b>Biosafety</b>                        | Measures to ensure the safe development, handling, transport, use and disposal of biotechnology products, including living modified organisms, to protect human health and the environment.                                                                      |
| <b>Circular Bioeconomy</b>              | An approach that promotes the efficient and sustainable use of biological resources by minimising waste and maximising reuse, recycling, recovery and valorisation of biomass and biological by-products.                                                        |
| <b>Industrial Symbiosis</b>             | Collaboration among enterprises whereby the by-products, waste, energy or resources of one enterprise become inputs for another, improving resource efficiency and reducing waste.                                                                               |
| <b>Indigenous Knowledge</b>             | The knowledge, innovations, practices and skills developed by indigenous and local communities through interaction with their environment and transmitted across generations.                                                                                    |
| <b>Nature-based Solutions</b>           | Actions that protect, sustainably manage and restore natural or modified ecosystems to address; this definition is not suitable for nature-based solution                                                                                                        |

## ACRONYMS AND ABBREVIATIONS

|                   |                                                                             |
|-------------------|-----------------------------------------------------------------------------|
| <b>ABS</b>        | Access and Benefit Sharing                                                  |
| <b>AfCFTA</b>     | African Continental Free Trade Area                                         |
| <b>AU</b>         | African Union                                                               |
| <b>AUDA-NEPAD</b> | African Union Development Agency – New Partnership for Africa’s Development |
| <b>CDACC</b>      | Curriculum Development, Assessment and Certification Council                |
| <b>CGIAR</b>      | Consultative Group on International Agricultural Research                   |
| <b>CIAT</b>       | International Center for Tropical Agriculture                               |
| <b>CIDP</b>       | County Integrated Development Plan                                          |
| <b>CoG</b>        | Council of Governors                                                        |
| <b>CUE</b>        | Commission for University Education                                         |
| <b>EAC</b>        | East African Community                                                      |
| <b>FAO</b>        | Food and Agriculture Organization of the United Nations                     |
| <b>FCDO</b>       | Foreign, Commonwealth and Development Office                                |
| <b>GDP</b>        | Gross Domestic Product                                                      |
| <b>ICT</b>        | Information and Communication Technology                                    |
| <b>IP</b>         | Intellectual Property                                                       |
| <b>KALRO</b>      | Kenya Agricultural and Livestock Research Organization                      |
| <b>KDC</b>        | Kenya Development Corporation                                               |
| <b>KEBS</b>       | Kenya Bureau of Standards                                                   |
| <b>KEFRI</b>      | Kenya Forestry Research Institute                                           |
| <b>KEMRI</b>      | Kenya Medical Research Institute                                            |
| <b>KENAS</b>      | Kenya Accreditation Service                                                 |
| <b>KeNIA</b>      | Kenya National Innovation Agency                                            |
| <b>KEPHIS</b>     | Kenya Plant Health Inspectorate Service                                     |
| <b>KEPROBA</b>    | Kenya Export Promotion and Branding Agency                                  |
| <b>KEPSA</b>      | Kenya Private Sector Alliance                                               |
| <b>KFS</b>        | Kenya Forest Service                                                        |
| <b>KICD</b>       | Kenya Institute of Curriculum Development                                   |
| <b>KIPI</b>       | Kenya Industrial Property Institute                                         |
| <b>KIPPRA</b>     | Kenya Institute for Public Policy Research and Analysis                     |
| <b>KIRDI</b>      | Kenya Industrial Research and Development Institute                         |
| <b>KMFRI</b>      | Kenya Marine and Fisheries Research Institute                               |

|                |                                                            |
|----------------|------------------------------------------------------------|
| <b>KNBS</b>    | Kenya National Bureau of Statistics                        |
| <b>KNCCI</b>   | Kenya National Chamber of Commerce and Industry            |
| <b>KRA</b>     | Kenya Revenue Authority                                    |
| <b>KWS</b>     | Kenya Wildlife Service                                     |
| <b>MDA</b>     | Ministry, Department and Agency                            |
| <b>MERL</b>    | Monitoring, Evaluation, Reporting and Learning             |
| <b>MRV</b>     | Measurement, Reporting and Verification                    |
| <b>MSEA</b>    | Micro and Small Enterprises Authority                      |
| <b>MSME</b>    | Micro, Small and Medium Enterprise                         |
| <b>MTEF</b>    | Medium-Term Expenditure Framework                          |
| <b>MTP</b>     | Medium Term Plan                                           |
| <b>NACOSTI</b> | National Commission for Science, Technology and Innovation |
| <b>NBA</b>     | National Biosafety Authority                               |
| <b>NEIL</b>    | Network for Entrepreneurial Institution Leaders            |
| <b>NEMA</b>    | National Environment Management Authority                  |
| <b>NMK</b>     | National Museums of Kenya                                  |
| <b>NRF</b>     | National Research Fund                                     |
| <b>PCPB</b>    | Pest Control Products Board                                |
| <b>PCT</b>     | Patent Cooperation Treaty                                  |
| <b>PPB</b>     | Pharmacy and Poisons Board                                 |
| <b>PPP</b>     | Public-Private Partnership                                 |
| <b>PPRA</b>    | Public Procurement Regulatory Authority                    |
| <b>PSC</b>     | Public Service Commission                                  |
| <b>R&amp;D</b> | Research and Development                                   |
| <b>SDSRI</b>   | State Department for Science, Research and Innovation      |
| <b>SEI</b>     | Stockholm Environment Institute                            |
| <b>SME</b>     | Small and Medium Enterprise                                |
| <b>STI</b>     | Science, Technology and Innovation                         |
| <b>STISA</b>   | Science, Technology and Innovation Strategy for Africa     |
| <b>TVET</b>    | Technical and Vocational Education and Training            |
| <b>TVETA</b>   | Technical and Vocational Education and Training Authority  |

# INTRODUCTION



# 1 INTRODUCTION

## 1.1 Background

The global economy is increasingly being reshaped by advances in the biosciences, biotechnology, digital technologies and innovation. Countries worldwide are adopting bioeconomy approaches to strengthen competitiveness, support sustainable industrial development, improve resource efficiency and address challenges related to food security, health, energy, environmental sustainability and climate change. The bioeconomy has emerged as a strategic pathway for achieving sustainable and inclusive economic growth while promoting the sustainable use of biological resources and ecosystems.

For the purposes of this Strategy, the bioeconomy encompasses ***“the production, utilisation, conservation and regeneration of biological resources, together with related knowledge, science, technology and innovation, to provide sustainable products, processes and services across the economy”***. It spans agriculture, fisheries and aquaculture, forestry, biotechnology, health, manufacturing, energy, waste management, ecosystem services and emerging bio-based industries within a framework that promotes value creation, sustainability and societal well-being.

Within the East African context, the bioeconomy is particularly relevant because of the region's dependence on biological resources for food, livelihoods, employment and economic activity, as well as its rich biodiversity, agricultural systems, forests and freshwater and marine resources. The East African Community Regional Bioeconomy Strategy 2021/22–2031/32 provides a common

regional framework for using bioscience knowledge and renewable biological resources to support sustainable socioeconomic development and regional integration.

Kenya has a strong foundation for bioeconomy development. The country has rich biodiversity and diverse terrestrial, freshwater and marine ecosystems; substantial agricultural, livestock, forestry and fisheries resources; and growing capabilities in science, technology and innovation. Agriculture remains particularly important: it contributes approximately 24 per cent of Kenya's GDP, while about 72 per cent of the population derives its livelihood directly or indirectly from the sector. More broadly, agriculture, forestry and fishing account for over one-fifth of the national economy, underscoring the economic significance of renewable biological resources to Kenya's development.

On the other hand, Kenya's natural-resource base offers further opportunities for sustainable bioeconomy development. The 2021 National Forest Resource Assessment estimated national tree cover at 12.13 per cent and forest cover at 8.83 per cent. These resources, together with agricultural biomass, aquatic resources, biodiversity, organic waste and residues from agriculture, forestry and processing industries, provide important feedstocks for existing and emerging bio-based value chains. Bioenergy is another important component of Kenya's existing bioeconomy. Kenya's Bioenergy Strategy estimates that bioenergy accounts for approximately 68 per cent of final energy demand, particularly for cooking and heating. While this demonstrates the importance of

biological resources within the energy system, it also highlights the need to transition towards more efficient and sustainable biomass utilisation and expand opportunities in biogas, biomethane, biofuels, biochar and other modern bioenergy systems.

Kenya's bioeconomy potential therefore extends well beyond traditional primary production. Emerging opportunities include sustainable agricultural inputs, biodiversity-based products, natural ingredients, biotechnology, industrial bioprocessing, biochemicals, biomaterials, bioenergy, bio-based manufacturing, blue economy enterprises, nature-based solutions, waste valorisation and circular bioeconomy industries. Advances in genomics, bioinformatics, engineering biology, industrial biotechnology and digital technologies are also creating opportunities for higher-value applications of biological resources. The implementation framework consequently recognises emerging and frontier bioeconomy technologies as a dedicated area of intervention.

The country also has a growing ecosystem of universities, national and international research institutions, innovation agencies, research centres, technology-development organisations and private-sector actors. This provides an important foundation for moving from predominantly resource-based activities towards a more knowledge-, technology- and innovation-driven bioeconomy. However, stronger linkages are required among biological resources, research and innovation, enterprises, industry, finance and markets.

Despite this potential, much of Kenya's biological resource base remains underutilised or is commercialised in relatively low-value forms. Limited value addition, inadequate commercialisation of

research and innovation, fragmented institutional arrangements, insufficient investment in bio-based enterprises, infrastructure and skills gaps, and weak linkages between research, industry and markets continue to constrain the contribution of biological resources to economic transformation. Consequently, significant opportunities associated with biotechnology, bio-based manufacturing, natural products, bioenergy, blue economy resources, circular bioeconomy systems and nature-based enterprises remain underexploited.

These opportunities and constraints also have a strong local dimension. Kenya's 47 counties differ considerably in their biological resource endowments, production systems, ecosystems, infrastructure, industrial capabilities and market opportunities. County economies also vary significantly in size and structure; for example, the 2024 Gross County Product report shows considerable disparities in economic contribution across counties. A national bioeconomy approach therefore provides an opportunity to build place-based value chains around local biological resources and capabilities, stimulate rural enterprise development, strengthen regional economic clusters and distribute opportunities for value addition and employment more widely across the country.

In a nutshell, this National Bioeconomy Strategy therefore provides a coordinated national framework for harnessing biological resources, biosciences, technology, knowledge and innovation to drive sustainable economic growth, industrial transformation, environmental sustainability and improved livelihoods. It provides a framework for strengthening connections across sustainable biological resource

management, research and innovation, commercialisation, industrial development, enterprise development, investment and markets, human capital development and strategic partnerships.

## **1.2 Rationale for the Strategy**

Kenya's development ambitions require new pathways to generate economic growth, create quality jobs, strengthen resilience and enhance competitiveness. The bioeconomy offers an opportunity to achieve these objectives by transforming biological resources, scientific knowledge, technologies and innovations into sustainable products, enterprises and industries.

The rationale for developing Kenya's bioeconomy extends beyond responding to global trends. At national, county and community levels, a sustainable and circular bioeconomy can support rural development, livelihood diversification, resource efficiency, climate action, ecosystem restoration, sustainable waste management, renewable energy development and enterprise creation. It can also enable biological resources currently traded in primary or low-value forms to support higher-value processing, manufacturing and knowledge-intensive industries.

Kenya already has policies, strategies and institutions supporting individual components of the bioeconomy, including agriculture, forestry, fisheries and blue economy, biodiversity, environment, climate change, energy, industrialisation, trade and science, technology and innovation. However, there is currently no overarching national framework connecting these sectors and their respective biological resources, knowledge systems, technologies, enterprises and markets within a coherent bioeconomy agenda.

This fragmentation limits coordination across institutions and sectors and weakens connections between biological resource management, research and innovation, technology transfer, commercialisation, industrial development, financing and market creation. It also constrains the ability to systematically identify and develop priority bioeconomy value chains and mobilise coordinated public and private investment around them.

The Strategy addresses these gaps through an integrated approach spanning policy and institutional coordination; sustainable biological resource management and circularity; research, innovation, technology transfer and commercialisation; priority bioeconomy value chains and industrial development; investment, competitiveness and markets; human capital, inclusion and public awareness; and national, regional and international partnerships. These areas correspond directly to the seven strategic pillars and their implementation arrangements set out in the Strategy's implementation matrix.

The Strategy also recognises the importance of place-based development. Counties and regional economic clusters possess different biological resources, knowledge systems, production structures and comparative advantages. Bioeconomy development will therefore build on these differences to strengthen local value chains, promote rural and regional enterprise development, facilitate investment and enhance economic opportunities across the country.

## **1.3 Vision**

By 2036, a sustainable, innovative and globally competitive bioeconomy that drives inclusive economic growth, environmental sustainability and improved livelihoods.

## 1.4 Mission

To harness Kenya's biological resources, scientific knowledge, technology and innovation for sustainable development, industrial transformation and national prosperity.

## 1.5 Strategic Objectives

The Strategy seeks to:

1. Strengthen policy, governance and institutional coordination to create an enabling environment for sustainable bioeconomy development.
2. Promote the sustainable management, conservation, regeneration and circular utilisation of biological resources to enhance economic, environmental and social outcomes.
3. Strengthen research, science, technology, innovation and commercialisation to accelerate the development and uptake of bioeconomy technologies, products and solutions.
4. Accelerate bio-based industrial development through competitive priority value chains, increased value addition, enterprise development and bio-based manufacturing.
5. Mobilise sustainable financing and investment, strengthen enterprise competitiveness and enabling infrastructure, and expand markets for bio-based products and services.
6. Strengthen human capital, inclusion, institutional capacity and public participation to support an inclusive, skilled and informed bioeconomy.
7. Strengthen strategic partnerships, regional integration and international cooperation to advance research, technology, investment, market access, value capture and Kenya's global bioeconomy positioning.

## 1.6 Guiding Principles

Implementation of the Strategy shall be guided by the following principles:

**Sustainability:** Promotion of economic development while maintaining environmental integrity, ecosystem resilience and the long-term productive capacity of biological resources.

**Innovation and Knowledge-Based Development:** Leveraging science, technology, innovation, indigenous knowledge and emerging technologies to create value and enhance competitiveness.

**Inclusivity and Equity:** Ensuring meaningful participation and equitable access to opportunities and benefits among women, youth, persons with disabilities, marginalised groups, indigenous and local communities.

**Circularity and Resource Efficiency:** Promoting efficient and cascading utilisation of biological resources, valorisation of biological by-products and organic waste, and circular production and consumption systems.

**Biosafety, Biosecurity and Ethical Responsibility:** Ensuring that bioeconomy research, innovation, production and commercialisation are undertaken safely, responsibly and ethically.

**Food Security and Competing Uses:** Ensuring that the utilisation of biological resources for industrial, energy and material applications does not compromise national food and nutrition security, and that competing demands on land, water and biomass are assessed and managed.

**Equitable Access and Benefit Sharing:** Ensuring fair and equitable sharing of benefits arising from the utilisation of biological and

genetic resources and associated indigenous knowledge, consistent with applicable national and international frameworks. This includes obtaining prior informed consent and establishing mutually agreed terms with indigenous and local communities.

**Partnerships and Collaboration:** Promoting collaboration among government, counties, academia, research institutions, industry, communities, civil society, development partners and regional and international actors.

**Evidence-Based Decision-Making:** Supporting policy, investment and implementation decisions through scientific evidence, reliable data, monitoring, evaluation, technology assessment and foresight.

## 1.7 Scope of the Strategy

The Strategy covers the sustainable production, utilisation, management, conservation and regeneration of Kenya's biological resources, including agricultural biomass, forestry resources, fisheries and aquatic resources, biodiversity and genetic resources, and residual biomass generated from agriculture, forestry, food and other processing industries, municipalities and other biological waste streams. It encompasses agriculture and food systems, fisheries and aquaculture, forestry, biodiversity-based products, health and biotechnology, natural products, biomaterials, biochemicals, bio-based manufacturing, bioenergy, waste valorisation, ecosystem services, nature-based enterprises and circular bioeconomy systems. It also covers emerging and higher-value applications of biological resources, including industrial biotechnology, engineering biology, genomics, bioinformatics, biorefineries and

other emerging bio-based technologies.

In addition, this Strategy addresses the entire bioeconomy value chain, from sustainable biological resource management and biomass production through research and development, innovation, technology transfer, production, processing, commercialisation, enterprise development, industrialisation, financing, investment and market development. It further encompasses the enabling conditions necessary for bioeconomy development, including policy and regulation, institutional coordination, infrastructure, human capital and skills, public awareness, inclusion, partnerships and international cooperation. It also applies across national and county governments and involves research institutions, universities, private-sector actors, financial institutions, communities, producer organisations, civil society organisations, development partners and other actors participating in Kenya's bioeconomy.

## 1.8 Strategy Development Process

The development of the Kenya National Bioeconomy Strategy was coordinated by the State Department for Science, Research and Innovation through a multi-stakeholder, evidence-based and consultative process involving Government Ministries, Departments and Agencies; county governments; universities and research institutions; private-sector organisations; civil society; development partners; and other national and regional bioeconomy stakeholders.

The process drew on Kenya's previous bioeconomy initiatives and assessments and involved literature and policy reviews, sector and thematic assessments, expert consultations, stakeholder roundtables,

Technical Working Group engagements, thematic working groups, write-shops and validation processes. These engagements supported the identification of Kenya's bioeconomy opportunities and constraints and informed the development and prioritisation of the Strategy's objectives, interventions, implementation arrangements and targets.

Additionally, the process ensured that the Strategy reflects the interconnected nature of the bioeconomy by engaging stakeholders from science and technology, agriculture, environment, forestry, fisheries and the blue economy, health, industry, trade, energy, finance, education and county governments. It also considered Kenya's regional commitments, including the EAC Regional Bioeconomy Strategy, as well as relevant continental and international frameworks.

The resulting Strategy therefore reflects a shared national framework for harnessing Kenya's biological resources, scientific

capabilities, knowledge and innovation to support economic transformation, environmental sustainability, local development and improved livelihoods.

## **1.9 Structure of the Document**

The Strategy is organised into four chapters. Chapter One introduces the Strategy, setting out its rationale, vision, mission, strategic objectives, guiding principles, scope and development process. Chapter Two presents the situational analysis of the global, regional and national bioeconomy context and identifies the policy gaps and opportunities that the Strategy responds to. Chapter Three presents the strategic framework, organised around seven pillars, while Chapter Four sets out the implementation framework covering institutional arrangements, financing, monitoring and evaluation, risk management and review. Annex 1 contains the Implementation Matrix.

# SITUATIONAL ANALYSIS



## 2 SITUATIONAL ANALYSIS

### 2.1 Introduction

This chapter assesses the conditions shaping the development of Kenya's bioeconomy and establishes the evidence base for the strategic priorities set out in this Strategy. It considers Kenya's biological resource base, sub-national and rural development potential, science and innovation capabilities, industrial and enterprise ecosystem, investment and market conditions, human capital, policy and regulatory environment, and regional and international positioning. It also considers the implications of global technological, environmental and market developments for Kenya.

The analysis adopts a whole-of-bioeconomy perspective. It recognises that Kenya's bioeconomy is not a single sector, but an interconnected system extending from the sustainable production and management of biological resources through research, innovation and technology development to value addition, industrial production, enterprise development, financing, markets, skills and international cooperation. This reflects the architecture subsequently operationalised through the seven strategic pillars of the Strategy.

The analysis also recognises the spatial dimension of bioeconomy development. Opportunities differ considerably across Kenya's counties and regional economic clusters because of variations in agroecological conditions, biodiversity, biomass availability, marine and freshwater resources, production systems, infrastructure, research capabilities and market access. For purposes of this Strategy, regional is used primarily in relation to the East African and

continental context, while county development is used to describe the sub-national dimension of Kenya's bioeconomy. This distinction responds directly to the need to more clearly articulate the local and rural dimensions of bioeconomy development identified during review of the Strategy.

The chapter therefore seeks to answer four central questions: what assets Kenya can build on; what currently prevents those assets from generating greater economic, social and environmental value; where the most promising opportunities lie; and what enabling conditions are required to translate those opportunities into competitive and sustainable bioeconomy value chains.

### 2.2 Global Bioeconomy Landscape

The bioeconomy is becoming an increasingly important component of economic, industrial and sustainability policy globally. Governments are using bioeconomy strategies to combine biological resources, science and technology, industrial policy and environmental objectives in response to pressures associated with climate change, biodiversity loss, resource insecurity and the transition away from fossil-dependent production systems.

Recent bioeconomy strategies increasingly emphasise the development of high-value bio-based products, biotechnology, advanced biomanufacturing, sustainable biomass supply, circular resource use, investment and market creation, rather than focusing only on primary biological production. The European Union's 2025 Bioeconomy Strategy, for example, identifies scaling innovation and investment, creating markets for bio-based materials and technologies, ensuring

sustainable biomass supply and expanding global market opportunities among its main priorities. The EU estimates that its bioeconomy generates approximately EUR 2.7 trillion in value and supports about 17.1 million jobs.

Technological change is also widening the scope of the bioeconomy. Advances in genomics, bioinformatics, engineering and synthetic biology, precision agriculture, artificial intelligence, fermentation, industrial biotechnology and advanced biomaterials are enabling new applications of biological resources and accelerating the convergence of biological and digital technologies. These developments create opportunities for countries that can combine biological resources with research capability, skilled human capital, infrastructure and commercially oriented innovation systems.

For Kenya, the significance of these trends lies not in replicating the bioeconomy models of highly industrialised economies, but in identifying where emerging technologies and market demand intersect with Kenya's own resources, scientific capabilities, enterprises and development priorities. This requires a balance between frontier technologies and the upgrading of existing biological-resource-based sectors, particularly those capable of generating livelihoods, rural enterprise development, domestic value addition and industrial employment.

## **2.3 Continental and Regional Context**

### **2.3.1 African Context**

Africa possesses substantial biological assets in agriculture, forests, fisheries, biodiversity and genetic resources, alongside rapidly expanding markets and a predominantly young population. These assets provide a

basis for developing new food systems, agricultural biological inputs, natural products, health biotechnology, sustainable materials, bioenergy, ecosystem-based enterprises and other bio-based industries.

