



REPUBLIC OF KENYA

NATIONAL BAMBOO POLICY, 2019



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FOREWARD

ACKNOWLEDGEMENT

Acronyms And Abbreviations

APC African Plantation Capital

BIDCO	Business and Industrial Development Corporation
BTC	Bamboo Trading Company
CBOs	Community Based Organizations
CFA	Community Forest Association
EAC	East African Community
FLR	Forest Landscape Restoration
GBM	Green Belt Movement
GO	Government Organizations
GPE	Green Port Enterprises
GPE	Green Pot Enterprise
ICRAF	International Centre in Research and Agro Forestry
IEC	Import and Export Codes
INBAR	International Bamboo and Rattan Organisation
KEFRI	Kenya Forestry Research Institute
KFS	Kenya Forest Service
KIA	Kenya Investment Authority
KIC	Kenya Investment Commission
MoE and F	Ministry of Environment and Forestry
MoEWNR	Ministry of Environment, Water and Natural Resources
MSEA	Micro, Small and Medium Enterprises Development Authority
MTP II	Medium Term Plan II
NGOs	Nongovernmental Organizations
PPP	Public Private Partnership
SEKU	South Eastern Kenya University
SME	Small and Medium Enterprises
TVET	Technical Vocational Education and Training
VIRED	Victoria Institute of Research in Environment and Development

INTRODUCTION

1.1. Background

- 1.1.1. Bamboo is among the fastest growing woody plants in the world. Bamboo has proven potential for soil erosion control, water recharge, climate change mitigation and adaptation. It is a perennial species belonging to grass family *Poaceae*, subfamily *Bambusoideae*. There are over 1600 species of Bamboo growing in different agro-ecological zones, ranging from sea level to 4000 meters above mean sea level. Bamboo is mostly found in the tropical and sub-tropical regions
- 1.1.2. A resource assessment by the Food and Agriculture Organization (FAO) and the International Network on Bamboo and Rattan (INBAR) in 2005 showed that countries in Asia, Africa and Latin America have a combined Bamboo coverage of 37 million hectares. This accounts for about 1 percent of the global forest area. Data from five countries in Africa (Ethiopia, Kenya, Nigeria, Uganda and Tanzania) indicate a combined Bamboo coverage of 2.8 million hectares representing 4.1 per cent of the forest area in the countries.
- 1.1.3. Bamboo is a versatile resource which has a potential to contribute to creation of jobs, poverty eradication, economic development and environment management. About 1.5 billion people depend on Bamboo with an annual production and consumption of 20 million tons. There are over 10, 000 documented Bamboo products cutting across subsistence use products, timber substitutes, fiber and textile, plastic composites, food and beverage, energy, health and cosmetic industry products. In 2016, global Bamboo total production and consumption were valued at USD 60 billion, with an international trade of about USD 2.5 billion per annum.
- 1.1.4. Bamboo has been an integral part of indigenous forests in Kenya The *Oldeania alpina* (Syn. *Yushania alpina*) commonly known as highland Bamboo is the only indigenous Bamboo species that grows naturally between the altitudes of 2,200m and 3,400m AMSL. Bamboo forests once covered over 300,000 hectares. This has reduced to about 100,000Ha. Kenya has a total Bamboo growing area of 133, 273 hectares, concentrated in mountain ranges and forest areas managed by the national government. Aberdares range, Mau forest, Mount Kenya, Mount Elgon and Cherangany hills has 50038 ha, 30196 ha, 35966 ha 14341 and 8180 hectares respectively. Bamboo growing has since 1980s caught up in many Counties such as Migori, Vihiga, Busia, Homa Bay, Uasin Gishu, Elgeyo Marakwet, Kirinyaga, Kitui, Laikipia, Nyandarua, Embu and Tharaka Nithi. In these Counties, Bamboo is grown as a crop on the farms though not on a large scale.
- 1.1.5. Bamboo has continued to gain recognition in Kenya as a multipurpose plant with many uses including: timber substitute; bioenergy source; a sustainable raw material source for micro; small and medium scale enterprises; and, ecosystem services protecting water

towers of Kenya. Intensifying growing of Bamboo in is therefore important. This calls for production of Bamboo in forests and on farms not only to ensure sustained supply to industrial enterprises and domestic consumption, but also to achieve the national Forest and landscape Restoration (FLR) targets.

- 1.1.6. Bamboo has proven its potential to contribute to achieving Kenya ‘vision 2030 and Big 4 Agenda. Specifically, Bamboo can directly contribute to “economic and social pillars” and flagship programs with focus on: small and medium scale enterprise development to promote manufacturing; rehabilitation of degraded land and landscapes; ensuring equity and eradicating poverty; and, supporting provision of affordable ecologically friendly housing.
- 1.1.7. Whereas Bamboo is mentioned in different policies, strategies and plans such as MTP II, Draft Forest policy, Draft Environment policy and Agriculture policy; it has not had prominent investment focus. This has negated its development and utilization It is therefore important to develop a specific policy, for Bamboo with a strategy and action plan to promote its growing and commercialization. At a national level

1.2 Historical Perspective

- 1.2.1. During the colonial period, large areas of the country’s indigenous forests including Bamboo forests were cleared for establishing large scale plantations with exotic tree species such as cypress, pine, eucalyptus and indigenous trees such as Podo and Cedar. During the post-independence period, the government allocated large areas of indigenous forests including those with Bamboo to communities and investors for establishing agricultural and horticultural farms.
- 1.2.2. In 1986, a verbal proclamation “banning” harvesting of Bamboo from natural forests was issued by the President. This resulted in non-availability of Bamboo resources for value-addition and processing, and contributed to under-development of the Bamboo sector in Kenya. The “ban”, was intended to protect the Bamboo resources from over exploitation.
- 1.2.3. Research to introduce and validate suitability of different types of Bamboo to Kenya’s agro-ecological conditions started in 1986. Twenty two Bamboo species were introduced from Asia. Those found to be suitable for different agro-ecological zones include: *Bambusa brandisii*, *Bambusa vulgaris var