The African Union increasingly places science, technology and innovation at the centre of structural transformation. Science, Technology and Innovation Strategy for Africa 2034 (STISA 2034), adopted as the successor framework for Africa's science, technology and innovation agenda, reinforces the role of research, innovation, technology development and knowledge-intensive economic activity in advancing Agenda 2063.

The opportunity for African countries is therefore not only to produce biological commodities but to retain greater value through processing, technology development, intellectual property, enterprise growth and manufacturing. Persistent challenges nevertheless include weak translation of research into commercial products, limited research and industrial infrastructure, inadequate growth finance, fragmented markets, skills constraints and low participation in high-value global supply chains.

Kenya's bioeconomy strategy responds to this continental challenge by deliberately connecting biological resource management to research and innovation, industrial development, enterprise competitiveness, investment and markets rather than treating these domains separately.

### **2.3.2 East African Community Context**

The East African Community provides the immediate regional framework within which Kenya's national bioeconomy will develop. The East African Community Regional Bioeconomy Strategy covers 2021/22–2031/32

and recognises the region's biological resources, agricultural base, biodiversity and science and technology capabilities as assets that can support inclusive economic growth, job creation and improved livelihoods.

Regional cooperation can address constraints that individual countries may find difficult to overcome independently. Opportunities include joint research programmes, shared research and pilot infrastructure, technology transfer, harmonisation of standards and regulatory systems, regional skills development and the creation of cross-border bioeconomy value chains. The EAC framework also provides a platform to expand markets for products that may initially have insufficient demand at the national scale.

Kenya can further leverage continental trade integration through the African Continental Free Trade Area (AfCFTA). This creates opportunities for Kenyan bio-based enterprises to access larger markets, participate in regional value chains, and attract investment to serve both East African and continental markets. This regional and continental market dimension has consequently been incorporated into the Strategy's implementation framework under Pillar 7

## **2.4 Status of the Bioeconomy in Kenya**

### **2.4.1 Overview**

Kenya already has a strongly biological-resource-dependent economy. Agriculture directly contributes approximately 24 per cent of GDP, while about 72 per cent of the population derives its livelihood directly or indirectly from the sector. According to the 2026 Economic Survey, agriculture, forestry and fishing collectively account for more than one-fifth of the national economy.

These figures capture only part of the wider bioeconomy. Downstream activities associated with food and beverage processing, forestry products, bioenergy, pharmaceuticals and natural products, tourism and ecosystem services, waste valorisation and other bio-based manufacturing extend the economic contribution of biological resources well beyond primary agriculture.

Previous working estimates have therefore suggested a considerably larger contribution for the wider Kenyan bioeconomy. However, a single robust national bioeconomy account has not yet been institutionalised. Rather than treating an approximate aggregate estimate as a definitive baseline, the Strategy prioritises a national bioeconomy mapping and diagnostic assessment covering biological resources, economic activities, actors, infrastructure, capabilities and opportunities. This will provide the basis for future measurement through the State of the Bioeconomy reporting framework.

This is important because Kenya's central bioeconomy challenge is increasingly one of value capture. The country has substantial biological production, but a significant proportion of that value remains concentrated in primary production or in low levels of processing. Bioeconomy development therefore provides an opportunity to increase the economic return obtained from existing resources through value addition, higher-value products, stronger enterprises, technology development and manufacturing.

### **2.4.2 Bioeconomy Resource Base**

Kenya's biological resource base is diverse. It includes agricultural crops and livestock, forests and woodland resources, fisheries and aquaculture, wildlife and biodiversity, marine

and freshwater resources, genetic and microbial resources, and substantial flows of biological residues, by-products and organic waste.

The country's varied agroecological conditions support diverse crop and livestock systems, while rangelands, forests, wetlands, lakes, rivers and coastal and marine ecosystems create additional opportunities for nature-based, biodiversity-derived and blue bioeconomy activities. Kenya's 2021 National Forest Resources Assessment estimated tree cover at 12.13 per cent and forest cover at 8.83 per cent, illustrating both the scale of the forest resource and the continuing importance of conservation and restoration.

Kenya also generates agricultural residues, livestock wastes, forestry residues, food-processing by-products and municipal organic waste that can be used as feedstocks for circular bioeconomy applications. Potential uses include animal feed, biofertilisers, compost, biogas, biomethane, biochar, biomaterials, biochemicals and other value-added products. The Strategy therefore treats residual biomass and organic waste not only as waste-management challenges, but also as potential productive resources.

On the other hand, bioenergy already demonstrates the economic significance of biomass in Kenya. The Kenya Bioenergy Strategy (2020-2027) estimates that bioenergy supplies approximately 68 per cent of final energy demand, particularly for cooking and heating. The strategic challenge is therefore not whether biomass is important, but how Kenya can transition towards more efficient, sustainable and higher-value utilisation, including modern bioenergy technologies and productive uses of residues.

The distribution of these resources is highly localised. Agricultural production systems dominate different parts of the country; arid and semi-arid areas support distinct livestock and dryland bioeconomy opportunities; forest landscapes provide different resources and ecosystem services; coastal counties possess marine and blue bioeconomy assets; and major urban centres generate concentrations of organic waste and industrial by-products suited to circular bioeconomy applications.

At the same time, economic structures also vary significantly between counties. In 2023, Nairobi accounted for 27.5 per cent of national gross value added, while 33 counties each accounted for less than 2 per cent, demonstrating substantial differences in the scale and composition of county economies (KNBS, 2024). Bioeconomy development therefore provides an opportunity for diversification, allowing counties to develop industries and enterprises around locally available biological resources, capabilities and comparative advantages rather than relying on a uniform national development model.

#### **2.4.3 Policy and Regulatory Environment**

Kenya does not begin the bioeconomy transition from a policy vacuum. A substantial body of legislation, policies and strategies already governs elements of biological resources, research and innovation, economic development and environmental management.

Important frameworks include the Constitution of Kenya (2010); Kenya Vision 2030 (2008–2030); Fourth Medium Term Plan (2023–2027); Science, Technology and Innovation Act (2013); Environmental Management and Co-ordination Act (1999); Climate Change Act (2016); Forest

Conservation and Management Act (2016); Fisheries Management and Development Act (2016); Biosafety Act (2009); Industrial Property Act (2001); Wildlife Conservation and Management Act (2013); Sustainable Waste Management Act (2022); Energy Act (2019); and Kenya Bioenergy Strategy (2020–2027). These are complemented by policies and strategies relating to agriculture, industrialisation, trade, digital transformation, biodiversity, circular economy and county development.

The MTP IV places science, technology, innovation, value addition, manufacturing, MSMEs and the Bottom-Up Economic Transformation Agenda within Kenya's development framework, providing an important national policy anchor for bioeconomy development. The Strategy similarly aligns with regional and continental frameworks, including the EAC Regional Bioeconomy Strategy, Agenda 2063 and STISA 2034.

The principal weakness is therefore less an absence of individual policies than a lack of coherence across them. Biological resources, science and innovation, industry, environment, finance and trade have traditionally been governed through separate institutional and policy systems. This can lead to fragmented mandates, regulatory duplication, weak cross-sector coordination and difficulties for innovations or enterprises that must navigate several regulatory regimes before reaching the market.

This Strategy recognises these gaps and the need for a coherent, coordinated enabling environment for bioeconomy development. Priority should therefore be given to strengthening policy and regulatory coherence, national and county coordination, institutional capacity, science-policy linkages,

and systems for generating and sharing reliable bioeconomy data. Regular monitoring and reporting on the state and performance of Kenya's bioeconomy will also support evidence-based decision-making, investment planning and accountability.

#### **2.4.4 Science Technology and Innovation Landscape**

Kenya has one of the more developed research and innovation ecosystems in the region. Universities, public research organisations, specialised research institutes, international research centres, regulatory agencies, innovation hubs and private-sector research actors undertake research and innovation across agriculture, health, biotechnology, environmental science, forestry, fisheries, industrial research and other bioeconomy-relevant fields. This provides an important foundation for the development of a knowledge- and innovation-driven bioeconomy.

The principal challenge, however, extends beyond the generation of research and knowledge to the translation of research outputs into validated technologies, commercially viable products, enterprises and industrial applications. Research outputs may remain at laboratory, proof-of-concept or pilot stage due to weak research-industry linkages, insufficient prototyping and demonstration infrastructure, limited technology-transfer and commercialisation capabilities, inadequate scale-up financing, and fragmented support across the innovation-to-market pathway.

This Strategy acknowledges the need to strengthen the entire research, innovation and commercialisation ecosystem. This includes greater alignment of research with national and industry needs; stronger multidisciplinary

and industry-research collaboration; improved prototyping, testing, validation and demonstration capabilities; strengthened technology-transfer and intellectual property management; and more effective pathways for commercialisation, enterprise development, investment and market uptake. Strengthening these linkages will be critical to ensuring that Kenya derives greater economic and societal value from its investments in research, science, technology and innovation.

At the same time, rapid advances in the biological and digital sciences are creating new areas of opportunity and competition. Technologies such as engineering biology, genomics, bioinformatics, industrial biotechnology, biomaterials, precision medicine and the digitalisation of bioeconomy systems have the potential to create new products, improve production processes and support the emergence of knowledge-intensive industries. Kenya will therefore need to strengthen its scientific, technological, infrastructural and human capabilities in relevant emerging fields while ensuring that technology development responds to national development priorities and complements opportunities in established bioeconomy sectors.

#### **2.4.5 Investment and Enterprise Ecosystem**

Kenya's growing private sector and entrepreneurial ecosystem provides an important foundation for bioeconomy development. The country has established industries in agriculture and food processing, pharmaceuticals, forestry products and energy, alongside emerging enterprises in biotechnology, biological agricultural inputs, natural products, waste valorisation, renewable bioenergy and other bio-based products and services. These activities provide a foundation for expanding domestic value

addition and developing more competitive bio-based industries.

Significant opportunities exist to upgrade existing value chains, increase local processing, improve productivity and product quality, and expand into higher-value bio-based products and industrial applications. Emerging opportunities in bioprocessing, biomanufacturing, industrial biotechnology, biomaterials, biochemicals, natural products and circular bioeconomy solutions could further diversify Kenya's industrial base and increase the value retained from locally available biological resources.

However, the transition from small-scale production and early-stage innovation to commercially viable and competitive enterprises remain constrained. Bioeconomy enterprises often require specialised technologies, testing and certification, pilot and demonstration facilities, business-development support and access to markets before they can achieve commercial scale. Weak linkages between innovators, enterprises, industry and markets can further limit the adoption and commercialisation of locally developed technologies.

In addition, access to appropriate finance is also a major constraint, particularly for start-ups, early-stage innovations and technology-intensive enterprises. The financing requirements of bioeconomy ventures vary across the innovation and enterprise-development cycle, from proof-of-concept and demonstration to commercialisation, market entry and industrial scale-up. As it stands, existing conventional financing instruments may not adequately accommodate the longer development periods, technological risks and capital requirements associated with some bioeconomy investments.

This Strategy acknowledges the need for a stronger enabling ecosystem that supports enterprises across the full pathway from innovation to commercial scale. This includes strengthening incubation and business-development support, technology adoption and upgrading, pilot and demonstration infrastructure, investment readiness, access to appropriate financing, standards and certification, and linkages to domestic, regional and international markets. However, particular attention is required to enabling micro, small and medium enterprises, start-ups and community-based enterprises to participate in and capture greater value from emerging bioeconomy opportunities.

#### **2.4.6 Human Capital and Skills Development**

Kenya has made considerable investments in education, research and technical training, creating a substantial human-capital base for bioeconomy development. Universities, Technical and Vocational Education and Training (TVET) institutions, research organisations and other training institutions continue to develop skills and expertise in biological sciences, biotechnology, agriculture, environmental sciences, health, engineering and related disciplines. These capabilities provide an important foundation for research, innovation, production and enterprise development across the bioeconomy.

However, the transition towards a more technology- and knowledge-intensive bioeconomy is creating demand for new and increasingly multidisciplinary competencies. Specialised capabilities in areas such as engineering biology, bioinformatics, genomics, bioprocess engineering, industrial biotechnology, biomaterials, bio-entrepreneurship and advanced bio-based manufacturing remain limited. Skills are also

required at the interface between science and commercialisation, including intellectual property management, technology transfer, regulatory compliance, business development, investment readiness and market development.

Human-capital needs extend beyond highly specialised scientific and technical expertise. Effective bioeconomy development will require skilled technicians, entrepreneurs, producers, extension and rural advisory personnel, educators and trainers who can support the adoption, adaptation and diffusion of bioeconomy technologies and business models. This is particularly important for translating innovation into opportunities for farmers, producer organisations, community enterprises and micro, small and medium enterprises across Kenya's counties.

This Strategy acknowledges the need for a coordinated and demand-driven approach to bioeconomy skills development across the education, training and professional-development system. This includes strengthening bioeconomy competencies at basic, TVET, university and advanced levels; developing specialised and multidisciplinary skills; strengthening educators, trainers and extension and rural advisory personnel; and expanding entrepreneurship, commercialisation and professional-development capabilities. Greater alignment between education and training, research institutions, industry and emerging bioeconomy opportunities will be essential to ensure that Kenya's workforce can drive and benefit from bioeconomy transformation.

## **2.5 Policy Gaps and Issues**

The situational analysis highlights several challenges that continue to constrain the development of Kenya's bioeconomy.

| Policy Gap                                                  | Description                                                                                                                          | Implication                                                                      |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| <b>Absence of a Dedicated National Bioeconomy Framework</b> | Existing policies address biological resources, innovation, and sustainability separately without an integrated bioeconomy approach. | Results in fragmented interventions and missed opportunities for value creation. |
| <b>Fragmented Governance and Institutional Coordination</b> | Bioeconomy-related mandates are distributed across multiple institutions and sectors.                                                | Weak coordination, duplication of effort, and inefficient resource utilisation.  |
| <b>Limited Commercialisation of Research and Innovation</b> | Research outputs rarely progress into commercial products, enterprises, or industries.                                               | Low economic returns from research investments.                                  |
| <b>Weak Bio-based Industrial Development</b>                | Limited bio-based manufacturing, processing, and industrial biotechnology capacity.                                                  | Constrains industrialisation, value addition and job creation.                   |
| <b>Inadequate Financing and Investment</b>                  | Limited financing mechanisms for bioeconomy enterprises and innovations.                                                             | Slows enterprise growth and private sector participation.                        |
| <b>Weak Science–Industry–Policy Linkages</b>                | Limited collaboration between research institutions, policymakers, and industry.                                                     | Reduces innovation uptake and market development.                                |
| <b>Skills and Human Capital Gaps</b>                        | Insufficient expertise in emerging bioeconomy fields.                                                                                | Limits competitiveness and technology adoption.                                  |
| <b>Limited Biotechnology Infrastructure</b>                 | Inadequate laboratories, pilot facilities, and biomanufacturing infrastructure.                                                      | Restricts technology development and scaling.                                    |
| <b>Unsustainable Resource Utilisation</b>                   | Resource degradation, biodiversity loss, and climate impacts threaten biological assets.                                             | Undermines long-term sustainability and resilience.                              |
| <b>Weak Data and Knowledge Management Systems</b>           | Fragmented bioeconomy data and limited monitoring systems.                                                                           | Weak evidence-based planning and decision-making.                                |
| <b>Limited Public Awareness</b>                             | Low awareness of bioeconomy opportunities among stakeholders.                                                                        | Reduces participation, investment, and support.                                  |
| <b>Weak Regional and Global Positioning</b>                 | Limited integration into regional and international bioeconomy value chains.                                                         | Missed investment, technology transfer, and market opportunities.                |
| <b>Inadequate Access and Benefit-Sharing Mechanisms</b>     | Limited mechanisms for equitable sharing benefits from biodiversity and genetic resources.                                           | Risks inequitable outcomes and reduced stakeholder participation.                |

## 2.6 Emerging Opportunities and Strategic Positioning

Kenya possesses significant comparative advantages that provide a strong foundation for becoming a leading bioeconomy hub in

Africa. These include rich biodiversity, established agricultural and livestock production systems, extensive marine and freshwater resources, a growing scientific and innovation ecosystem, expanding digital infrastructure, an entrepreneurial private

sector and increasing investment in science, technology and innovation. Kenya also benefits from its strategic location within the East African Community (EAC) and access to the wider African market through the African Continental Free Trade Area (AfCFTA), providing opportunities for regional value chain development, investment and trade.

The country's biological resource base presents substantial opportunities for the development of sustainable agricultural inputs, biodiversity-based products, natural ingredients, blue bioeconomy enterprises, nutraceuticals, phytopharmaceuticals, bio-based manufacturing, industrial biotechnology and circular bioeconomy industries. Significant opportunities also exist to increase value addition through the utilisation of agricultural residues, forestry by-products, aquatic resources and organic waste streams as feedstocks to produce food, feed, fertilisers, biomaterials, bioenergy and other higher-value bio-based products.

Within this broad opportunity landscape, some areas provide potential near-term opportunities for accelerated development and commercialisation because they can build on existing biological resources, production systems, research capabilities, technologies and established or emerging markets. These include biofertilisers and biopesticides; sustainable livestock and aquaculture inputs; natural products and botanicals; essential oils and other biodiversity-derived products; food, feed and agro-processing products; circular bioeconomy products derived from agricultural and organic residues; and climate-smart agricultural technologies. Strengthening these value chains could increase domestic value addition, reduce dependence on selected imported inputs, create new enterprises and employment, and

improve the returns obtained from biological resources already produced within the country.

Other opportunities have significant potential for higher-value industrial development but may require further investment in research, technology validation, specialised skills, infrastructure and scale-up capacity. These include industrial biotechnology, biomanufacturing, health biotechnology, biomaterials, biochemicals and biopharmaceutical applications, engineering biology, genomics and bioinformatics. Building capabilities in these areas can progressively enable Kenya to move beyond primary production and conventional processing towards more knowledge- and technology-intensive bio-based industries.

Additionally, emerging regional and global market trends provide further opportunities. Demand is increasing for sustainably produced and traceable products, biological agricultural inputs, natural ingredients, renewable materials, low-carbon products, circular solutions and nature-based products and services. Kenya is particularly well positioned to pursue opportunities where such demand coincides with sustainably available biological resources, existing productive and technological capabilities, established supply chains and realistic pathways to meeting market, quality and sustainability requirements. This provides an opportunity not only to expand exports but also to strengthen domestic production, promote import substitution and increase the proportion of value retained within Kenya.

Growing investment in climate finance, biodiversity finance, carbon markets and ecosystem restoration also presents opportunities to mobilise additional resources for bioeconomy development while

supporting environmental sustainability and livelihoods. These financing opportunities could support enterprises and investments associated with ecosystem restoration, sustainable forestry, regenerative agriculture, circular resource use and other nature-positive economic activities.

At the county level, different resource endowments and production systems provide opportunities for locally relevant bioeconomy development:

- **Agricultural areas** — value chains around crops, livestock and associated residues
- **Arid and semi-arid counties** — livestock, dryland crops and other locally adapted biological resources
- **Forested and biodiversity-rich areas** — sustainable forest products, natural products and nature-based enterprises
- **Coastal and lakeside counties** — fisheries, aquaculture and blue bioeconomy value chains
- **Urban and industrial centres** — recovery and productive utilisation of organic waste and processing by-products

Linking bioeconomy development to these local comparative advantages can contribute to rural transformation, county industrialisation, enterprise development, employment creation and more balanced national development.

The opportunities identified above should, however, not be interpreted as a predetermined list of national priority value chains. The readiness and competitiveness of individual value chains will depend on factors including sustainable resource and feedstock availability, technological readiness, existing research and productive capabilities, domestic and international market potential, opportunities for value addition, socioeconomic impact, environmental sustainability and county and regional

comparative advantage. Systematic mapping and assessment will therefore be important in identifying and prioritising value chains for targeted support and investment.

Lastly, Kenya's strategic opportunity lies in developing a portfolio of sustainable and competitive bioeconomy value chains, combining opportunities that are relatively close to market with longer-term investments in emerging and higher-value industries. This approach can enable the country to progressively move from the production and export of primary biological resources towards greater domestic processing, technology development, manufacturing and export of higher-value bio-based products and services.

This growing recognition of bioeconomy development within national policy discussions, together with strengthened institutional attention to science, research and innovation, expanding innovation ecosystems and increasing private-sector interest in sustainable industries, provides additional momentum for Kenya to position itself as a regional leader in bioeconomy research, innovation, investment and industrial development.

## 2.7 Conclusion

The situational analysis demonstrates that Kenya has a strong foundation for bioeconomy development, underpinned by its biological resource base, scientific and innovation capabilities, entrepreneurial ecosystem and strategic position within regional and continental markets. The economic significance of biological resources is already evident, with agriculture contributing approximately 24 per cent of GDP and supporting the livelihoods of about 72 per cent of the population, while agriculture, forestry and fishing collectively account for

more than one-fifth of the national economy (KNBS, 2026). These foundations provide an important platform from which Kenya can build a more diversified and higher-value bioeconomy.

The analysis also shows that the country's principal challenge is not simply the availability of biological resources or scientific knowledge, but its capacity to translate these assets into sustainable economic and societal value. Achieving this will require stronger connections across resource management, research and innovation, technology development and commercialisation, enterprise and industrial development, financing, skills and markets, supported by coherent governance and effective partnerships.

Kenya's bioeconomy transformation will therefore depend on increasing the value retained from biological resources while safeguarding the natural systems on which their continued productivity depends. This calls for a transition towards sustainable resource use, greater value addition, circular utilisation of biomass and biological residues, competitive bio-based enterprises and industries, and stronger participation of counties, communities and local enterprises in emerging economic opportunities.

The changing global landscape provides further impetus for this transition. Advances in biosciences and digital technologies, alongside growing demand for sustainable and traceable products and increasing investment in climate- and nature-positive development, are creating new opportunities for countries able to combine biological resources with knowledge, technology, enterprise capability and market access. Kenya's ability to strategically develop areas where it has existing or emerging comparative advantage will be critical to its regional and global competitiveness.

The findings of this situational analysis therefore provide the evidence base for the strategic objectives and interventions presented in the subsequent chapter. They point to the need for an integrated national approach that simultaneously strengthens the enabling environment, safeguards and sustainably utilises biological resources, advances research and innovation, accelerates value addition and industrial development, mobilises investment and markets, develops human capital and inclusion, and strengthens national, regional and international partnerships. Through this approach, Kenya can progressively develop a bioeconomy that contributes to economic transformation, environmental sustainability, resilience and improved livelihoods by 2036.

# STRATEGIC FRAMEWORK FOR OPERATIONALISING THE BIOECONOMY IN KENYA



### 3 STRATEGIC FRAMEWORK FOR OPERATIONALISING THE BIOECONOMY IN KENYA

#### 3.1 Introduction

The situational analysis presented in Chapter Two demonstrates that Kenya has a strong foundation for bioeconomy development, underpinned by its biological resources, scientific and innovation capabilities, productive sectors, entrepreneurial ecosystem and access to regional and global markets. It also establishes that realising the full value of these assets will require stronger connections between the sustainable management of biological resources, research and innovation, technology development and commercialisation, value addition and industrial development, enterprise growth, investment, skills and markets.

The Strategic Framework for Operationalising the Bioeconomy in Kenya translates these opportunities and challenges into a coherent national pathway for the period 2026–2036. Its central focus is to enable Kenya to derive greater economic, social and environmental value from its biological resources, scientific knowledge, technologies and innovations while safeguarding the natural resource base on which the bioeconomy depends. The Framework therefore seeks to support the transition from predominantly primary production and low-value utilisation of biological resources towards greater value addition, commercialisation, competitive enterprises, bio-based manufacturing and knowledge-intensive economic activity.

The Framework recognises the bioeconomy as a cross-cutting development pathway that connects agriculture and food systems, livestock, forestry, fisheries and aquaculture, biodiversity, health, biotechnology,

manufacturing, energy, waste management and ecosystem services. Its successful implementation will consequently require coordinated action across national and county governments, research and academic institutions, industry and the private sector, financial institutions, communities, development partners and other actors within the bioeconomy ecosystem.

Central to this approach are an enabling policy and institutional environment; sustainable and circular utilisation of biological resources; stronger research, innovation, technology transfer and commercialisation pathways; competitive priority value chains and bio-based industries; mobilisation of finance and investment alongside strengthened enterprise capabilities, infrastructure and markets; appropriate skills and human capacities; and stronger national, regional and international partnerships. These elements are designed to function as an interconnected system, recognising that progress in one area depends on complementary action across the others.

The Strategic Framework is therefore organised around seven mutually reinforcing pillars, each comprising a strategic goal, objectives, interventions and expected outcomes. Together, the pillars provide the strategic direction for translating Kenya's bioeconomy potential into measurable development outcomes and provide the basis for the detailed activities, targets, institutional responsibilities, timelines and indicative resource requirements set out in the Implementation Framework.

## PILLAR 1: Policy, Governance and Institutional Coordination

**Strategic Goal:** *To establish an enabling policy, governance, and institutional framework for coordinated bioeconomy development.*

Effective governance and institutional coordination are essential for advancing Kenya's bioeconomy in a coherent and sustainable manner. Given the cross-cutting nature of the bioeconomy, fragmented policies, overlapping institutional mandates and weak coordination mechanisms can constrain innovation, investment and the sustainable utilisation of biological resources. A well-coordinated governance framework is therefore needed to align national and county priorities, strengthen policy coherence, enhance collaboration among stakeholders and provide strategic oversight for bioeconomy development.

This pillar establishes the policy, governance, and institutional foundations necessary to drive the implementation of the National Bioeconomy Strategy. It focuses on strengthening policy and regulatory coherence, institutionalising governance and coordination mechanisms, and enhancing national and county capacities for science, research, innovation and knowledge management. The pillar also seeks to strengthen evidence-informed decision-making through improved coordination, monitoring, and reporting, while establishing institutions that will support long-term bioeconomy development, commercialisation, and technology transfer.

**Strategic Objective 1.1:** Strengthen policy coherence and regulatory alignment for bioeconomy development.

### Strategic Interventions

- Mainstream bioeconomy priorities into national and county development frameworks.
- Support existing standards, quality assurance, and certification systems for bio-based products and services.
- Strengthen the role of research, science, and innovation in the bioeconomy space.
- Promote enabling policy and regulatory frameworks for emerging bioeconomy technologies, products and innovations.

**Strategic Objective 1.2:** Strengthen governance and coordination mechanisms for bioeconomy development.

### Strategic Interventions

- Establish a high-level National Bioeconomy Steering Committee comprising Cabinet Secretaries from key ministries with mandates relevant to the bioeconomy.
- Institutionalise the National Bioeconomy Executive Committee, with membership comprising the relevant Principal Secretaries and the Chairperson of the Council of Governors (CoG).
- Establish a National Bioeconomy Working Group, supported by a Technical Secretariat housed within the Ministry responsible for Science, Technology and Innovation (STI).
- Strengthen coordination of science, research, technology and innovation to support the development and implementation of bioeconomy.
- Develop and publish an annual State of the Bioeconomy in Kenya Report.

**Strategic Objective 1.3:** Strengthen institutional, science, research, and innovation capacities for bioeconomy development.

## Strategic Interventions

- Establish a National Bioeconomy Institute as a national centre of excellence for bioeconomy research, science, innovation, technology development, knowledge management, commercialisation support and policy advisory services.
- Support the establishment and operationalisation of County Bioeconomy Innovation and Resource Centres to

promote decentralised innovation, technology transfer, value addition, enterprise development, and access to bioeconomy knowledge and services.

## Expected Outcome

A coherent policy and institutional environment with effective governance structures and strengthened capacities to enable coordinated implementation of the National Bioeconomy Strategy.

## POLICY, GOVERNANCE AND INSTITUTIONAL COORDINATION



### STRATEGIC GOAL

To establish an enabling policy, governance, and institutional framework for coordinated bioeconomy development.



### EXPECTED OUTCOME

A coherent policy and institutional environment with effective governance structures and strengthened capacities to enable coordinated implementation of the National Bioeconomy Strategy.



Image Source: SEI Africa

## PILLAR 2: Sustainable Biological Resource Management and Circular Bioeconomy

**Strategic Goal:** *To conserve, sustainably manage and regenerate Kenya's biological resources while increasing the productive, circular and equitable utilisation of biomass, biological by-products and organic waste.*

Kenya's rich biodiversity, agricultural systems, forests, fisheries, rangelands and other biological resources provide the foundation upon which the national bioeconomy is built. However, increasing pressure from population growth, climate change, land degradation, biodiversity loss, unsustainable resource use, and inefficient biomass utilisation threatens the long-term productivity and resilience of these resources. At the same time, significant volumes of agricultural residues, food waste, forestry by-products, livestock waste and other biological materials remain underutilised despite their potential to serve as feedstocks to produce food, feed, fertilisers, biomaterials, bioenergy and other high-value bio-based products. Unlocking this potential presents an opportunity not only to improve resource efficiency and reduce waste, but also to stimulate innovation, support new enterprises, strengthen value addition and accelerate the development of competitive circular bioeconomy industries.

This pillar promotes the sustainable management, regeneration and productive utilisation of Kenya's biological resources while accelerating the transition towards sustainable bioeconomy systems. It focuses on strengthening sustainable production systems, restoring ecosystems, improving biomass management, increasing the valorisation of biological by-products and organic waste, and supporting the development of biodiversity-based enterprises and value-added products. The

pillar also seeks to strengthen access and benefit-sharing mechanisms, support community-based enterprises, and promote the sustainable use of indigenous biological resources and associated knowledge, ensuring that bioeconomy development contributes to environmental sustainability, climate resilience, inclusive livelihoods and long-term economic growth.

**Strategic Objective 2.1:** Strengthen sustainable and regenerative management of biological resources.

### Strategic Interventions

- Develop national bioresource inventory and mapping system.
- Promote sustainable agricultural, forestry, fisheries, and aquaculture systems.
- Strengthen ecosystem restoration and conservation initiatives.
- Support sustainable production, utilisation and cascading use of biomass.
- Strengthen access and benefit-sharing mechanisms for biological and genetic resources.

**Strategic Objective 2.2:** Promote circular utilisation and valorisation of biomass, biological by-products, and organic waste.

### Strategic Interventions

- Map priority organic waste streams and establish county circular bioeconomy clusters.
- Support the development of standards, validate products and support market uptake of biological inputs
- Support the establishment of decentralised processing and resource-recovery units for small-scale producers and processors.

- Strengthen collection, segregation, storage and aggregation systems for biological by-products and organic waste.
- Support the development and uptake of viable technologies for converting biological waste into food, feed, fertilisers, biomaterials, bioenergy, and other value-added products.
- Promote composting, biogas, biomethane, and biochar technologies.
- Facilitate industrial symbiosis and by-product exchange among producers, processors, and other enterprises.
- Prioritise indigenous biological-resource value chains and establish sustainable harvesting and traceability systems.
- Strengthen the governance, ownership, and commercial capacity of community biodiversity enterprises.
- Support viable enterprises that deliver measurable conservation and livelihood benefits.
- Establish and pilot protocols for protecting indigenous knowledge and ensuring prior informed consent and benefit sharing.

**Strategic Objective 2.3:** Strengthen conservation, sustainable utilisation and equitable commercialisation of biological resources

### Strategic Interventions

### Expected Outcome

A sustainable, productive and resilient biological resource base supporting biodiversity conservation, climate resilience and long-term bioeconomy growth.

## SUSTAINABLE BIOLOGICAL RESOURCE MANAGEMENT AND CIRCULAR BIOECONOMY



### STRATEGIC GOAL

To conserve, sustainably manage and regenerate Kenya's biological resources while increasing the productive, circular and equitable utilisation of biomass, biological by-products and organic waste.



### EXPECTED OUTCOME

A sustainable, productive and resilient biological resource base supporting biodiversity conservation, climate resilience and long-term bioeconomy growth.



*Image Source: AI generated.*

## PILLAR 3: Research, Innovation, Cluster Development, Technology Transfer and Commercialisation

**Strategic Goal:** *To strengthen the generation, application, transfer and commercialisation of biosciences knowledge, technologies and innovations in support of enterprise development, industrial transformation and economic competitiveness*

Innovation is the engine that transforms biological resources and scientific knowledge into competitive products, enterprises and industries. While Kenya has strong research institutions, universities and innovation ecosystems, many research outputs do not progress beyond early development stages into commercially viable products, enterprises and industries. Strengthening the linkages between research, innovation, technology transfer and commercialisation is therefore essential to support industrial development, competitiveness, and sustainable bioeconomy growth.

This pillar focuses on strengthening research and development, accelerating technology transfer, promoting commercialisation, and fostering stronger linkages between science, industry and policy. It seeks to ensure that research and innovation contribute directly to national bioeconomy priorities, enterprise development, and industrial transformation.

**Strategic Objective 3.1:** Strengthen bioeconomy research and development aligned with national priorities.

### Strategic Interventions

- Support demand-driven and mission-oriented biosciences research.
- Promote multidisciplinary research addressing national bioeconomy priorities.
- Strengthen biosciences, biotechnology and bioengineering capabilities.

**Strategic Objective 3.2:** Strengthen technology transfer and commercialisation.

### Strategic Interventions

- Strengthen technology transfer offices and innovation support systems.
- Establish proof-of-concept and pilot-scale funding mechanisms.
- Support bioeconomy incubators and accelerators.
- Strengthen intellectual property management and protection.
- Promote commercialisation of indigenous and local knowledge-based innovations.
- Support innovation infrastructure, prototyping facilities, living laboratories and demonstration systems that accelerate the development, testing, validation and commercialisation of bioeconomy innovations.
- Establish regulatory and standards sandboxes to facilitate the testing and validation of emerging bioeconomy innovations.
- Support technology validation, demonstration and scale-up pathways that bridge the gap between research and commercial production.

**Strategic Objective 3.3:** Strengthen science-industry-investment-policy linkages.

### Strategic Interventions

- Establish bioeconomy innovation platforms.
- Mobilise private sector co-financing and demand articulation for collaborative research.
- Facilitate technology validation and demonstration programs.
- Facilitate partnerships between

researchers, enterprises, investors and policymakers to accelerate commercialisation and industrial uptake of bioeconomy innovations.

- Support innovation networks and technology dissemination mechanisms.

**Strategic Objective 3.4:** Strengthen emerging and frontier biosciences and bioeconomy technologies.

### Strategic Interventions

- Support research and innovation in emerging biosciences and bioeconomy technologies.

- Promote digitalisation of bioeconomy systems.
- Strengthen bioeconomy foresight and technology assessment systems

### Expected Outcome

An innovation-driven bioeconomy ecosystem that translates research, technology, and knowledge into competitive products, enterprises and industries.

## RESEARCH, INNOVATION, CLUSTER DEVELOPMENT, TECHNOLOGY TRANSFER AND COMMERCIALISATION



### STRATEGIC GOAL

To strengthen the generation, application, transfer and commercialisation of biosciences knowledge, technologies and innovations in support of enterprise development, industrial transformation and economic competitiveness.



### EXPECTED OUTCOME

An innovation-driven bioeconomy ecosystem that translates research, technology, and knowledge into competitive products, enterprises and industries.



*Image Source: SEI Africa*

## PILLAR 4: Bio-Based Industrial Development Based on Priority Value Chains

**Strategic Goal:** *To accelerate value addition, enterprise development and industrial transformation through bio-based innovation.*

Industrial development is the primary pathway through which bioeconomy can contribute to economic transformation, job creation, and competitiveness. Unlocking this potential requires coordinated efforts to strengthen value chains, secure reliable raw material supply, accelerate commercialisation, promote enterprise growth, and support the emergence of innovative bio-based industries- anchored to existing trade protocols and market access arrangements, including bilateral agreements and regional trading blocs.

This pillar focuses on building competitive bio-based industries around priority value chains, supporting entrepreneurship and enterprise development, promoting industrial clustering and strengthening linkages between research, innovation, production and markets- including securing off-take agreement before investment is committed. Through these interventions, Kenya will increase value addition, expand industrial opportunities and enhance participation in regional and global bioeconomy markets.

**Strategic Objective 4.1:** Develop and strengthen priority bioeconomy value chains

### Strategic Interventions

- Undertake national bioeconomy mapping and characterisation
- Prioritise bioeconomy value chains at national, regional economic cluster and county levels
- Strengthen producer organisations and bioeconomy enterprises along priority value chains

- Promote value addition and local processing within priority bioeconomy value chains
- Strengthen market-oriented development of priority bioeconomy value chains

**Strategic Objective 4.2:** Promote bio-based industrialisation.

### Strategic Interventions

- Support development and upgrading of bioprocessing and biomanufacturing capacity
- Promote development and commercialisation of biomaterials, biochemicals and other bio-based products
- Promote adoption of industrial biotechnology and bio-based manufacturing processes
- Support circular bioeconomy industries and industrial symbiosis

**Strategic Objective 4.3:** Support MSMEs and entrepreneurship in the bioeconomy

### Strategic Interventions

- Support bioeconomy start-ups and growth-oriented enterprises
- Strengthen incubation and acceleration of bioeconomy enterprises
- Strengthen bioeconomy entrepreneurship capabilities
- Facilitate technology uptake by bioeconomy MSMEs
- Support formalisation, standards compliance and market integration of bioeconomy enterprises

**Strategic Objective 4.4:** Promote strategic bioeconomy sectors and emerging industries.

## Strategic Interventions

- Promote climate-smart agriculture and sustainable food-system enterprises
- Promote sustainable forest-based industries and bioresource enterprises
- Promote health biotechnology, biopharmaceuticals and natural-product industries
- Promote blue bioeconomy industries and enterprises
- Promote bioenergy and renewable biological-resource industries

- Promote ecosystem services and nature-based enterprises

## Expected Outcome

Competitive and innovative bio-based industries and enterprises generating increased value addition, quality employment, export growth, sustainable livelihoods and inclusive industrial transformation.

## BIO-BASED INDUSTRIAL DEVELOPMENT BASED ON PRIORITY VALUE CHAINS



### STRATEGIC GOAL

To accelerate value addition, enterprise development and industrial transformation through bio-based innovation.



### EXPECTED OUTCOME

Competitive and innovative bio-based industries and enterprises generating increased value addition, quality employment, export growth, sustainable livelihoods and inclusive industrial transformation.



*Image Source: SEI Africa*

## PILLAR 5: Investment, Competitiveness and Market Development

**Strategic Goal:** *To build commercially viable and competitive bioeconomy enterprises and industries through enhanced investment, enterprise competitiveness, enabling infrastructure and market development.*

A successful bioeconomy depends not only on biological resources, scientific knowledge and innovation, but on the ability to translate these into competitive enterprises, sustainable industries, and growing markets. Kenya's substantial potential remains underutilised. Research and innovation are rarely commercialised; value chains are fragmented, enterprises are often not investment-ready, and infrastructure and market linkages remain weak. Many promising enterprises stall at the pilot and demonstration stage for lack of growth capital, processing infrastructure, market intelligence and business development support even as domestic, regional and global demand for sustainable products, nature-based solutions, climate-smart technologies and bio-based materials continues to expand.

This pillar creates the conditions for commercially viable bioeconomy enterprises and industries to emerge, grow and compete, strengthening investment, enterprise competitiveness, enabling infrastructure and market development, while reducing the technological, commercial, market and financing risks that constrain participation and industrial scale-up.

**Strategic Objective 5.1:** Mobilise and align sustainable financing for bioeconomy development.

### Strategic Interventions

- Develop and operationalise a national bioeconomy financing and investment framework.
- Promote Kenya as a regional destination for bioeconomy investment.

- Promote blended finance, guarantee schemes and risk-sharing mechanisms to reduce technology, market and investment risks associated with emerging bioeconomy sectors and enterprises.
- Establish bioeconomy commercialisation and scale-up facility to support proof-of-concept, pilot and demonstration projects.
- Facilitate access to climate, green and development finance.
- Promote public-private investment partnerships supporting strategic bioeconomy investments.
- Facilitate access to venture capital, impact investment, and growth financing for bioeconomy enterprises.
- Strengthen access to climate finance, carbon finance, biodiversity finance, and other nature-based financing mechanisms.

**Strategic Objective 5.2:** Improve investment readiness, productivity, and competitiveness of bioeconomy enterprises.

### Strategic Interventions

- Establish a Bioeconomy Project Preparation Facility.
- Provide investment-readiness, business development and financial management support tailored to bioeconomy enterprises.
- Maintain a national bioeconomy investment pipeline tracking enterprises from pilot stage through to investment readiness.
- Support incubation, mentorship and formalisation pathways for bioeconomy start-ups, including community-based and informal-sector innovators.
- Strengthen enterprise productivity, quality and cost competitiveness through technology adoption and process-improvement support.

- Support enterprise compliance with quality, sustainability, traceability and export standards required for participation in domestic and international markets.

**Strategic Objective 5.3:** Strengthen bioeconomy enabling infrastructure and logistics.

### Strategic Interventions

- Establish bioeconomy innovation and processing hubs, prioritised against value chain readiness and county resource endowment.
- Strengthen laboratory and testing infrastructure.
- Develop pilot-scale, demonstration and biorefinery facilities to bridge research and commercial-scale production.
- Strengthen logistics and value chain infrastructure connecting production areas to processing, innovation and market infrastructure.
- Strengthen market infrastructure, including certification systems, commodity-exchange platforms and digital market-information tools supporting bioeconomy enterprises.
- Develop feedstock aggregation, collection and storage infrastructure for priority biomass streams.

**Strategic Objective 5.4:** Develop competitive domestic, regional, and export markets for bio-based products and services.

### Strategic Interventions

- Strengthen standards, certification and accreditation systems for priority bioeconomy value chains.
- Promote domestic market development and consumer awareness of bio-based products and services.
- Support export readiness and international market access.
- Promote demand creation for bio-based products through sustainable public procurement, awareness programmes, standards and market-based incentives.
- Strengthen market intelligence, trade promotion and export support services.
- Support regional and international market access for Kenyan bioeconomy products.
- Develop digital market information and buyer-seller linkage platforms.
- Prioritise investment, competitiveness and market-support measures for strategic national bioeconomy value chains identified under Pillar 4.

### Expected Outcome

Commercially viable, investment-ready and globally competitive bioeconomy enterprises and industries supported by enabling infrastructure, efficient market systems, increased domestic and international investment, and expanded participation in regional and global value chains.

## INVESTMENT, COMPETITIVENESS AND MARKET DEVELOPMENT



### STRATEGIC GOAL

To build commercially viable and competitive bioeconomy enterprises and industries through enhanced investment, enterprise competitiveness, enabling infrastructure and market development.



### EXPECTED OUTCOME

Commercially viable, investment-ready and globally competitive bioeconomy enterprises and industries supported by enabling infrastructure, efficient market systems, increased domestic and international investment, and expanded participation in regional and global value chains.



*Image Source: AI generated.*

## PILLAR 6: Human Capital Development, Inclusion and Public Awareness

**Strategic Goal:** *To build a skilled, inclusive and informed society capable of driving and benefiting from bioeconomy development.*

The successful development of Kenya's bioeconomy will depend on the availability of a skilled workforce, strong institutional capacities, an informed public and the active participation of all segments of society. As the bioeconomy evolves, there is growing demand for specialised knowledge, technical skills, entrepreneurial capabilities and leadership across the bioeconomy value chain. At the same time, ensuring that women, youth, marginalised groups and local communities can meaningfully participate in and benefit from bioeconomy opportunities is essential for achieving inclusive and equitable development. Public awareness, effective science communication and knowledge sharing are equally important for promoting understanding, acceptance and adoption of bio-based innovations, products and sustainable practices.

This pillar focuses on strengthening human capital, institutional capacity, inclusion and public awareness to support the growth of a competitive and sustainable bioeconomy. It seeks to strengthen education, training and skills development; promote entrepreneurship, innovation and lifelong learning; enhance equitable participation and benefit sharing; and foster public awareness, science communication and stakeholder engagement. Through these interventions, the pillar aims to develop the human capabilities, leadership, institutional readiness and societal support necessary to drive innovation, enterprise development, sustainable livelihoods and the long-term success of Kenya's bioeconomy.

**Strategic Objective 6.1:** Strengthen bioeconomy skills and competencies of the workforce

### Strategic Interventions

- Conduct national bioeconomy skills, competencies and training needs assessments.
- Develop and integrate bioeconomy education and training curricula at basic, TVET, university and advanced levels.
- Develop and implement specialised bioeconomy training programmes, including technical, entrepreneurship, enterprise development and commercialisation skills.
- Strengthen the capacity of educators, trainers, extension personnel and other intermediaries to deliver bioeconomy education and skills development.
- Establish professional training, certification and continuous professional development programmes in priority bioeconomy areas.
- Strengthen rural bioeconomy skills and advisory capacity to support farm-based innovation, adoption of bioeconomy technologies and development of rural bioeconomy business models.

**Strategic Objective 6.2:** Empower communities for effective engagement in bioeconomy value chains

### Strategic Interventions

- Promote gender, disability and social inclusion in bioeconomy value chains.
- Strengthen the participation and capacity of community-based organisations, micro and small enterprises, cooperatives and producer organisations in bioeconomy value chains.

- Promote decent, productive and inclusive employment opportunities across bioeconomy value chains.
- Strengthen producer groups, cooperatives and community enterprises to participate effectively in bioeconomy development.
- Develop and implement social inclusion and equitable benefit-sharing frameworks for bioeconomy development.

**Strategic Objective 6.3:** Enhance public and stakeholder participation in the bioeconomy ecosystem

#### Strategic Interventions

- Develop and implement a national bioeconomy awareness, communication and outreach strategy.
- Develop targeted, accessible and inclusive bioeconomy communication and public-engagement materials.
- Develop and implement a national bioeconomy stakeholder engagement framework, including stakeholder mapping and mechanisms for continuous engagement.
- Establish and strengthen multi-stakeholder platforms, working groups, advisory committees and communities of practice.
- Convene regular national and regional bioeconomy forums and stakeholder consultations.

- Establish and strengthen bioeconomy knowledge-management and knowledge-sharing platforms.
- Promote public and consumer awareness of bio-based products, services and solutions.

**Strategic Objective 6.4:** Strengthen leadership, institutional capacity and change management for bioeconomy transformation

#### Strategic Interventions

- Develop bioeconomy leadership training and mentorship programmes for policymakers and practitioners.
- Build the capacity of national and county institutions responsible for bioeconomy implementation.
- Enhance bioeconomy literacy among policymakers and decision-makers.
- Strengthen change management and organisational readiness for bioeconomy implementation.

#### Expected Outcome

A skilled, inclusive and informed society actively participating in and benefiting from the bioeconomy, supported by strengthened institutional and leadership capacity, equitable participation of women, youth, persons with disabilities and communities, and increased public awareness and uptake of bio-based products and solutions.

## HUMAN CAPITAL DEVELOPMENT, INCLUSION AND PUBLIC AWARENESS



#### STRATEGIC GOAL

To conserve, sustainably manage and regenerate Kenya's biological resources while increasing the productive, circular and equitable utilisation of biomass, biological by-products and organic waste.



#### EXPECTED OUTCOME

A sustainable, productive and resilient biological resource base supporting biodiversity conservation, climate resilience and long-term bioeconomy growth.



Image Source: SEI Africa

## PILLAR 7: Partnerships, Regional Integration and International Cooperation

**Strategic Goal:** *To strengthen strategic partnerships, regional integration and international cooperation that support bioeconomy development, competitiveness, value capture and Kenya's global positioning as a bioeconomy leader.*

The development of a competitive and sustainable bioeconomy requires strong partnerships that mobilise knowledge, technology, investment and markets across national, regional and international levels. As biological resources, value chains, research, technology and innovation increasingly transcend national boundaries, Kenya must strengthen collaboration with government institutions, academia, research organisations, the private sector, development partners, regional economic communities and international organisations to accelerate bioeconomy development. At the same time, greater regional integration presents significant opportunities to expand markets, harmonise standards, strengthen regional value chains and position Kenya as a leading bioeconomy hub within East Africa and the African continent.

This pillar seeks to strengthen strategic partnerships, regional integration and international cooperation to accelerate research, innovation, technology transfer, investment and market development while safeguarding national interests, promoting equitable value capture and ensuring compliance with access and benefit-sharing obligations. It promotes collaboration across public, private and research institutions, supports implementation of regional and continental bioeconomy initiatives, and strengthens Kenya's participation in international bioeconomy platforms, trade and diplomacy. The pillar also aims to position

Kenya as a regional centre for bioeconomy innovation, investment and sustainable industrial development, while enhancing the country's competitiveness in regional and global bio-based markets.

**Strategic Objective 7.1:** Strengthen national and international partnerships for research, technology and investment

### Strategic Interventions

- Promote public-private-academic and industry-research partnerships for bioeconomy development.
- Facilitate international research, innovation and knowledge-exchange partnerships, safeguarded by Access and Benefit-Sharing (ABS) compliance and clear intellectual property (IP) terms.
- Promote technology transfer, co-development and investment partnerships.
- Strengthen collaboration with development partners through a bioeconomy development-partner coordination platform, aligned with global climate finance mechanisms.
- Facilitate county-level and regional-economic-bloc international engagement.

**Strategic Objective 7.2:** Promote regional integration and cooperation

### Strategic Interventions

- Support implementation of the EAC Regional Bioeconomy Strategy.
- Promote regional and continental bioeconomy value chains, industrial partnerships and market integration.
- Support harmonisation of regional standards, regulations and certification systems.

- Promote joint regional and continental research and innovation programmes with EAC partner states through AU STI frameworks.
- Leverage regional and continental trade frameworks, including the EAC and AfCFTA, to expand market access for Kenyan bioeconomy products and services.

**Strategic Objective 7.3:** Strengthen Kenya's global bioeconomy positioning, diplomacy and market access

### Strategic Interventions

- Develop and implement a national bioeconomy branding and visibility strategy, showcasing Kenyan innovations at international exhibitions and platforms.
- Promote participation in, and exploration of convening, global bioeconomy platforms, leveraging Kenya's status as host of international environmental institutions and regional marine governance architecture.

- Support international market access and positioning of Kenyan bio-based products and services, including mutual recognition and equivalence agreements with priority export markets.
- Promote South-South and North-South cooperation, including engagement with Kenyan diaspora scientific, professional and investment networks.
- Strengthen bioeconomy diplomacy and international engagement, including positioning Kenya as a regional hub for bioeconomy investment.

### Expected Outcome

Enhanced regional and global competitiveness, partnerships and investment in Kenya's bioeconomy, with strengthened domestic value capture, safeguarded benefit-sharing, and demonstrable returns to national, county and regional-bloc economies.

## PARTNERSHIPS, REGIONAL INTEGRATION AND INTERNATIONAL COOPERATION



### STRATEGIC GOAL

To strengthen strategic partnerships, regional integration and international cooperation that support bioeconomy development, competitiveness, value capture and Kenya's global positioning as a bioeconomy leader.



### EXPECTED OUTCOME

Enhanced regional and global competitiveness, partnerships and investment in Kenya's bioeconomy, with strengthened domestic value capture, safeguarded benefit-sharing, and demonstrable returns to national, county and regional-bloc economies.



Image Source: AI generated.

# IMPLEMENTATION FRAMEWORK



## 4 IMPLEMENTATION FRAMEWORK

### 4.1 Introduction

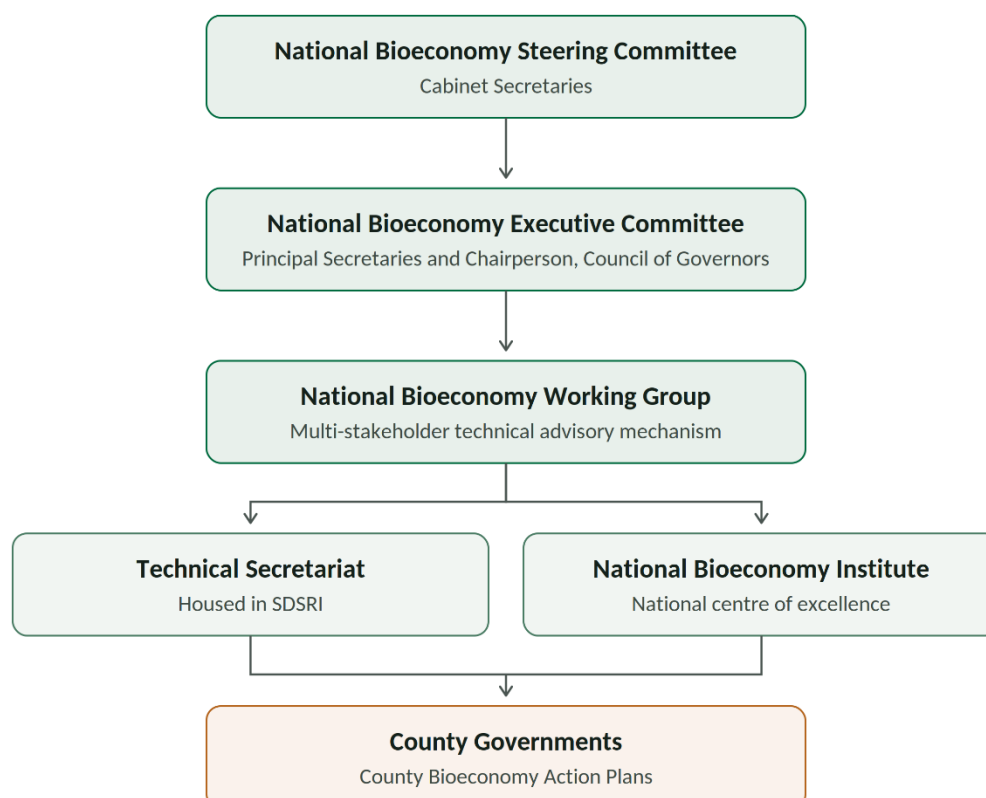
Effective implementation of the Kenya National Bioeconomy Strategy requires coordinated action and strong partnerships across government, academia, research institutions, the private sector, development partners, civil society and local communities. Given the cross-cutting nature of the bioeconomy, implementation must be supported by clear governance structures, adequate financing, strong institutions and robust accountability mechanisms.

The implementation framework provides the institutional, financial, and operational mechanisms required to translate the strategic priorities of the Strategy into measurable outcomes over the ten-year implementation period (2026–2036). It outlines the governance architecture,

institutional responsibilities, financing arrangements, monitoring, evaluation, reporting and learning (MERL) framework, risk management measures, and review processes that will guide implementation. A detailed implementation matrix outlining strategic interventions, responsibilities, timelines, targets and indicative budgets is provided in Annex I.

Implementation shall be phased. The first phase, covering 2026 and 2027, shall prioritise establishment of the governance structures, the Technical Secretariat and the National Bioeconomy Institute; completion of the national bioeconomy mapping and value chain prioritisation; development of the national bioresource inventory; establishment of the MERL Framework and baselines; and preparation of the National Bioeconomy Financing and Investment Framework. A First

**Figure 4.1: National Bioeconomy Strategy Coordination Framework**



Phase Implementation Work Plan, setting out sequenced activities, responsibilities, milestones and resource requirements, shall be prepared by the Technical Secretariat and approved by the National Bioeconomy Executive Committee within three months of the Strategy's adoption. Where first-phase interventions extend beyond 2027, the First Phase Implementation Work Plan shall specify the milestones to be achieved by the end of 2027.

## 4.2 Institutional Arrangements

Implementation of the Kenya National Bioeconomy Strategy will be guided by a coordinated, multi-level institutional framework that provides strategic leadership, policy coordination, technical guidance and implementation support across national and county governments. Given the cross-cutting nature of the bioeconomy, the framework brings together government, research and academic institutions, industry and the private sector, financial institutions, communities, civil society and development partners. The institutional arrangements are designed to provide clear lines of responsibility and accountability while leveraging existing institutional mandates and capacities. These will include:

### 4.2.1 National Bioeconomy Steering Committee

The National Bioeconomy Steering Committee shall serve as the highest-level policy and strategic oversight body for implementation of the Strategy. It shall provide political and strategic leadership, promote whole-of-government coordination and ensure that bioeconomy development remains aligned with Kenya's national development priorities.

The Committee shall comprise Cabinet Secretaries from Ministries whose mandates are directly relevant to the development of the bioeconomy. Membership may include Ministries responsible for science, research and innovation; agriculture and livestock development; blue economy and fisheries; environment and climate change; health; industry and trade; energy; ICT; education; water; tourism; mining; cooperatives; the National Treasury; and foreign and diaspora affairs. Other institutions may be co-opted as necessary.

The Steering Committee shall:

- Provide overall policy direction and strategic oversight for implementation of the Strategy.
- Approve national implementation priorities and strategic programmes.
- Promote policy coherence and coordination across Ministries, Departments and Agencies.
- Champion the national bioeconomy agenda and mobilise high-level political support.
- Facilitate resource mobilisation and strategic investment partnerships.
- Review overall implementation performance and provide strategic guidance.
- Address cross-sectoral policy and institutional barriers affecting implementation.
- Promote Kenya's regional, continental and global leadership in bioeconomy development.

The Steering Committee shall meet at least **twice annually**, or as may be required.

#### 4.2.2 National Bioeconomy Executive Committee

The National Bioeconomy Executive Committee shall provide executive leadership and intergovernmental coordination for implementation of the Strategy. It shall translate the strategic and policy direction of the Steering Committee into coordinated government action and strengthen linkages between national and county implementation.

The Executive Committee shall comprise Principal Secretaries from relevant Ministries and the Chairperson of the Council of Governors, with other institutions participating as appropriate.

The Executive Committee shall:

- Translate strategic policy decisions into coordinated implementation actions.
- Approve annual implementation work plans and priorities.
- Coordinate implementation across Ministries, Departments, Agencies and County Governments.
- Promote alignment of sector programmes and investments with the Strategy.
- Review implementation performance and recommend corrective actions.
- Strengthen coordination between national and county governments.
- Facilitate institutional resource allocation and mobilisation for implementation.
- Consider recommendations from the National Bioeconomy Working Group and Technical Secretariat.
- Submit annual implementation reports to the National Bioeconomy Steering Committee.

The Executive Committee shall meet at least **twice annually**.

#### 4.2.3 National Bioeconomy Working Group

The National Bioeconomy Working Group shall serve as the principal multi-stakeholder technical advisory mechanism for implementation of the Strategy. It shall provide technical guidance, facilitate coordination across thematic areas and strengthen collaboration among institutions participating in Kenya's bioeconomy.

Membership shall draw from relevant Ministries, Departments and Agencies; County Governments; universities and research institutions; regulatory agencies; industry and private-sector organisations; financial institutions; civil society; communities and development partners, based on relevant expertise.

The Working Group shall:

- Provide technical advice on implementation of the Strategy.
- Review implementation progress and provide recommendations to the Executive Committee.
- Identify implementation bottlenecks and recommend appropriate technical and institutional responses.
- Facilitate coordination across the Strategy's strategic pillars and thematic areas.
- Promote collaboration among government, research institutions, academia, industry, investors and development partners.
- Support the development of technical guidelines and implementation tools.
- Facilitate knowledge exchange, peer learning and dissemination of good practices.
- Support monitoring, evaluation, reporting and learning.

The Working Group may establish thematic or time-bound technical sub-committees where specialised expertise is required for priority areas or emerging implementation issues.

#### **4.2.4 Technical Secretariat**

The Technical Secretariat shall serve as the central coordination and administrative mechanism for implementation of the Strategy. It shall be housed within the State Department responsible for Science, Research and Innovation and shall provide secretariat services to the Steering Committee, Executive Committee and National Bioeconomy Working Group.

The Technical Secretariat shall:

- Coordinate day-to-day implementation of the Strategy.
- Convene and provide secretariat support to the national bioeconomy governance structures.
- Coordinate implementation across lead and supporting institutions.
- Facilitate national–county coordination and stakeholder engagement.
- Coordinate resource mobilisation and partnership development.
- Coordinate the Monitoring, Evaluation, Reporting and Learning Framework.
- Consolidate implementation data and prepare annual implementation performance reports.
- Coordinate preparation and publication of the annual State of the Bioeconomy in Kenya Report, drawing on technical evidence and data generated by relevant institutions.
- Coordinate communication, public awareness and dissemination of implementation results.
- Support periodic reviews and evaluations of the Strategy.

- Maintain institutional records and follow up implementation decisions of the governance structures.

A bioeconomy communication and advocacy strategy shall be developed within the first year of implementation to guide public awareness, stakeholder engagement and dissemination of implementation results. This makes the Secretariat principally responsible for coordination, administration, reporting and implementation management, rather than research and technical functions.

#### **4.2.5 National Bioeconomy Institute**

The National Bioeconomy Institute shall serve as the national centre of excellence providing the scientific, technical, innovation and knowledge capabilities required to support implementation of the Strategy. Its establishment is provided for under Strategic Objective 1.3 and will strengthen the evidence base, technological capabilities and institutional infrastructure required for long-term bioeconomy development.

The Institute shall complement the Technical Secretariat's coordination role by providing specialised technical and scientific support.

Its core functions shall include:

- Undertake and coordinate strategic bioeconomy research and policy analysis.
- Coordinate national bioeconomy foresight, horizon scanning and technology assessment.
- Support technology development, validation, demonstration, transfer and commercialisation.
- Establish and manage the National Bioeconomy Observatory and knowledge platform.
- Coordinate bioeconomy data generation, analysis and knowledge management.

- Provide scientific and technical inputs to the annual State of the Bioeconomy in Kenya Report.
- Provide technical support to the MERL Framework, including development and review of relevant indicators and baselines.
- Support innovation, incubation, enterprise development and research-industry linkages.
- Promote technology transfer and intellectual property management.
- Support specialised bioeconomy skills and capacity development.
- Facilitate national and international research, innovation and knowledge partnerships.
- Provide technical and policy advisory support to national and county governments.

The Institute shall establish data standards, quality-assurance protocols and access arrangements for the National Bioeconomy Observatory, including provisions for open access to non-sensitive bioeconomy data and for the protection of proprietary, personal and genetic resource information. The Institute shall work closely with universities, research institutions, innovation agencies, County Governments, industry, the private sector and international partners.

#### **4.2.6 County Governments**

County Governments shall play a central role in translating the National Bioeconomy Strategy into locally relevant programmes, investments and economic opportunities. In accordance with their constitutional mandates, counties shall integrate bioeconomy development into county planning and implementation while building on their biological resources, production systems, knowledge, capabilities and comparative advantages.

County Governments shall:

- Mainstream bioeconomy priorities into County Integrated Development Plans (CIDPs), County Spatial Plans and other relevant county frameworks.
- Develop County Bioeconomy Action Plans aligned with the National Bioeconomy Strategy. County Bioeconomy Action Plans shall be developed within the first two years of implementation, aligned to County Integrated Development Plan cycles, with technical support from the Technical Secretariat and the Council of Governors.
- Identify and develop priority county bioeconomy value chains and investment opportunities.
- Support the establishment and operation of County Bioeconomy Innovation and Resource Centres.
- Facilitate technology adoption, enterprise development, local processing and value addition.
- Mobilise and engage communities, cooperatives, MSMEs, innovators and private-sector actors in bioeconomy development.
- Promote sustainable management, conservation and utilisation of biological resources.
- Mobilise county resources, investment and partnerships for implementation.
- Strengthen county-level monitoring, reporting and learning.
- Participate in national bioeconomy coordination, reporting and knowledge-sharing mechanisms.

County Governments shall collaborate with neighbouring counties and regional economic blocs where biological resources, value chains, infrastructure, markets or investment opportunities extend across county

boundaries. This will enable county and inter-county bioeconomy development while maintaining alignment with national priorities.

Terms of Reference for the National Bioeconomy Steering Committee, Executive Committee, Working Group and Technical Secretariat, specifying chairing arrangements, membership, quorum, decision-making procedures, reporting lines and meeting schedules, shall be developed and approved within six months of adoption of the Strategy. The Steering Committee shall be chaired by the Cabinet Secretary responsible for science, research and innovation, with co-chairing arrangements to be confirmed in the Terms of Reference.

### **4.3 Legal and Regulatory Framework**

Implementation of this Strategy shall be undertaken within the existing legal framework set out in Section 2.4.3. Where implementation of specific provisions requires legislative or regulatory action, including the establishment of institutions or funds, the Attorney-General and the Kenya Law Reform Commission shall be engaged to determine the appropriate legal instrument. A review of the legislative and regulatory requirements for implementation shall be undertaken within the first year and, where necessary, legislative proposals shall be developed for consideration.

### **4.4 Financing Framework**

The implementation of the Kenya National Bioeconomy Strategy (2026–2036) will require coordinated mobilisation of public, private and development finance. The diverse financing needs of the bioeconomy—from research and innovation to

commercialisation, enterprise development, infrastructure and industrial scale-up—require a mix of financing sources and instruments.

Financing of the Strategy will be guided by the National Bioeconomy Financing and Investment Framework provided for under Strategic Objective 5.1: Mobilise and align sustainable financing for bioeconomy development. The Framework will guide resource mobilisation, identify financing gaps and opportunities, align public and private investment, and facilitate financing for priority bioeconomy interventions, value chains and investment opportunities.

Pending finalisation of the National Bioeconomy Financing and Investment Framework, an interim financing and resource mobilisation plan shall be prepared within the first six months of implementation to guide financing of first-phase interventions. The interim plan shall identify committed and prospective funding for interventions commencing in 2026, confirm budget submissions through the Medium-Term Expenditure Framework, and establish initial engagement with development partners and financing institutions.

Public financing will provide a foundation for implementation, particularly for policy and institutional development, research and innovation, public infrastructure, skills development and sustainable resource management. National Government resources will be mobilised through the Medium-Term Expenditure Framework (MTEF), annual sector budgets, national funds and relevant programmes, while County Governments will integrate bioeconomy priorities into their development plans, programmes and budgets.

The Strategy will seek to leverage private investment for commercially viable opportunities in enterprise development, technology adoption, value addition, processing, manufacturing and infrastructure. Public-private partnerships and other co-investment arrangements will be promoted where appropriate. Access to finance for emerging and technology-intensive enterprises will be strengthened through appropriate instruments, including blended finance, guarantees and risk-sharing mechanisms, development finance, venture and impact investment, and commercialisation and scale-up financing. Kenya will also leverage climate, green, carbon, biodiversity and other nature-based financing mechanisms for eligible investments that contribute to climate resilience,

ecosystem restoration, biodiversity conservation, circularity and sustainable resource use. Development partners and international financing institutions will provide complementary grants, concessional finance, technical assistance and investment support aligned with national priorities.

Resource mobilisation will be supported by the development of bankable and investment-ready bioeconomy projects and enterprises, including through project preparation, feasibility assessment, business-development support and investor linkages. Financing will prioritise investments that demonstrate sustainability, economic viability, value-addition potential and contribution to employment and national development. Lastly, financing and investment mobilised

**Table 4.1:** Indicative Financing Sources for the National Bioeconomy Strategy

| Financing Source                               | Potential Financing Mechanisms                                                                               | Indicative Areas of Support                                                                                                                  |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| National Government                            | MTEF and annual budget allocations, sector programmes, national funds, and targeted public investment        | Policy and institutional development, research and innovation, infrastructure, skills development, public programmes                         |
| County Governments                             | County budgets, development programmes, and county investment initiatives                                    | County bioeconomy programmes, local infrastructure, innovation and resource centres, enterprise, and value chain development                 |
| Private Sector                                 | Direct investment, corporate investment, PPPs, equity, and commercial finance                                | Processing, manufacturing, technology deployment, infrastructure, enterprise growth and value addition                                       |
| Financial and Development Finance Institutions | Commercial lending, concessional finance, guarantees, risk-sharing and blended-finance instruments           | Project development, enterprise growth, technology adoption, commercialisation and industrial scale-up                                       |
| Development Partners                           | Grants, concessional finance, technical assistance, and programme support                                    | Research and innovation, institutional strengthening, capacity development, demonstration, and catalytic investments                         |
| Climate and Nature Finance                     | Climate and green finance, carbon finance, biodiversity finance, and other nature-based financing mechanisms | Climate-resilient bioeconomy investments, ecosystem restoration, biodiversity conservation, circularity, and sustainable resource management |
| Innovation and Investment Capital              | Venture capital, impact investment, growth capital, commercialisation, and scale-up financing                | Start-ups, technology commercialisation, innovative enterprises, and emerging bio-based industries                                           |

under the Strategy will be monitored through the Monitoring, Evaluation, Reporting and Learning (MERL) Framework to promote transparency, accountability, value for money and effective use of resources.

The indicative resource requirement for implementation of the Strategy is about KES 100 billion over the ten-year period, as detailed in Annex I. An indicative allocation of this requirement across the financing sources set out below, distinguishing resources to be mobilised through the Exchequer from those expected from private, development, climate and investment capital, shall be established as part of the National Bioeconomy Financing and Investment Framework and reflected in the first annual implementation work plan.

Financing arrangements shall include measures to improve access to finance for women-led, youth-led and community-based bioeconomy enterprises, and for enterprises in underserved counties.

#### **4.5 Monitoring, Evaluation, Reporting and Learning Framework**

A Monitoring, Evaluation, Reporting and Learning (MERL) Framework will guide the tracking of implementation, results and outcomes of the National Bioeconomy Strategy. Monitoring will be based on the indicators, targets and timelines contained in the Implementation Matrix in Annex I. Where baseline data are unavailable, they will be established during the early implementation period and updated periodically to support consistent measurement of progress. A common definition and classification of bioeconomy enterprises, sectors and activities shall be agreed as part of the MERL Framework to ensure consistency in measurement and reporting across institutions.

The MERL Framework will track both implementation progress and outcome-level changes, including sustainable resource management, research and commercialisation, value addition, investment, enterprise growth, employment and market performance. The Technical Secretariat will coordinate MERL and reporting, while lead and supporting institutions will provide implementation data and the National Bioeconomy Institute will support baseline development, data analysis and the National Bioeconomy Observatory. Findings will inform annual reporting, adaptive implementation, the mid-term review and final evaluation of the Strategy. Implementation data shall be disaggregated by county, and by sex and age where relevant to the indicator, to support monitoring of inclusion commitments and county-level progress. Disaggregation requirements for each indicator shall be specified in the MERL Framework.

In addition to the indicators in Annex I, a set of national headline indicators shall be maintained to track the bioeconomy's overall contribution to national development. These shall include the contribution of the bioeconomy to Gross Domestic Product, employment generated in bioeconomy sectors, value of investment mobilised, and value of bio-based exports. The National Bioeconomy Institute, working with the Kenya National Bureau of Statistics, shall develop the measurement methodology and attribution approach for these headline indicators as part of the MERL Framework, and shall report against them annually in the State of the Bioeconomy in Kenya Report.

The MERL Framework, including a comprehensive indicator handbook, baseline study and data protocols, shall be developed

and approved within the first year of implementation. The Technical Secretariat, supported by the National Bioeconomy Institute and the Kenya National Bureau of Statistics, shall complete a national bioeconomy baseline study by December 2027, establishing baseline values for all indicators in Annex I where these are not already available. Indicators for which no baseline can be established within this period

shall be flagged in the first annual implementation performance report, together with a plan and timeline for their measurement.

An annual bioeconomy implementation learning forum shall be convened to review implementation lessons, share good practices among national and county institutions, and inform adjustments to implementation approaches.

**Table 4.2: Monitoring, Reporting and Review Framework**

| Activity                                                             | Responsibility                                                                       | Frequency/Timeline                                        | Key Output                                       |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------|
| Establish and periodically update bioeconomy baselines               | National Bioeconomy Institute, Technical Secretariat, and relevant institutions      | Initial implementation period and periodically thereafter | National bioeconomy baseline data                |
| Monitor implementation of strategic interventions and indicators     | Lead and supporting institutions                                                     | Continuous                                                | Implementation and indicator performance data    |
| Consolidate and analyse implementation and outcome data              | Technical Secretariat, with technical support from the National Bioeconomy Institute | Annual                                                    | Annual implementation performance report         |
| Prepare the State of the Bioeconomy in Kenya Report                  | National Bioeconomy Working Group, coordinated by the Technical Secretariat          | Annual                                                    | State of the Bioeconomy in Kenya Report          |
| Review technical implementation progress and emerging issues         | National Bioeconomy Working Group                                                    | Biannually                                                | Technical recommendations and corrective actions |
| Review implementation performance, priorities, and annual work plans | National Bioeconomy Executive Committee                                              | Annual                                                    | Implementation decisions and approved priorities |
| Provide strategic oversight and policy direction                     | National Bioeconomy Steering Committee                                               | Annual                                                    | Strategic policy guidance                        |
| Conduct mid-term review of the Strategy                              | Technical Secretariat and Independent Evaluators                                     | 2031                                                      | Mid-term Evaluation Report                       |
| Conduct final evaluation of the Strategy                             | Technical Secretariat and Independent Evaluators                                     | 2036                                                      | Final Evaluation Report                          |

## 4.6 Risk Management

Implementation of the National Bioeconomy Strategy may be affected by institutional, financial, technical, environmental, regulatory and market-related risks. Effective risk management will require continuous monitoring, proactive mitigation measures, and adaptive management throughout the implementation period. The Technical Secretariat, in collaboration with implementing institutions, shall regularly assess implementation risks and recommend appropriate mitigation measures to the National Bioeconomy Executive Committee and the National Bioeconomy Steering Committee.

Risk management shall be integrated into implementation planning, monitoring and annual review processes to ensure that emerging challenges are identified and addressed in a timely manner. Lessons learned through implementation shall inform adaptive management and continuous improvement of the Strategy.

A national bioeconomy risk register shall be established within the first year of implementation, assigning a likelihood and severity rating to each identified risk, confirming risk ownership, and recording mitigation actions and their status. The Technical Secretariat shall update the risk register at least twice annually and report on risk status to the National Bioeconomy Executive Committee at each of its meetings, and to the Steering Committee annually. New and emerging risks identified through implementation shall be added to the register and reported through the same channels.

## 4.7 Review of the Strategy

The Kenya National Bioeconomy Strategy shall be implemented over a ten-year period (2026–2036). To ensure that the Strategy remains relevant, responsive and aligned with emerging national priorities and global developments, periodic reviews shall be undertaken to assess implementation progress, identify challenges and opportunities, and recommend appropriate adjustments. A mid-term review shall be conducted in 2031 to evaluate progress towards the strategic objectives, assess the effectiveness of implementation arrangements, financing mechanisms and institutional coordination, and recommend any necessary revisions to the implementation framework and priorities.

A final evaluation shall be undertaken in 2036 to assess the overall performance, outcomes, and impact. The evaluation shall document lessons learned, identify best practices and emerging opportunities, and provide recommendations to inform the development of the next National Bioeconomy Strategy. The National Bioeconomy Steering Committee may commission an off-cycle review where significant policy, technological, economic, institutional or environmental changes materially affect the relevance or feasibility of the Strategy. In addition, the Government may undertake additional reviews and make necessary adjustments to ensure the continued relevance, effectiveness and responsiveness of the Strategy.

**Table 4.3: Strategic Risk Management Framework**

| <b>Risk</b>                                                     | <b>Potential Impact</b>                                            | <b>Mitigation Measures</b>                                                                                                                                                   | <b>Lead Institution</b>                               |
|-----------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|
| Inadequate financing and delayed resource mobilisation          | Delays in implementation of strategic interventions                | Diversify financing sources; strengthen public-private partnerships; operationalise the Bioeconomy Financing and Investment Framework                                        | SDSRI / National Treasury                             |
| Weak institutional coordination                                 | Duplication of efforts and fragmented implementation               | Strengthen coordination through established bioeconomy governance structures, including the Steering Committee, Executive Committee, Working Group and Technical Secretariat | SDSRI                                                 |
| Limited private sector participation                            | Reduced investment, commercialisation and enterprise growth        | Strengthen investment incentives, business support services and public-private partnerships                                                                                  | State Department for Industry                         |
| Policy and regulatory gaps                                      | Slow adoption of bioeconomy innovations and technologies           | Regular policy review and regulatory reforms to support emerging bioeconomy sectors                                                                                          | SDSRI / Attorney General                              |
| Climate change, biodiversity loss and environmental degradation | Reduced availability and productivity of biological resources      | Promote climate-resilient production systems, ecosystem restoration and sustainable resource management                                                                      | Ministry of Environment Climate Change and Forestry   |
| Limited technical and institutional capacity                    | Weak implementation and technology adoption                        | Invest in capacity development, research, innovation and institutional strengthening                                                                                         | SDSRI / National Bioeconomy Institute                 |
| Market volatility and low market uptake                         | Reduced competitiveness of bio-based products and enterprises      | Strengthen market intelligence, standards, certification and export promotion                                                                                                | State Department for Trade                            |
| Weak monitoring and reporting systems                           | Limited evidence for decision-making and adaptive management       | Operationalise the MERL Framework and publish annual State of the Bioeconomy in Kenya Reports                                                                                | Technical Secretariat                                 |
| Limited commercialisation and technology uptake                 | Research outputs fail to translate into enterprises and industries | Strengthen technology transfer, demonstration, scale-up financing and science-industry-investment linkages                                                                   | SDSRI / National Bioeconomy Institute                 |
| Limited availability and quality of bioeconomy data             | Weak planning, monitoring and investment decisions                 | Operationalise bioeconomy observatory, data systems and reporting mechanisms                                                                                                 | National Bioeconomy Institute / Technical Secretariat |

# ANNEX 1: THE NATIONAL BIOECONOMY STRATEGY IMPLEMENTATION MATRIX



## ANNEX 1: THE NATIONAL BIOECONOMY STRATEGY IMPLEMENTATION MATRIX

### Strategic Pillar 1: Policy, Governance and Institutional Coordination

**Strategic Goal:** *To establish an enabling policy, governance, and institutional framework for coordinated bioeconomy development.*

| Strategic Objective                                                                         | Strategic Intervention                                                                                       | Key Activities                                                                                                                            | Indicator                                                                         | Target                                                                                                           | Lead Institution | Supporting Institutions                                           | Timeline  | Indicative Budget (KES) |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|------------------|-------------------------------------------------------------------|-----------|-------------------------|
| <b>1.1 Strengthen policy coherence and regulatory alignment for bioeconomy development.</b> | Mainstream bioeconomy priorities into national and county development frameworks                             | Develop mainstreaming guidelines; support integration into MTPs, sector plans and CIDPs; undertake capacity building                      | Number of national and county development plans integrating bioeconomy priorities | Bioeconomy integrated into MTP V, all relevant sector plans and all 47 CIDPs by 2031                             | SDSRI            | National Treasury, CoG, County Governments, KIPPRA, Relevant MDAs | 2026–2031 | 100 million             |
|                                                                                             | Support existing standards, quality assurance, and certification systems for bio-based products and services | Review standards; strengthen certification systems; improve compliance mechanisms; and facilitate a single-window certification mechanism | Number of standards and certification schemes developed or strengthened           | At least 10 standards/certification schemes developed or strengthened by 2034<br><br>Single-window permit system | KEBS             | NACOSTI, KEPHIS, NBA, PCPB, KIPi, Relevant Regulators             | 2027–2034 | 400 million             |
|                                                                                             | Strengthen the role of research, science and innovation in the bioeconomy                                    | Mainstream STI into bioeconomy programmes; strengthen science-policy linkages; promote innovation                                         | Number of bioeconomy policies and programmes integrating STI                      | STI integrated into all priority bioeconomy programmes and policies by 2036                                      | SDSRI            | NACOSTI, NRF, KeNIA, Universities, Research Institutions          | 2026–2036 | 200 million             |
|                                                                                             | Promote enabling policy and regulatory frameworks for emerging bioeconomy                                    | Review regulations; identify gaps; develop policy guidelines and regulatory reforms                                                       | Number of policy and regulatory reforms/guidelines adopted                        | At least 10 policy and regulatory reforms or guidelines adopted by 2034                                          | SDSRI            | Attorney General, NBA, KEBS, KIPi, NACOSTI, Relevant Regulators   | 2027–2034 | 100 million             |

| Strategic Objective                                                                       | Strategic Intervention                                                    | Key Activities                                                                   | Indicator                                                          | Target                                                                                                                    | Lead Institution | Supporting Institutions                                    | Timeline                  | Indicative Budget (KES) |
|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------|---------------------------|-------------------------|
|                                                                                           | technologies, products and innovations.                                   |                                                                                  |                                                                    |                                                                                                                           |                  |                                                            |                           |                         |
| <b>1.2: Strengthen governance and coordination mechanisms for bioeconomy development.</b> | Establish the National Bioeconomy Steering Committee                      | Develop Terms of Reference; appoint members; convene meetings                    | Steering Committee established and functional                      | Committee established by 2027 and convening at least two meetings annually                                                | SDSRI            | Office of the Prime Cabinet Secretary, Relevant Ministries | 2026–2027 then continuous | 100 million             |
|                                                                                           | Institutionalise the National Bioeconomy Executive Committee              | Develop governance framework; appoint members; implement annual workplans        | Executive Committee operational                                    | Executive Committee operational with approved annual workplans from 2027                                                  | SDSRI            | Relevant MDAs, Council of Governors                        | 2026–2027 then continuous | 150 million             |
|                                                                                           | Establish the National Bioeconomy Working Group and Technical Secretariat | Appoint members; establish Secretariat; develop operational procedures           | Working Group and Technical Secretariat established and functional | Working Group and Secretariat operational by 2027                                                                         | SDSRI            | NACOSTI, KeNIA, NRF, Relevant MDAs                         | 2026–2027                 | 150 million             |
|                                                                                           | Strengthen coordination of science, research, technology and innovation   | Convene annual coordination forums; establish inter-agency coordination platform | Number of national coordination forums held annually               | At least one national coordination forum convened annually and an inter-agency coordination mechanism operational by 2028 | SDSRI            | NACOSTI, NRF, KeNIA, Universities, Research Institutions   | 2026–2036                 | 250 million             |

| Strategic Objective                                                                                            | Strategic Intervention                                                                                | Key Activities                                                                                                                                                                | Indicator                                                                               | Target                                                                                                          | Lead Institution   | Supporting Institutions                                                    | Timeline                                | Indicative Budget (KES)                                                    |
|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------|
|                                                                                                                | Develop and publish the State of the Bioeconomy in Kenya Report                                       | Develop reporting framework; collect and analyse data; publish reports                                                                                                        | Number of annual State of the Bioeconomy Reports published                              | Ten annual State of the Bioeconomy Reports published (2027–2036)                                                | SDSRI              | KNBS, NACOSTI, Relevant MDAs, County Governments                           | Annually 2027–2036                      | 300 million                                                                |
| <b>1.3: Strengthen institutional, science, research, and innovation capacities for bioeconomy development.</b> | Establish the National Bioeconomy Institute                                                           | Phase I: Feasibility study, consultations and legal framework; Phase II: Establishment, staffing and operationalisation; Phase III: Expansion and institutional strengthening | National Bioeconomy Institute established and operational                               | <b>Institute legally established by 2030 and fully operational as the national centre of excellence by 2036</b> | SDSRI              | National Treasury, PSC, NACOSTI, NRF, KeNIA, Universities                  | 2026–2036                               | <b>5 billion</b><br>(Phase I: 300M;<br>Phase II: 2.0B;<br>Phase III: 2.7B) |
|                                                                                                                | Support the establishment and operationalisation of County Bioeconomy Innovation and Resource Centres | Develop implementation framework; establish pilot centres; evaluate and scale up                                                                                              | Number of County Bioeconomy Innovation and Resource Centres established and operational | <b>Three pilot centres established by 2030 and 10–15 centres operational in priority counties by 2036</b>       | County Governments | SDSRI, NACOSTI, KeNIA, Universities, Research Institutions, Private Sector | 2027–2030 (Pilot); 2031–2036 (Scale-up) | <b>3 billion</b>                                                           |

## Strategic Pillar 2: Sustainable Biological Resource Management and Circular Bioeconomy

**Strategic Goal:** *To conserve, sustainably manage and regenerate Kenya's biological resources while increasing the productive, circular and equitable utilisation of biomass, biological by-products and organic waste.*

| Strategic Objective                                                                     | Strategic Intervention                                                                | Key Activities                                                                                                     | Indicator                                               | Target                                                                  | Lead Institution                                     | Supporting Institutions                             | Timeline  | Indicative Budget (KES) |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------|-----------|-------------------------|
| <b>2.1: Strengthen sustainable and regenerative management of biological resources.</b> | Develop a national bioresource inventory and mapping system                           | Conduct national bioresource assessment; establish national inventory database; develop GIS-based bioresource maps | National bioresource inventory established and updated  | National bioresource inventory completed and operational by <b>2030</b> | <b>SDSRI</b>                                         | KNBS, NACOSTI, KALRO, KEFRI, KMFRI, NEMA, Counties  | 2026–2030 | <b>500 million</b>      |
|                                                                                         | Promote sustainable agricultural, forestry, fisheries and aquaculture systems         | Scale climate-smart and regenerative production practices; strengthen extension services; support certification    | Number of sustainable production programmes implemented | Sustainable management practices adopted in all 47 counties by 2036     | State Department for Agriculture                     | KALRO, KEFRI, KMFRI, Counties                       | 2026–2036 | 5 billion               |
|                                                                                         | Strengthen ecosystem restoration and conservation initiatives                         | Restore degraded ecosystems; strengthen biodiversity conservation programmes; promote landscape restoration        | Area restored or conserved (ha)                         | 2 million hectares restored and conserved by 2036                       | State Department for Environment                     | NEMA, KFS, KEFRI, Counties, Communities             | 2026–2036 | 15 billion              |
|                                                                                         | Support sustainable production and utilisation of biomass                             | Develop biomass sustainability guidelines; promote biomass value chains; support sustainable harvesting            | National biomass strategy/framework implemented         | National biomass sustainability framework operational by 2030           | SDSRI                                                | Ministry of Energy, Agriculture, Forestry, Counties | 2027–2032 | 300 million             |
|                                                                                         | Strengthen access and benefit-sharing mechanisms for biological and genetic resources | Strengthen ABS regulations; build community capacity; implement benefit-sharing agreements                         | Number of ABS agreements implemented                    | At least 20 ABS agreements operational by 2036                          | The National Environment Management Authority (NEMA) | NACOSTI, NMK, KWS, KFS, NBA, Communities, Counties  | 2028–2036 | 300 million             |

| Strategic Objective                                                                                             | Strategic Intervention                                                                                                     | Key Activities                                                                                                    | Indicator                                                      | Target                                                                                               | Lead Institution                        | Supporting Institutions                                                                             | Timeline  | Indicative Budget (KES) |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------|-----------|-------------------------|
| <b>2.2 Promote circular utilisation and valorisation of biomass, biological by-products, and organic waste.</b> | Map priority organic waste streams and establish county circular bioeconomy clusters                                       | Undertake national waste mapping; identify priority biomass streams; establish pilot circular bioeconomy clusters | Number of county circular bioeconomy clusters established      | Waste mapping completed and <b>10 county circular bioeconomy clusters</b> established by <b>2036</b> | <b>State Department for Environment</b> | Counties, NEMA, KNBS, Private Sector                                                                | 2026–2036 | <b>2 billion</b>        |
|                                                                                                                 | Support product validation and support market uptake of biological inputs                                                  | Validate products; strengthen quality assurance; undertake awareness and market promotion                         | Number of biological products certified and commercialised     | At least 20 biological products validated and commercialised by 2036                                 | KEBS                                    | KENIA, KENInvest, PCPB, KALRO, KIPI, KEPHIS, Export Promotion Council, Universities, Private Sector | 2027–2036 | 700 million             |
|                                                                                                                 | Support the establishment of decentralised processing and resource recovery units for small-scale producers and processors | Establish decentralised processing facilities; strengthen producer cooperatives; provide technical support        | Number of decentralised processing units established           | 20 decentralised processing/resource recovery units established by 2036                              | State Department for Industry           | Counties, KIRDI, MSEA, Private Sector                                                               | 2027–2036 | 4 billion               |
|                                                                                                                 | Strengthen collection, segregation, storage and aggregation systems for biological by-products and organic waste           | Develop collection systems; establish aggregation centres; strengthen logistics                                   | Number of counties with operational biomass collection systems | 30 counties implementing biological waste collection and aggregation systems by 2036                 | County Governments                      | NEMA, State Department for Environment, Private Sector                                              | 2027–2036 | 1 billion               |
|                                                                                                                 | Support the development and uptake of viable technologies for converting biological                                        | Support R&D; pilot technologies; facilitate commercialisation                                                     | Number of waste-to-value technologies adopted                  | At least 30 technologies developed, piloted or commercialised by 2036                                | SDSRI                                   | NACOSTI, KIRDI, Universities, Private Sector                                                        | 2027–2036 | 500 million             |

| Strategic Objective                                                                                                 | Strategic Intervention                                                                                               | Key Activities                                                                                | Indicator                                                            | Target                                                                             | Lead Institution                 | Supporting Institutions                        | Timeline  | Indicative Budget (KES) |
|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------|-----------|-------------------------|
|                                                                                                                     | waste into food, feed, fertilisers, biomaterials, bioenergy and other value-added products                           |                                                                                               |                                                                      |                                                                                    |                                  |                                                |           |                         |
|                                                                                                                     | Promote biofertilisers, bio feeds, biopesticides and biological agricultural inputs                                  | Support registration, production and adoption of biological inputs                            | Number of biological agricultural inputs commercialised              | At least 25 biological agricultural inputs commercialised by 2036                  | State Department for Agriculture | KALRO, PCPB, KEBS, Private Sector              | 2027–2036 | 1 billion               |
|                                                                                                                     | Promote composting, biogas, biomethane and biochar technologies                                                      | Support technology deployment; strengthen awareness and financing mechanisms                  | Number of bio-based energy and soil improvement projects implemented | 500 bio-based technology projects supported nationally by 2036                     | Ministry of Energy               | Counties, Private Sector, Development Partners | 2028–2036 | 500 million             |
|                                                                                                                     | Facilitate industrial symbiosis and by-product exchange among producers, processors and other enterprises            | Develop industrial resource-sharing platforms; facilitate business linkages                   | Number of industrial symbiosis initiatives operational               | At least 20 industrial symbiosis initiatives operational by 2036                   | State Department for Industry    | KIRDI, KEPSA, Counties, Private Sector         | 2028–2036 | 300 million             |
| <b>2.3 Strengthen conservation, sustainable utilisation and equitable commercialisation of biological resources</b> | Prioritise indigenous biological-resource value chains and establish sustainable harvesting and traceability systems | Identify priority value chains; develop harvesting guidelines; establish traceability systems | Number of indigenous biological-resource value chains supported      | At least 10 priority indigenous biological-resource value chains supported by 2036 | State Department for Environment | Counties, Communities, Universities            | 2027–2036 | 500 million             |
|                                                                                                                     | Strengthen the governance, ownership and commercial capacity of viable                                               | Build institutional capacity; strengthen governance; provide business development services;   | Number of community biodiversity enterprises                         | 100 community biodiversity enterprises strengthened and                            | State Department for Environment | County Governments, Communities, KFS, NEMA,    | 2027–2036 | 500 million             |

| Strategic Objective | Strategic Intervention                                                                                 | Key Activities                                                                                                                                             | Indicator                                                                                                      | Target                                           | Lead Institution                       | Supporting Institutions                                                                                                                                          | Timeline  | Indicative Budget (KES) |
|---------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------|
|                     | community biodiversity enterprises and deliver measurable conservation and livelihood benefits         | establish financing mechanisms; and monitor conservation outcomes                                                                                          | strengthened Number of conservation-linked enterprises supported                                               | supported by 2036                                |                                        | Development Partners, Private sector                                                                                                                             |           |                         |
|                     | Support viable enterprises that deliver measurable conservation and livelihood benefits.               | Provide targeted business development, technical and market support to viable bio-based enterprises that demonstrate conservation and livelihood benefits. | No. of viable bio-based enterprises supported that demonstrate measurable conservation and livelihood benefits | At least 50 enterprises supported by 2035        | State Department responsible for MSMEs | State Department for Environment and Climate Change; KeNIA; KWS; KFS; NEMA; county governments; private sector; financial institutions and development partners. | 2026–2035 | KES 250 million         |
|                     | Establish and pilot protocols for protecting indigenous knowledge and ensuring prior informed consent. | Develop protocols; pilot implementation; strengthen legal protection and documentation                                                                     | National protocols developed and operational                                                                   | National protocols developed and piloted by 2032 | NACOSTI                                | NEMA, KIPI, NMK, NBA, Universities, Communities, Attorney General                                                                                                | 2027–2032 | 500 million             |

### Strategic Pillar 3: Research, Innovation, Cluster Development, Technology Transfer and Commercialisation

**Strategic Goal:** *To strengthen the generation, application, transfer and commercialisation of biosciences knowledge, technologies and innovations in support of enterprise development, industrial transformation and economic competitiveness*

| Strategic Objective                                                                         | Strategic Intervention                                                       | Key Activities                                                                                                                                                                                                                                                 | Indicator                                                                                                                                                   | Target                                                                                                                        | Lead Institution | Supporting Institutions                                            | Timeline  | Indicative Budget (KES) |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------|-----------|-------------------------|
| <b>3.1 Strengthen bioeconomy research and development aligned with national priorities.</b> | Support demand-driven and mission-oriented biosciences research.             | Establish competitive biosciences research programmes aligned to national bioeconomy priorities                                                                                                                                                                | Number of biosciences research programmes funded                                                                                                            | At least 6 named funding programmes/windows established by 2033                                                               | NRF              | NACOSTI, Universities, Research Institutions                       | 2026–2033 | 300 million             |
|                                                                                             | Promote multidisciplinary research addressing national bioeconomy priorities | Facilitate collaborative and multidisciplinary research initiatives across sectors, disciplines and institutions; establish collaborative research grants and innovation partnerships with industry and the private sector                                     | Number of multidisciplinary and collaborative research projects supported, including academia-industry partnerships                                         | At least 40 multidisciplinary and collaborative research projects supported by 2033, including academia-industry partnerships | NACOSTI          | KeNIA, Universities, KEPISA, Research Institutions, Private Sector | 2027–2033 | 450 million             |
|                                                                                             | Strengthen biosciences, biotechnology and bioengineering capabilities.       | Equip active research groups with specialised research-stage instrumentation; build technical and scientific staff capacity through fellowships, secondments and research-methods training; support advanced postgraduate and postdoctoral research programmes | Number of research groups/institutions with strengthened research-stage bioscience and biotechnology capability; number of researchers trained or upskilled | At least 10 research groups equipped, and 100 researchers trained/upskilled by 2031                                           | NACOSTI          | Universities, KALRO, KEMRI, KEFRI, KMFRI                           | 2027–2031 | 350 million             |

| Strategic Objective                                             | Strategic Intervention                                                                                                    | Key Activities                                                                                                                                                                                                                                                                                              | Indicator                                                                                                                                                       | Target                                                                                                                                                                                                           | Lead Institution | Supporting Institutions                                                          | Timeline  | Indicative Budget (KES) |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------|-----------|-------------------------|
| <b>3.2 Strengthen technology transfer and commercialisation</b> | Strengthen technology transfer offices and innovation support systems                                                     | Establish or strengthen TTOs and commercialisation units; establish and resource specialised TTOs at designated university cluster nodes                                                                                                                                                                    | Number of operational technology transfer offices                                                                                                               | At least 5 specialised TTOs operational at cluster-node universities by 2031                                                                                                                                     | Universities     | NACOSTI, KeNIA, KNEIL, Research Institutions                                     | 2027–2031 | 400 million             |
|                                                                 | Establish proof-of-concept and pilot-scale funding mechanisms, including a milestone-based Rapid Prototyping Grant Scheme | Create innovation commercialisation and pilot funding programmes, including a fast-track, milestone-based grant scheme for early-stage, high-risk iterative prototype testing and technical mentorship                                                                                                      | Amount of funding allocated to proof-of-concept and prototype-stage projects; number of validated prototypes advancing from concept to pilot stage              | Proof-of-concept fund capitalised and disbursing by 2028, including a milestone-based grant scheme; blended-finance instrument piloted by 2031; at least 25 validated prototypes advanced to pilot stage by 2032 | NRF              | National Treasury, KeNIA, Development Partners, Universities, Private Incubators | 2026–2032 | 600 million             |
|                                                                 | Support bioeconomy incubators and accelerators                                                                            | Establish incubation and acceleration programmes for bioeconomy enterprises                                                                                                                                                                                                                                 | Number of bioeconomy enterprises incubated                                                                                                                      | At least 100 enterprises incubated by 2033                                                                                                                                                                       | KeNIA            | Universities, MSEA, Private Sector                                               | 2027–2033 | 350 million             |
|                                                                 | Strengthen intellectual property management and protection.                                                               | Support patenting, licensing and IP awareness programmes; establish national PCT patenting fund; establish a national-interest IP acquisition mechanism, with defined criteria and an independent valuation panel, enabling the State to acquire or co-own rights to strategically significant innovations. | Number of patents, licenses and protected innovations; number of strategically significant IP assets acquired or co-owned under the national-interest mechanism | At least 15 protected innovations across cluster nodes by 2031; PCT patenting fund established by 2028; national-interest IP acquisition criteria and governance mechanism established by 2029                   | KIPI             | NACOSTI, Universities, Research Institutions                                     | 2026–2031 | 300 million             |

| Strategic Objective                                            | Strategic Intervention                                                                                                                                                                                         | Key Activities                                                                                                                                                                          | Indicator                                                                                                   | Target                                                                                           | Lead Institution | Supporting Institutions                                                                                            | Timeline  | Indicative Budget (KES) |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------|-----------|-------------------------|
|                                                                | Promote commercialisation of indigenous and local knowledge-based innovations                                                                                                                                  | Develop commercialisation pathways for traditional and indigenous innovations                                                                                                           | Number of indigenous knowledge innovations commercialised                                                   | At least 10 indigenous knowledge innovations commercialised by 2034                              | NACOSTI          | Communities, KIPi, Universities                                                                                    | 2028–2034 | 150 million             |
|                                                                | Support innovation infrastructure, prototyping facilities, living laboratories and demonstration systems that accelerate the development, testing, validation and commercialisation of bioeconomy innovations. | Establish, upgrade and operationalise shared bioeconomy innovation, prototyping, testing and demonstration facilities within existing research, innovation and industrial institutions. | No. of bioeconomy innovation, prototyping and demonstration facilities established/upgraded and operational | At least 10 facilities established or upgraded by 2035                                           | KeNIA            | NACOSTI; NRF; KIRDI; universities and research institutions; TVET institutions; county governments; private sector | 2026–2035 | 500 million             |
|                                                                | Develop agile regulatory and standards sandboxes                                                                                                                                                               | Review regulatory bottlenecks; gazette a legal framework for time-limited sandbox waivers; establish a multi-stakeholder Sandbox Oversight Committee                                    | Number of regulatory sandbox frameworks enacted; number of prototypes granted sandbox waivers               | Sandbox legal framework gazetted by 2029; at least 10 prototypes granted sandbox waivers by 2033 | NACOSTI          | NBA, KEBS, KEPHIS, PCPB, PPB                                                                                       | 2028–2033 | 120 million             |
| <b>Strengthen science-industry-investment-policy linkages.</b> | Establish bioeconomy innovation platforms                                                                                                                                                                      | Create national and sectoral innovation platforms                                                                                                                                       | Number of innovation platforms operational                                                                  | At least 4 sectoral innovation platforms operational by 2029                                     | SDSRI            | NACOSTI, KeNIA, Private Sector                                                                                     | 2027–2029 | 200 million             |

| Strategic Objective | Strategic Intervention                                                                                                                                                | Key Activities                                                                                                                                                                     | Indicator                                                                                           | Target                                                            | Lead Institution              | Supporting Institutions                    | Timeline  | Indicative Budget (KES) |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-------------------------------|--------------------------------------------|-----------|-------------------------|
|                     | Mobilise private sector co-financing and demand articulation for collaborative research                                                                               | Facilitate KEPSA-brokered private sector co-funding commitments and demand-side priority-setting for research programmes delivered under Strategic Objective 3.1                   | Value/number of private sector co-funding commitments secured for collaborative research programmes | At least 15 private sector co-funding commitments secured by 2033 | KEPSA                         | NACOSTI, NRF, Universities                 | 2027–2033 | 250 million             |
|                     | Facilitate technology validation and demonstration programmes                                                                                                         | Establish demonstration projects and technology pilots using industrial-scale facilities, building on prototypes advanced through the Objective 3.2 Rapid Prototyping Grant Scheme | Number of technologies validated and demonstrated                                                   | At least 20 technologies validated and demonstrated by 2032       | KeNIA                         | KIRDI, Universities, Private Sector        | 2027–2032 | 300 million             |
|                     | Facilitate partnerships between researchers, enterprises, investors and policymakers to accelerate commercialisation and industrial uptake of bioeconomy innovations. | Develop partnership frameworks and joint implementation programmes, building on relationships convened through the sectoral innovation platforms established under this Objective  | Number of active public-private-academic partnerships                                               | At least 15 active partnerships by 2033                           | SDSRI                         | KEPSA, Universities, Research Institutions | 2027–2033 | 150 million             |
|                     | Support innovation networks and technology dissemination mechanisms                                                                                                   | Establish knowledge-sharing networks and dissemination platforms                                                                                                                   | Number of technology dissemination programmes implemented                                           | At least 10 dissemination programmes implemented by 2033          | National Bioeconomy Institute | NACOSTI, KeNIA, Counties                   | 2028–2033 | 150 million             |

| Strategic Objective                                                 | Strategic Intervention                                              | Key Activities                                                                                                                                                                                                      | Indicator                                            | Target                                                                                                                                            | Lead Institution                    | Supporting Institutions                           | Timeline  | Indicative Budget (KES) |
|---------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------|-----------|-------------------------|
| <b>3.4 Strengthen emerging and frontier bioeconomy technologies</b> | Support research and innovation in emerging bioeconomy technologies | Develop programmes in engineering biology, genomics, bioinformatics and industrial biotechnology. This includes synthetic biology, mRNA vaccine technology, biomaterials, genomic sequencing and precision medicine | Number of frontier technology programmes established | At least 5 frontier technology programmes established by 2034, covering engineering biology, genomics/bioinformatics and industrial biotechnology | NACOSTI                             | Universities, KEMRI, KALRO, Research Institutions | 2028–2034 | 500 million             |
|                                                                     | Promote digitalisation of bioeconomy systems                        | Integrate AI, data analytics and digital platforms into bioeconomy value chains                                                                                                                                     | Number of digital bioeconomy initiatives supported   | At least 10 digital bioeconomy initiatives supported by 2034                                                                                      | Ministry of ICT and Digital Economy | SDSRI, KeNIA, Private Sector                      | 2029–2034 | 300 million             |
|                                                                     | Strengthen bioeconomy foresight and technology assessment systems   | Conduct technology assessments and horizon-scanning exercises                                                                                                                                                       | Number of foresight reports produced                 | At least 8 foresight reports produced by 2033                                                                                                     | National Bioeconomy Institute       | KIPPRA, NACOSTI, Universities                     | 2028–2033 | 100 million             |

## Strategic Pillar 4: Bio-based Industrial Development based on Priority Value Chains

**Strategic Goal:** *To accelerate value addition, enterprise development and industrial transformation through bio-based innovation.*

| Strategic Objective                                                 | Strategic Intervention                                                                      | Key Activities                                                                                                                                                                                                                                            | Indicator                                                                         | Target                                                                                                | Lead Institution                  | Supporting Institutions                                                         | Timeline  | Indicative Budget (KES) |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------|-----------|-------------------------|
| <b>4.1: Develop and strengthen priority bioeconomy value chains</b> | Undertake national bioeconomy mapping and characterisation                                  | Conduct a national mapping and diagnostic assessment of biological resources, economic activities, actors, infrastructure, capabilities and opportunities across bioeconomy sectors.                                                                      | National bioeconomy mapping and diagnostic report produced                        | national bioeconomy mapping and diagnostic assessment completed and periodically updated              | SDSRI                             | KNBS, KIPPRA, NACOSTI, relevant MDAs, County Governments, research institutions | 2026–2027 | 60 million              |
|                                                                     | Prioritise bioeconomy value chains at national, regional economic cluster and county levels | Undertake value chain assessments and prioritisation based on biological resource potential, market opportunities, socioeconomic impact, sustainability and regional comparative advantage, and support development of corresponding investment profiles. | Number of priority bioeconomy value chains identified and profiled for investment | Priority value chains identified and investment profiles developed for all Regional Economic Clusters | SDSRI                             | County Governments, KIPPRA, KNBS, relevant MDAs, private sector                 | 2026–2028 | 150 million             |
|                                                                     | Strengthen producer organisations and bioeconomy enterprises along priority value chains    | Provide organisational, technical and enterprise development support to cooperatives, producer organisations and enterprises operating within priority bioeconomy value chains.                                                                           | Number of producer organisations and enterprises strengthened                     | At least 100 producer organisations and enterprises supported                                         | State Department for Cooperatives | MSEA, County Governments, relevant MDAs, private sector                         | 2026–2028 | 300 million             |

| Strategic Objective                             | Strategic Intervention                                                                               | Key Activities                                                                                                                                            | Indicator                                                                       | Target                                                                 | Lead Institution              | Supporting Institutions                                                           | Timeline  | Indicative Budget (KES) |
|-------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------------|-----------|-------------------------|
|                                                 | Promote value addition and local processing within priority bioeconomy value chains                  | Facilitate access to appropriate processing technologies, infrastructure, technical support and quality assurance services for priority value chains.     | Number of value-added bio-based products developed and/or commercialised        | At least 50 value-added products developed or commercialised           | State Department for Industry | KIRDI, KEBS, County Governments, private sector, research institutions            | 2026-2031 | 600 million             |
|                                                 | Strengthen market-oriented development of priority bioeconomy value chains                           | Facilitate market intelligence, business development services, market linkages, certification and access to domestic, regional and international markets. | Number of priority bioeconomy value chains accessing expanded markets           | At least 20 priority value chains supported to access expanded markets | State Department for Trade    | KEPROBA, KEBS, KNCCI, KEPSA, County Governments, private sector                   | 2026-2031 | 200 million             |
| <b>4.2: Promote bio-based industrialisation</b> | Support development and upgrading of bioprocessing and biomanufacturing capacity                     | Facilitate investment in shared, pilot and commercial-scale bioprocessing and biomanufacturing facilities for priority bioeconomy value chains.           | Number of bioprocessing and biomanufacturing facilities established or upgraded | At least 10 facilities established or upgraded                         | State Department for Industry | KIRDI, County Governments, private sector, universities and research institutions | 2027-2033 | 1 billion               |
|                                                 | Promote development and commercialisation of biomaterials, biochemicals and other bio-based products | Support product development, validation, scale-up, standards compliance and commercialisation of competitive bio-based products.                          | Number of new bio-based products commercialised                                 | At least 30 bio-based products commercialised                          | State Department for Industry | KIRDI, KeNIA, KEBS, NACOSTI, universities, private sector                         | 2027-2033 | 500 million             |
|                                                 | Promote adoption of industrial biotechnology and                                                     | Facilitate demonstration, technology transfer and adoption of industrial                                                                                  | Number of industries adopting industrial biotechnology or bio-                  | At least 30 industries adopting bio-based technologies                 | State Department for Industry | KIRDI, KeNIA, universities, KEPSA, private sector                                 | 2027-2033 | 600 million             |

| Strategic Objective                                              | Strategic Intervention                                           | Key Activities                                                                                                                                                                                        | Indicator                                                                          | Target                                                      | Lead Institution              | Supporting Institutions                                                    | Timeline  | Indicative Budget (KES) |
|------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------|----------------------------------------------------------------------------|-----------|-------------------------|
|                                                                  | bio-based manufacturing processes                                | biotechnology and sustainable bio-based production systems.                                                                                                                                           | based production technologies                                                      |                                                             |                               |                                                                            |           |                         |
|                                                                  | Support circular bioeconomy industries and industrial symbiosis  | Facilitate development and adoption of technologies and business models for biomass residue utilisation, waste valorisation, resource recovery and industrial symbiosis within priority value chains. | Number of enterprises adopting circular bioeconomy and industrial symbiosis models | At least 30 enterprises adopting circular bioeconomy models | State Department for Industry | NEMA, County Governments, KIRDI, private sector, research institutions     | 2027–2033 | 500 million             |
| <b>4.3: Support MSMEs and entrepreneurship in the bioeconomy</b> | Support bioeconomy start-ups and growth-oriented enterprises     | Develop and implement targeted enterprise development and financing programmes for bioeconomy start-ups and growth-oriented MSMEs.                                                                    | Number of bioeconomy start-ups and MSMEs supported                                 | At least 500 enterprises supported                          | MSEA                          | KeNIA, County Governments, financial institutions, private sector          | 2026–2031 | 500 million             |
|                                                                  | Strengthen incubation and acceleration of bioeconomy enterprises | Establish and strengthen specialised incubation and acceleration programmes linked to research, innovation and industry ecosystems.                                                                   | Number of bioeconomy enterprises incubated or accelerated                          | At least 200 enterprises incubated or accelerated           | KeNIA                         | MSEA, universities, research institutions, innovation hubs, private sector | 2026–2031 | 500 million             |
|                                                                  | Strengthen bioeconomy entrepreneurship capabilities              | Provide targeted entrepreneurship, business management, investment readiness and mentorship programmes for bioeconomy entrepreneurs.                                                                  | Number of bioeconomy entrepreneurs trained and mentored                            | At least 1,000 entrepreneurs trained and mentored           | MSEA                          | TVETs, universities, KNCCI, County Governments, private sector             | 2026–2031 | 300 million             |

| Strategic Objective                                                      | Strategic Intervention                                                                       | Key Activities                                                                                                                                                                  | Indicator                                                                             | Target                                               | Lead Institution                 | Supporting Institutions                                                          | Timeline  | Indicative Budget (KES) |
|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------------|----------------------------------------------------------------------------------|-----------|-------------------------|
|                                                                          | Facilitate technology uptake by bioeconomy MSMEs                                             | Facilitate technology demonstration, transfer, acquisition and adoption by MSMEs operating within priority bioeconomy value chains.                                             | Number of MSMEs adopting bioeconomy technologies                                      | At least 200 MSMEs adopting relevant technologies    | KeNIA                            | KIRDI, NACOSTI, MSEA, County Governments, universities and research institutions | 2026–2033 | 300 million             |
|                                                                          | Support formalisation, standards compliance and market integration of bioeconomy enterprises | Provide coordinated business registration, standards, certification, intellectual property and market-readiness support to bioeconomy enterprises.                              | Number of bioeconomy enterprises formalised and supported to meet market requirements | At least 300 enterprises formalised and market-ready | MSEA                             | State Department for Trade, KEBS, KIPI, KRA, County Governments                  | 2026–2031 | 250 million             |
| <b>4.4: Promote strategic bioeconomy sectors and emerging industries</b> | Promote climate-smart agriculture and sustainable food-system enterprises                    | Support development, adoption and commercialisation of climate-smart biological technologies, products and enterprise models across agricultural and food value chains.         | Number of climate-smart bioeconomy enterprises supported                              | At least 100 enterprises supported                   | State Department for Agriculture | KALRO, County Governments, universities, private sector                          | 2026–2031 | 500 million             |
|                                                                          | Promote sustainable forest-based industries and bioresource enterprises                      | Support development and commercialisation of sustainable forest-based products, technologies and enterprises that enhance value addition while maintaining ecosystem integrity. | Number of sustainable forest-based enterprises supported                              | At least 50 enterprises supported                    | State Department for Forestry    | KFS, KEFRI, County Governments, private sector                                   | 2027–2033 | 400 million             |

| Strategic Objective | Strategic Intervention                                                          | Key Activities                                                                                                                                                                                          | Indicator                                                                                     | Target                                      | Lead Institution                                | Supporting Institutions                                                                  | Timeline  | Indicative Budget (KES) |
|---------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|---------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------------------|-----------|-------------------------|
|                     | Promote health biotechnology, biopharmaceuticals and natural-product industries | Support development, validation, scale-up and commercialisation of biotechnology products, diagnostics, biopharmaceuticals, nutraceuticals, phytopharmaceuticals and other high-value natural products. | Number of health biotechnology and natural products commercialised                            | At least 20 products commercialised         | Ministry of Health                              | KEMRI, KIRDI, KEBS, PPB, universities, private sector                                    | 2027–2033 | 500 million             |
|                     | Promote blue bioeconomy industries and enterprises                              | Support sustainable aquaculture, marine and freshwater biotechnology, aquatic bioresources and value-added blue bioeconomy enterprises.                                                                 | Number of blue bioeconomy enterprises and products supported                                  | At least 50 enterprises/products supported  | State Department for Blue Economy and Fisheries | KMFRI, County Governments, universities, private sector                                  | 2027–2033 | 500 million             |
|                     | Promote bioenergy and renewable biological-resource industries                  | Support development, demonstration and commercialisation of sustainable bioenergy solutions, including biogas, biofuels and productive utilisation of biomass resources and residues.                   | Number of commercially viable bioenergy enterprises/solutions supported                       | At least 30 enterprises/solutions supported | State Department responsible for Energy         | State Department for Industry, County Governments, research institutions, private sector | 2027–2033 | 500 million             |
|                     | Promote ecosystem services and nature-based enterprises                         | Support viable enterprises that deliver measurable conservation, ecosystem restoration and livelihood benefits.                                                                                         | Number of supported enterprises demonstrating measurable conservation and livelihood benefits | At least 50 enterprises supported           | State Department for Environment                | KWS, KFS, NEMA, County Governments, communities, private sector                          | 2027–2033 | 500 million             |

## Strategic Pillar 5: Investment, Competitiveness and Market Development

**Strategic Goal:** *To build commercially viable and competitive bioeconomy enterprises and industries through enhanced investment, enterprise competitiveness, enabling infrastructure and market development.*

| Strategic Objective                                                            | Strategic Intervention                                                                                                                                                               | Key Activities                                                                                                                     | Indicator                                                                                               | Target                                                             | Lead Institution           | Supporting Institutions                                              | Timeline  | Indicative Budget (KES) |
|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------|-----------|-------------------------|
| <b>5.1 Mobilise and align sustainable financing for bioeconomy development</b> | Develop and operationalise a national bioeconomy financing and investment framework                                                                                                  | Undertake financing landscape and gap assessment; develop financing framework; establish financing coordination mechanism          | National bioeconomy financing and investment framework operational                                      | Framework developed and operational by 2028                        | National Treasury          | SDSRI, KIPPRA, KeNIA, KDC, Development Partners                      | 2026–2028 | 30 million              |
|                                                                                | Promote Kenya as a regional destination for bioeconomy investment                                                                                                                    | Map investment opportunities; develop investment prospectus; undertake investor targeting, investment forums and promotion         | Value of bioeconomy investment attracted                                                                | Baseline established by 2028 and progressive increase through 2036 | Kenya Investment Authority | SDSRI, State Department for Trade, KDC, Counties, Private Sector     | 2026–2036 | 200 million             |
|                                                                                | Promote blended finance, guarantee schemes and risk-sharing mechanisms to reduce technology, market and investment risks associated with emerging bioeconomy sectors and enterprises | Design and operationalise guarantees, first-loss facilities, concessional finance and other risk-sharing instruments               | Number of bioeconomy financing and de-risking mechanisms operational                                    | At least 5 mechanisms operational by 2032                          | National Treasury          | KDC, Financial Institutions, DFIs, Private Sector                    | 2028–2036 | 300 million             |
|                                                                                | Establish a Bioeconomy Commercialisation and Scale-up Facility to support proof-of-concept, pilot and demonstration projects                                                         | Establish facility; develop eligibility and financing mechanisms; support proof-of-concept, validation, demonstration and scale-up | Number of bioeconomy innovations/projects supported through the commercialisation and scale-up facility | At least 200 innovations/projects supported by 2036                | SDSRI / KeNIA              | NRF, KDC, KIRDI, Universities, Research Institutions, Private Sector | 2028–2036 | 2 billion               |
|                                                                                | Facilitate access to                                                                                                                                                                 | Develop financing                                                                                                                  | Value of climate, green                                                                                 | Baseline established by                                            | National                   | SDSRI, Line                                                          | 2027–     | 100 million             |

| Strategic Objective                                                                                 | Strategic Intervention                                                                                                 | Key Activities                                                                                                                          | Indicator                                                                    | Target                                                    | Lead Institution                    | Supporting Institutions                                                                                        | Timeline  | Indicative Budget (KES) |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------|-------------------------|
|                                                                                                     | climate, green and development finance                                                                                 | proposals and project pipelines; strengthen institutional capacity to access domestic and international financing facilities            | and development finance mobilised for bioeconomy initiatives                 | 2028; progressive increase through 2036                   | Treasury                            | Ministries, Counties, Development Partners                                                                     | 2036      |                         |
|                                                                                                     | Promote public-private investment partnerships supporting strategic bioeconomy investments                             | Identify PPP opportunities; undertake feasibility studies; structure and facilitate PPP transactions                                    | Number/value of bioeconomy investments implemented through PPP arrangements  | At least 20 strategic PPP investments facilitated by 2036 | National Treasury / PPP Directorate | SDSRI, KDC, Counties, Private Sector                                                                           | 2028–2036 | 100 million             |
|                                                                                                     | Facilitate access to venture capital, impact investment and growth financing for bioeconomy enterprises                | Establish investor networks; enterprise-investor matchmaking; facilitate investment forums and deal preparation                         | Number of bioeconomy enterprises accessing venture, impact or growth capital | At least 500 enterprises by 2036                          | KeNIA                               | Kenya Investment Authority, KDC, Financial Institutions, Private Investors                                     | 2028–2036 | 100 million             |
|                                                                                                     | Strengthen access to climate finance, carbon finance, biodiversity finance and other nature-based financing mechanisms | Develop bankable nature-based projects; strengthen MRV and accreditation capacity; facilitate access to carbon and biodiversity markets | Value of climate, carbon, biodiversity and nature finance mobilised          | KES 20B cumulatively by 2036                              | National Treasury                   | SDSRI, Ministry responsible for Environment and Climate Change, Counties, Development Partners, Private Sector | 2027–2036 | 150 million             |
| <b>5.2 Improve investment readiness, productivity and competitiveness of bioeconomy enterprises</b> | Establish a Bioeconomy Project Preparation Facility                                                                    | Establish facility; support feasibility studies, business cases, due diligence and transaction advisory services                        | Bioeconomy Project Preparation Facility operational                          | Facility operational by 2029                              | SDSRI                               | KDC, KeNIA, Kenya Investment Authority, Counties, KNCCI                                                        | 2027–2029 | 300 million             |
|                                                                                                     | Provide investment-readiness, business                                                                                 | Deliver business planning, financial                                                                                                    | Number of bioeconomy enterprises receiving                                   | At least 1,000 enterprises by 2036                        | MSEA                                | KeNIA, KDC, KNCCI, Private                                                                                     | 2027–2036 | 500million              |

| Strategic Objective | Strategic Intervention                                                                                                                       | Key Activities                                                                                                               | Indicator                                                                                         | Target                                                       | Lead Institution                     | Supporting Institutions                                            | Timeline  | Indicative Budget (KES) |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------|--------------------------------------------------------------------|-----------|-------------------------|
|                     | development and financial management support tailored to bioeconomy enterprises                                                              | management, governance and investor-readiness programmes                                                                     | investment-readiness support                                                                      |                                                              |                                      | Sector                                                             |           |                         |
|                     | Maintain a national bioeconomy investment pipeline tracking enterprises from pilot stage through to investment readiness                     | Develop pipeline criteria and database; identify and profile projects and enterprises; periodically update investment status | Number of investment-ready bioeconomy projects and enterprises in national pipeline               | At least 1,000 investment-ready projects/enterprises by 2036 | SDSRI / Kenya Investment Authority   | KeNIA, KDC, Counties, Private Sector                               | 2027–2036 | 100 million             |
|                     | Support incubation, mentorship and formalisation pathways for bioeconomy start-ups, including community-based and informal-sector innovators | Provide incubation, acceleration, mentorship, registration and business-development support                                  | Number of bioeconomy start-ups and innovators incubated/formalised                                | At least 2,000 start-ups and innovators supported by 2036    | MSEA / KeNIA                         | Counties, Universities, Research Institutions, Private Sector      | 2027–2036 | 500 million             |
|                     | Strengthen enterprise productivity, quality and cost competitiveness through technology adoption and process-improvement support             | Support technology upgrading, process optimisation, resource efficiency and enterprise modernisation                         | Number of enterprises adopting productivity-enhancing technologies/processes                      | At least 1,000 enterprises by 2036                           | State Department for Industry        | KIRDI, KeNIA, KEBS, Counties, Universities, Private Sector         | 2028–2036 | 1 billion               |
|                     | Support enterprise compliance with quality, sustainability, traceability and export standards required for participation in                  | Provide technical assistance, certification support, traceability systems and compliance services                            | Number of enterprises meeting relevant quality, sustainability, traceability and export standards | At least 1,000 enterprises compliant/certified by 2036       | State Department for Industry / KEBS | KEPHIS, KIPI, State Department for Trade, Counties, Private Sector | 2027–2036 | 300 million             |

| Strategic Objective                                                    | Strategic Intervention                                                                                                                                                 | Key Activities                                                                                                   | Indicator                                                                              | Target                                               | Lead Institution           | Supporting Institutions                                           | Timeline  | Indicative Budget (KES) |
|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------|-------------------------------------------------------------------|-----------|-------------------------|
|                                                                        | domestic and international markets                                                                                                                                     |                                                                                                                  |                                                                                        |                                                      |                            |                                                                   |           |                         |
| <b>5.3 Strengthen bioeconomy enabling infrastructure and logistics</b> | Establish bioeconomy innovation and processing hubs, prioritised against value chain readiness and county resource endowment                                           | Map infrastructure needs; identify priority locations; establish shared innovation and processing facilities     | Number of operational bioeconomy innovation and processing hubs                        | At least 8 regional hubs operational by 2036         | SDSRI                      | Counties, KIRDI, KeNIA, Private Sector                            | 2028–2036 | 4 billion               |
|                                                                        | Strengthen laboratory and testing infrastructure                                                                                                                       | Upgrade laboratories; procure equipment; strengthen testing capabilities and accreditation                       | Number of laboratories upgraded/accredited to support priority bioeconomy value chains | At least 20 laboratories upgraded/accredited by 2036 | SDSRI                      | KEBS, KIRDI, Universities, Research Institutions, Private Sector  | 2027–2036 | 1 billion               |
|                                                                        | Develop pilot-scale, demonstration and biorefinery facilities to bridge research and commercial-scale production                                                       | Establish and upgrade shared pilot, demonstration and biorefinery facilities; support technology validation      | Number of operational pilot, demonstration and biorefinery facilities                  | At least 20 facilities operational by 2036           | KIRDI                      | SDSRI, KeNIA, Universities, Research Institutions, Private Sector | 2028–2036 | 3 billion               |
|                                                                        | Strengthen logistics and value chain infrastructure connecting production areas to processing, innovation and market infrastructure                                    | Map logistics gaps; improve storage, cold-chain, transport and handling infrastructure for priority value chains | Number of priority value chains supported by improved logistics infrastructure         | At least 15 priority value chains by 2036            | State Department for Trade | Line Ministries, Counties, Private Sector, Development Partners   | 2028–2036 | 1 billion               |
|                                                                        | Strengthen market infrastructure, including certification systems, commodity-exchange platforms and digital market-information tools supporting bioeconomy enterprises | Develop shared certification, trading and digital market infrastructure                                          | Number of priority value chains supported by functional market infrastructure          | At least 15 priority value chains by 2036            | State Department for Trade | KEBS, Counties, Kenya Investment Authority, Private Sector        | 2028–2036 | 500 million             |

| Strategic Objective                                                                                      | Strategic Intervention                                                                                                                  | Key Activities                                                                                                                      | Indicator                                                                                       | Target                                                                                    | Lead Institution           | Supporting Institutions                                                     | Timeline  | Indicative Budget (KES) |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------|-----------|-------------------------|
|                                                                                                          | Develop feedstock aggregation, collection and storage infrastructure for priority biomass streams                                       | Establish aggregation centres, collection systems, storage facilities and associated logistics                                      | Number of priority biomass streams/value chains with functional aggregation and storage systems | At least 15 priority biomass streams/value chains by 2036                                 | Relevant Line Ministries   | Counties, KIRDI, Private Sector, Cooperatives                               | 2028–2036 | 1 billion               |
| <b>5.4 Develop competitive domestic, regional and export markets for bio-based products and services</b> | Strengthen standards, certification and accreditation systems for priority bioeconomy value chains                                      | Identify standards gaps; develop/adopt standards; strengthen certification, testing and accreditation                               | Number of priority bioeconomy value chains with relevant standards and certification systems    | Standards/certification systems established for at least 15 priority value chains by 2036 | KEBS                       | KENAS, KEPHIS, State Department for Industry, SDSRI, Private Sector         | 2027–2036 | 300 million             |
|                                                                                                          | Promote domestic market development and consumer awareness of bio-based products and services                                           | Conduct consumer awareness, product promotion and demand-development programmes                                                     | Growth in domestic market for bio-based products and services                                   | Baseline established by 2028 and measurable growth thereafter                             | State Department for Trade | SDSRI, KNCCI, KEPSA, Counties, Private Sector                               | 2027–2036 | 250 million             |
|                                                                                                          | Support export readiness and international market access                                                                                | Provide export-readiness support; certification; trade facilitation; participation in trade missions and exhibitions                | Number of bioeconomy enterprises accessing export markets                                       | At least 500 enterprises accessing regional/international markets by 2036                 | State Department for Trade | Export Promotion and Branding Agency, KEBS, KEPSA, Counties, Private Sector | 2028–2036 | 500 million             |
|                                                                                                          | Promote demand creation for bio-based products through sustainable public procurement, awareness programmes, standards and market-based | Develop sustainable procurement guidelines; introduce awareness and market incentives; support implementation by procuring entities | Number of public institutions implementing sustainable procurement of bio-based products        | At least 50 public institutions by 2032                                                   | National Treasury / PPRA   | SDSRI, KEBS, Counties, State Department for Trade                           | 2027–2032 | 150 million             |

| Strategic Objective | Strategic Intervention                                                                                                                      | Key Activities                                                                                                                                       | Indicator                                                                                    | Target                                                             | Lead Institution           | Supporting Institutions                                                                 | Timeline  | Indicative Budget (KES) |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------|-----------|-------------------------|
|                     | incentives                                                                                                                                  |                                                                                                                                                      |                                                                                              |                                                                    |                            |                                                                                         |           |                         |
|                     | Strengthen market intelligence, trade promotion and export support services                                                                 | Establish market intelligence system; undertake market studies; disseminate trade and investment information                                         | National bioeconomy market intelligence and trade information system operational             | System operational by 2029 and regularly updated                   | State Department for Trade | KNBS, Kenya Investment Authority, SDSRI, KEPSA                                          | 2027–2036 | 200 million             |
|                     | Support regional and international market access for Kenyan bioeconomy products                                                             | Facilitate regional market integration, trade missions, buyer engagement and participation in regional/global value chains                           | Value of Kenyan bioeconomy exports                                                           | Baseline established by 2028 and progressive increase through 2036 | State Department for Trade | EAC institutions, Export Promotion and Branding Agency, KEPSA, Counties, Private Sector | 2028–2036 | 500 million             |
|                     | Develop digital market information and buyer-seller linkage platforms                                                                       | Develop digital platform; establish B2B and buyer-seller mechanisms; integrate market and investment information                                     | Number of enterprises linked to buyers and markets through established platforms             | At least 1,000 enterprises by 2036                                 | State Department for Trade | Kenya Investment Authority, KeNIA, KNCCI, KEPSA, Counties                               | 2027–2031 | 150 million             |
|                     | Prioritise investment, competitiveness and market-support measures for strategic national bioeconomy value chains identified under Pillar 4 | Develop value chain-specific investment and market-support packages; align financing, infrastructure and enterprise support with Pillar 4 priorities | Number of Pillar 4 priority value chains receiving coordinated investment and market support | All priority national value chains progressively supported by 2036 | SDSRI                      | Relevant Line Ministries, National Treasury, Counties, KeNIA, KDC, Private Sector       | 2027–2036 | 500 million             |

## Strategic Pillar 6: Human Capital Development, Inclusion and Public Awareness

**Strategic Goal:** *To build a skilled, inclusive and informed society capable of driving and benefiting from bioeconomy development.*

| Strategic Objective                                                        | Strategic Intervention                                                                                                                                       | Key Activities                                                                                                                                                           | Indicator                                                                        | Target                                                                                                                                           | Lead Institution      | Supporting Institutions                                               | Timeline  | Indicative Budget (KES) |
|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------|-----------|-------------------------|
| <b>6.1: Strengthen bioeconomy skills and competencies of the workforce</b> | Conduct national bioeconomy skills, competencies and training needs assessments                                                                              | Map existing skills and training capacity; assess current and emerging skills needs across priority bioeconomy value chains; identify competency gaps                    | National bioeconomy skills, competencies and training needs assessment completed | National assessment completed by 2028 and updated by 2033                                                                                        | Ministry of Education | SDSRI, TVETA, CUE, Universities, Industry, KNBS                       | 2027–2033 | 50 million              |
|                                                                            | Develop and integrate bioeconomy education and training curricula at basic, TVET, university and advanced levels                                             | Assess curriculum gaps; develop/revise curricula and learning programmes; integrate bioeconomy concepts and competencies into relevant programmes                        | Number of curricula/programmes developed or revised to incorporate bioeconomy    | Bioeconomy integrated into relevant curricula at basic and tertiary levels; at least 3 advanced multidisciplinary programmes established by 2031 | Ministry of Education | KICD, TVET CDACC, CUE, Universities, SDSRI                            | 2027–2031 | 150 million             |
|                                                                            | Develop and implement specialised bioeconomy training programmes, including technical, entrepreneurship, enterprise development and commercialisation skills | Develop competency-based training programmes; deliver technical, entrepreneurship, enterprise-development and commercialisation training                                 | Number of people completing specialised bioeconomy training programmes           | At least 2,000 people trained by 2036                                                                                                            | TVETA / KeNIA         | SDSRI, MSEA, Universities, KIRDI, Industry                            | 2028–2036 | 300 million             |
|                                                                            | Strengthen the capacity of educators, trainers, extension personnel and other intermediaries to deliver bioeconomy education and skills development          | Develop training-of-trainers programmes and materials; train teachers, TVET trainers, university lecturers, extension personnel and enterprise-development practitioners | Number of educators, trainers and intermediaries trained                         | At least 1,000 educators, trainers and intermediaries trained by 2036                                                                            | Ministry of Education | TVETA, KICD, Universities, State Department for Agriculture, Counties | 2028–2036 | 200 million             |
|                                                                            | Establish professional                                                                                                                                       | Develop professional                                                                                                                                                     | Number of                                                                        | At least 10                                                                                                                                      | National              | Professional                                                          | 2029–     | 100                     |

| Strategic Objective                                                                 | Strategic Intervention                                                                                                                                                             | Key Activities                                                                                                                                                                                    | Indicator                                                                                                                           | Target                                                                                  | Lead Institution                 | Supporting Institutions                                                                                                         | Timeline  | Indicative Budget (KES) |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------|
|                                                                                     | training, certification and continuous professional development programmes in priority bioeconomy areas                                                                            | competency and certification frameworks; establish short courses and CPD programmes; partner with professional bodies                                                                             | professional training and certification programmes established                                                                      | professional/CPD programmes operational by 2032                                         | Bioeconomy Institute             | Bodies, Universities, TVETA, Industry                                                                                           | 2036      | million                 |
|                                                                                     | Strengthen rural bioeconomy skills and advisory capacity to support farm-based innovation, adoption of bioeconomy technologies and development of rural bioeconomy business models | Develop rural bioeconomy training modules; train extension and rural advisory personnel; establish demonstration and peer-learning programmes; support community-level enterprise skills          | Number of rural advisors/extension personnel and community actors trained in bioeconomy approaches                                  | At least 1,000 rural advisors/extension personnel and community actors trained by 2036  | State Department for Agriculture | Counties, Ministry of Education, TVETA, Universities, Research Institutions, Cooperatives                                       | 2028–2036 | 250 million             |
| <b>6.2: Empower communities for effective engagement in bioeconomy value chains</b> | Promote gender, disability and social inclusion in bioeconomy value chains                                                                                                         | Undertake inclusion assessments; develop targeted capacity-development and participation programmes for women, youth, PWDs and marginalised groups; mainstream inclusion in bioeconomy programmes | Proportion of supported bioeconomy initiatives demonstrating meaningful participation of women, youth, PWDs and marginalised groups | Inclusion criteria integrated into all publicly supported bioeconomy programmes by 2030 | State Department for Gender      | National Council for Persons with Disabilities, State Department for Youth Affairs, SDSRI, Counties, MSEA, Development Partners | 2027–2036 | 100 million             |
|                                                                                     | Strengthen the participation and capacity of community-based organisations, micro and small enterprises, cooperatives and                                                          | Provide technical, organisational and enterprise-development training; strengthen governance & value chain participation; facilitate linkages with research &                                     | Number of community organisations, MSEs, cooperatives and producer organisations receiving capacity                                 | At least 1,000 organisations/enterprises supported by 2036                              | MSEA                             | State Department for Cooperatives, Counties, KeNIA, Research Institutions, Private Sector                                       | 2028–2036 | 300 million             |

| Strategic Objective                                                                  | Strategic Intervention                                                                                                  | Key Activities                                                                                                                                                   | Indicator                                                                                                             | Target                                                                                          | Lead Institution                         | Supporting Institutions                                                             | Timeline  | Indicative Budget (KES) |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------|-----------|-------------------------|
|                                                                                      | producer organisations in bioeconomy value chains                                                                       | innovation institutions                                                                                                                                          | support                                                                                                               |                                                                                                 |                                          |                                                                                     |           |                         |
|                                                                                      | Promote decent, productive and inclusive employment opportunities across bioeconomy value chains                        | Identify employment opportunities and skills requirements; facilitate employment and work-based learning; promote occupational safety and decent-work practices  | Number of decent and productive employment opportunities created or enhanced through supported bioeconomy initiatives | At least 5,000 employment opportunities created or enhanced by 2036                             | Ministry of Labour and Social Protection | State Department for Industry, MSEA, KeNIA, Counties, Private Sector                | 2028–2036 | 200 million             |
|                                                                                      | Strengthen producer groups, cooperatives and community enterprises to participate effectively in bioeconomy development | Strengthen organisational and technical capacity; provide training and mentorship; facilitate linkages to innovation, value-addition and market-support services | Number of producer groups, cooperatives and community enterprises strengthened                                        | At least 500 producer groups, cooperatives and community enterprises supported by 2036          | State Department for Cooperatives        | Counties, MSEA, Universities, Research Institutions, Development Partners           | 2028–2036 | 250 million             |
|                                                                                      | Develop and implement social inclusion and equitable benefit-sharing frameworks for bioeconomy development              | Review existing benefit-sharing mechanisms; develop national guidance; integrate equitable benefit-sharing approaches into relevant bioeconomy programmes        | National social inclusion and benefit-sharing framework/guidelines developed and implemented                          | National framework/guidelines developed by 2029 and applied in relevant programmes through 2036 | Ministry responsible for Environment     | NEMA, NBA, Counties, Communities, NACOSTI, SDSRI                                    | 2027–2036 | 50 million              |
| <b>6.3: Enhance public and stakeholder participation in the bioeconomy ecosystem</b> | Develop and implement a national bioeconomy awareness, communication and outreach strategy                              | Develop national strategy; undertake public-awareness campaigns; utilise mainstream, community and digital media; undertake national and county outreach         | National bioeconomy awareness, communication and outreach strategy operational                                        | Strategy developed by 2028 and implemented through 2036                                         | SDSRI                                    | National Bioeconomy Institute, Counties, Media, Universities, Research Institutions | 2027–2036 | 150 million             |

| Strategic Objective | Strategic Intervention                                                                                                                               | Key Activities                                                                                                                                | Indicator                                                                                 | Target                                                                                                                         | Lead Institution              | Supporting Institutions                                                              | Timeline  | Indicative Budget (KES) |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------|-----------|-------------------------|
|                     | Develop targeted, accessible and inclusive bioeconomy communication and public-engagement materials                                                  | Develop and translate audience-specific materials; utilise accessible communication formats; develop digital and multimedia content           | Number of targeted communication products/materials developed and disseminated            | Communication materials developed for all priority stakeholder groups and disseminated nationally by 2030                      | National Bioeconomy Institute | SDSRI, Counties, Media, Universities, Relevant MDAs                                  | 2028–2036 | 100 million             |
|                     | Develop and implement a national bioeconomy stakeholder engagement framework, including stakeholder mapping and mechanisms for continuous engagement | Undertake national stakeholder mapping; develop engagement framework; establish and maintain stakeholder database and feedback mechanisms     | National bioeconomy stakeholder engagement framework and stakeholder database operational | Framework and national stakeholder database operational by 2028 and regularly updated                                          | SDSRI                         | KEPSA, Counties, NACOSTI, Development Partners, Civil Society                        | 2027–2036 | 50 million              |
|                     | Establish and strengthen multi-stakeholder platforms, working groups, advisory committees and communities of practice                                | Establish national and county platforms; support thematic working groups and communities of practice; facilitate regular stakeholder dialogue | Number of functional multi-stakeholder platforms and communities of practice              | National platform operational by 2028 and functional stakeholder mechanisms established across priority thematic areas by 2031 | SDSRI                         | NACOSTI, National Bioeconomy Institute, Counties, Universities, KEPSA, Civil Society | 2027–2036 | 100 million             |
|                     | Convene regular national and regional bioeconomy forums and stakeholder consultations                                                                | Convene national bioeconomy forums; undertake regional/county consultations; facilitate policy, research, industry and community dialogue     | Number of national and regional bioeconomy forums and consultations convened              | At least one national bioeconomy forum annually and periodic regional forums through 2036                                      | SDSRI                         | National Bioeconomy Institute, Counties, Private Sector, Development Partners        | 2028–2036 | 250 million             |
|                     | Establish and strengthen bioeconomy knowledge-management and                                                                                         | Develop digital knowledge platform; establish knowledge hubs and repositories; support                                                        | National bioeconomy knowledge-management platform operational                             | National platform operational by 2029 and continuously updated through 2036                                                    | National Bioeconomy Institute | SDSRI, Universities, Research Institutions,                                          | 2027–2036 | 100 million             |

| Strategic Objective                                                                                           | Strategic Intervention                                                                              | Key Activities                                                                                                                                           | Indicator                                                                                       | Target                                                                             | Lead Institution              | Supporting Institutions                                                      | Timeline  | Indicative Budget (KES) |
|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------------|-----------|-------------------------|
|                                                                                                               | knowledge-sharing platforms                                                                         | communities of practice; document and disseminate lessons and good practices                                                                             |                                                                                                 |                                                                                    |                               | NACOSTI, KeNIA                                                               |           |                         |
|                                                                                                               | Promote public and consumer awareness of bio-based products, services and solutions                 | Conduct consumer education and awareness campaigns; develop information on benefits, safety, standards and sustainability of bio-based products          | Percentage of surveyed consumers demonstrating awareness of bio-based products and services     | Baseline established by 2028 and measurable increase in public awareness by 2036   | State Department for Trade    | SDSRI, KEBS, Consumer Organisations, Private Sector, Counties                | 2028–2036 | 150 million             |
| <b>6.4: Strengthen leadership, institutional capacity and change management for bioeconomy transformation</b> | Develop bioeconomy leadership training and mentorship programmes for policymakers and practitioners | Develop leadership and executive-training modules; deliver leadership programmes; establish mentorship and peer-learning mechanisms                      | Number of policymakers and practitioners completing bioeconomy leadership programmes            | At least 500 policymakers and practitioners trained by 2036                        | National Bioeconomy Institute | Kenya School of Government, SDSRI, Universities                              | 2028–2036 | 100 million             |
|                                                                                                               | Build the capacity of national and county institutions responsible for bioeconomy implementation    | Conduct institutional capacity assessments; provide technical training and implementation support; develop institutional capacity-development programmes | Number of national and county institutions receiving bioeconomy implementation capacity support | All relevant national institutions and 47 counties progressively supported by 2036 | SDSRI                         | Counties, National Bioeconomy Institute, Relevant MDAs, Development Partners | 2027–2036 | 200 million             |
|                                                                                                               | Enhance bioeconomy literacy among policymakers and decision-makers                                  | Develop policy briefs, executive learning resources and targeted training modules; undertake policy dialogues and orientation programmes                 | Number of policymakers and decision-makers reached through bioeconomy literacy programmes       | At least 1,000 policymakers and decision-makers reached by 2036                    | National Bioeconomy Institute | SDSRI, KIPPRA, Kenya School of Government, Universities                      | 2027–2036 | 100 million             |

| Strategic Objective | Strategic Intervention                                                                  | Key Activities                                                                                                                                                     | Indicator                                                                         | Target                                                                         | Lead Institution | Supporting Institutions                                                            | Timeline  | Indicative Budget (KES) |
|---------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------|-----------|-------------------------|
|                     | Strengthen change management and organisational readiness for bioeconomy implementation | Develop organisational change-management tools; undertake readiness assessments; support institutions to develop and implement organisational transformation plans | Number of institutions implementing bioeconomy-responsive change-management plans | At least 30 priority institutions implementing change-management plans by 2032 | SDSRI            | National Bioeconomy Institute, Relevant MDAs, Counties, Kenya School of Government | 2028–2036 | 100 million             |

## Strategic Pillar 7: Partnerships, Regional Integration and International Cooperation

**Strategic Goal:** To strengthen strategic partnerships, regional integration and international cooperation that support bioeconomy development, competitiveness, value capture and Kenya's global positioning as a bioeconomy leader.

| Strategic Objective                                                                                    | Strategic Intervention                                                                                                                                                                   | Key Activities                                                                                                                                                                                     | Indicator                                                                                                                       | Target                                                                                     | Lead Institution | Supporting Institutions                                                    | Timeline  | Indicative Budget (KES) |
|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------|-----------|-------------------------|
| <b>7.1: Strengthen national and international partnerships for research, technology and investment</b> | Promote public-private-academic and industry-research partnerships for bioeconomy development                                                                                            | Develop partnership frameworks; convene joint research-industry programmes; facilitate collaborative R&D and co-investment initiatives                                                             | Number of active public-private-academic and industry-research partnerships                                                     | At least 20 active partnerships by 2031                                                    | SDSRI            | NACOSTI, KeNIA, Universities, Research Institutions, KEPSA, Private Sector | 2026-2031 | 150 million             |
|                                                                                                        | Facilitate international research, innovation and knowledge-exchange partnerships, safeguarded by Access and Benefit-Sharing (ABS) compliance and clear intellectual property (IP) terms | Develop model ABS and IP provisions for international partnerships; facilitate international research and knowledge-exchange agreements; strengthen compliance with national ABS and IP frameworks | Number of international research, innovation and knowledge-exchange partnerships established with appropriate ABS/IP provisions | At least 15 compliant international partnerships by 2031                                   | NACOSTI          | NBA, KIPi, SDSRI, Universities, Research Institutions                      | 2026-2031 | 120 million             |
|                                                                                                        | Promote technology transfer, co-development and investment partnerships                                                                                                                  | Facilitate technology transfer and licensing arrangements; promote technology co-development; support local manufacturing and investment partnerships                                              | Number of technology transfer and co-development partnerships established                                                       | At least 10 technology transfer/co-development partnerships by 2032                        | SDSRI            | KeNIA, KIRDI, KIPi, Kenya Investment Authority, Private Sector             | 2027-2032 | 100 million             |
|                                                                                                        | Strengthen collaboration with development partners through a bioeconomy development-partner coordination platform,                                                                       | Establish a bioeconomy development-partner coordination platform; map ongoing programmes and financing opportunities; coordinate                                                                   | Bioeconomy development-partner coordination platform established and operational                                                | Platform operational by 2028; joint resource-mobilisation pipeline maintained through 2036 | SDSRI            | National Treasury, Development Partners, Relevant MDAs                     | 2026-2031 | 80 million              |

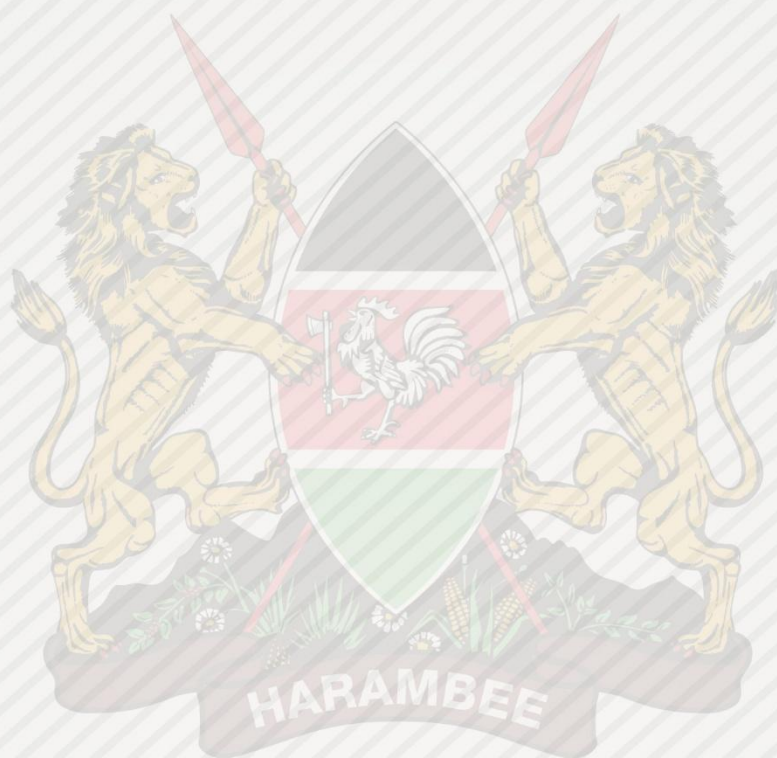
| Strategic Objective                                     | Strategic Intervention                                                                                   | Key Activities                                                                                                                                                                                                                 | Indicator                                                                                                       | Target                                                             | Lead Institution                | Supporting Institutions                                                                                  | Timeline  | Indicative Budget (KES) |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------|-----------|-------------------------|
|                                                         | aligned with global climate finance mechanisms                                                           | resource mobilisation                                                                                                                                                                                                          |                                                                                                                 |                                                                    |                                 |                                                                                                          |           |                         |
|                                                         | Facilitate county-level and regional-economic-bloc international engagement                              | Develop international-engagement guidelines consistent with national foreign-engagement protocols; facilitate investment promotion, partnerships and cross-border collaboration involving counties and regional economic blocs | Number of counties and regional economic blocs participating in structured international bioeconomy engagements | At least 10 counties/regional economic blocs participating by 2032 | Council of Governors / Counties | Ministry of Foreign & Diaspora Affairs, State Department for EAC Affairs, SDSRI, Regional Economic Blocs | 2027-2032 | 150 million             |
| <b>7.2 Promote regional integration and cooperation</b> | Support implementation of the EAC Regional Bioeconomy Strategy                                           | Align national bioeconomy initiatives with EAC priorities; participate in regional coordination mechanisms; support implementation of joint initiatives                                                                        | Number of joint EAC bioeconomy initiatives implemented                                                          | At least 8 joint EAC initiatives by 2032                           | SDSRI                           | EAC Secretariat, Relevant MDAs, Research Institutions                                                    | 2027-2032 | 80 million              |
|                                                         | Promote regional and continental bioeconomy value chains, industrial partnerships and market integration | Identify priority cross-border value chains; facilitate enterprise and industrial partnerships; support regional value chain development and investment                                                                        | Number of regional and continental bioeconomy value chain initiatives supported                                 | At least 6 regional/continental value chain initiatives by 2032    | State Department for Trade      | SDSRI, EAC Secretariat, Counties, Regional Economic Blocs, Private Sector                                | 2027-2032 | 150 million             |
|                                                         | Support harmonisation of regional standards, regulations and certification systems                       | Participate in regional harmonisation processes; develop/adopt common standards; facilitate alignment of certification                                                                                                         | Number of harmonised bioeconomy-related standards, regulations and certification frameworks adopted             | At least 10 harmonised standards/frameworks adopted by 2032        | KEBS                            | EAC Secretariat, KENAS, Relevant Regulators, State Department for Trade                                  | 2027-2032 | 80 million              |

| Strategic Objective                                                                      | Strategic Intervention                                                                                                                                 | Key Activities                                                                                                                                                                                                                | Indicator                                                                                                                           | Target                                                                                                                   | Lead Institution           | Supporting Institutions                                                                                      | Timeline  | Indicative Budget (KES) |
|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------------------------------------------------------------------------------------|-----------|-------------------------|
|                                                                                          |                                                                                                                                                        | and regulatory requirements                                                                                                                                                                                                   |                                                                                                                                     |                                                                                                                          |                            |                                                                                                              |           |                         |
|                                                                                          | Promote joint regional and continental research and innovation programmes with EAC partner states through AU STI frameworks                            | Develop collaborative research programmes; establish joint calls and projects; participate in EAC, AU and AUDA-NEPAD STI initiatives                                                                                          | Number of joint regional and continental research and innovation programmes implemented                                             | At least 5 joint programmes by 2032                                                                                      | NACOSTI                    | NRF, SDSRI, Universities, Research Institutions, EAC Secretariat, AUDA-NEPAD                                 | 2027–2032 | 150 million             |
|                                                                                          | Leverage regional and continental trade frameworks, including the EAC and AfCFTA, to expand market access for Kenyan bioeconomy products and services  | Identify market opportunities under EAC and AfCFTA frameworks; support compliance with applicable rules of origin and trade protocols; facilitate participation of bioeconomy enterprises in regional and continental markets | Number of Kenyan bioeconomy enterprises accessing regional and continental markets through EAC and AfCFTA frameworks                | At least 200 enterprises supported to access EAC and AfCFTA markets by 2036                                              | State Department for Trade | AfCFTA National Focal Point, EAC Secretariat, KEBS, Export Promotion Agencies, KEPISA, KNCCI, Private Sector | 2027–2036 | 150 million             |
| <b>7.3 Strengthen Kenya's global bioeconomy positioning, diplomacy and market access</b> | Develop and implement a national bioeconomy branding and visibility strategy, showcasing Kenyan innovations at international exhibitions and platforms | Develop national bioeconomy branding framework and promotional materials; showcase Kenyan innovations at priority international exhibitions and platforms                                                                     | National bioeconomy branding and visibility strategy operational; number of Kenyan bioeconomy innovations showcased internationally | Strategy operational by 2028; at least 30 innovations showcased internationally by 2036                                  | SDSRI                      | KeNIA, Kenya Investment Authority, State Department for Trade, Private Sector                                | 2027–2036 | 100 million             |
|                                                                                          | Promote participation in, and exploration of convening, global bioeconomy platforms, leveraging Kenya's status as host of international                | Facilitate participation in global bioeconomy platforms; strengthen engagement with international institutions hosted in Kenya; assess opportunities for Kenya to                                                             | Number of global bioeconomy platforms in which Kenya actively participates or convenes                                              | Participation in at least 6 strategic global platforms by 2032; feasibility for a Kenya-hosted platform assessed by 2029 | SDSRI                      | Ministry of Foreign & Diaspora Affairs, Relevant International and Regional Institutions, Research           | 2027–2032 | 100 million             |

| Strategic Objective | Strategic Intervention                                                                                                                                                              | Key Activities                                                                                                                                                                            | Indicator                                                                                                                                         | Target                                                                                                                                        | Lead Institution                       | Supporting Institutions                                                                      | Timeline  | Indicative Budget (KES) |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------|-----------|-------------------------|
|                     | environmental institutions and regional marine governance architecture                                                                                                              | convene regional and global bioeconomy dialogue                                                                                                                                           |                                                                                                                                                   |                                                                                                                                               |                                        | Institutions                                                                                 |           |                         |
|                     | Support international market access and positioning of Kenyan bio-based products and services, including mutual recognition and equivalence agreements with priority export markets | Identify priority export markets; facilitate export promotion; support negotiation of mutual recognition and equivalence arrangements; showcase Kenyan bio-based products internationally | Number of priority market-access arrangements concluded; number of Kenyan bio-based products/enterprises accessing priority international markets | At least 3 mutual recognition/equivalence arrangements facilitated, and 100 products/enterprises supported to access priority markets by 2036 | State Department for Trade             | KEBS, Export Promotion Agencies, Ministry of Foreign & Diaspora Affairs, Private Sector      | 2027–2036 | 150 million             |
|                     | Promote South-South and North-South cooperation, including engagement with Kenyan diaspora scientific, professional and investment networks                                         | Develop bilateral and multilateral cooperation initiatives; establish diaspora engagement mechanisms; facilitate scientific, technical and investment partnerships                        | Number of South-South/North-South cooperation programmes established; diaspora bioeconomy engagement mechanism operational                        | At least 5 cooperation programmes by 2032; diaspora engagement mechanism operational by 2029                                                  | Ministry of Foreign & Diaspora Affairs | SDSRI, Universities, Research Institutions, Kenya Investment Authority, Development Partners | 2027–2032 | 60 million              |
|                     | Strengthen bioeconomy diplomacy and international engagement, including positioning Kenya as a regional hub for bioeconomy investment                                               | Integrate bioeconomy priorities into international cooperation and diplomatic engagements; undertake targeted investment promotion; engage international investors and strategic partners | Number of international cooperation frameworks incorporating bioeconomy priorities; number of strategic international investors engaged           | Bioeconomy incorporated into at least 5 international cooperation frameworks and at least 20 strategic investors engaged by 2033              | Ministry of Foreign & Diaspora Affairs | SDSRI, Kenya Investment Authority, State Department for Trade, KEPISA, Counties              | 2027–2033 | 100 million             |

## Literature Cited

1. **East African Community (EAC).** (2022). *East African Community Regional Bioeconomy Strategy 2021/22–2031/32*. Arusha, Tanzania: East African Community Secretariat.
2. **Food and Agriculture Organization of the United Nations (FAO).** (2024). *Bioeconomy Strategies Dashboard*. Rome: FAO.
3. **Government of Kenya, Ministry of Energy.** (2020). *Kenya Bioenergy Strategy 2020–2027*. Nairobi: Ministry of Energy.
4. **Government of Kenya, Ministry responsible for Environment and Forestry / Kenya Forest Service.** (2021). *National Forest Resources Assessment 2021*. Nairobi: Government of Kenya.
5. **Kenya National Bureau of Statistics (KNBS).** (2024). *Gross County Product 2024*. Nairobi: KNBS.
6. **Kenya National Bureau of Statistics (KNBS).** (2026). *Economic Survey 2026*. Nairobi: KNBS.
7. **Kenya National Bureau of Statistics (KNBS).** (2026). *2025/26 Kenya Census of Agriculture*. Nairobi: KNBS.



# REPUBLIC OF KENYA

**Government of Kenya. 2026 Kenya National Bioeconomy Strategy 2026–2036.  
Office of the Prime Cabinet Secretary.**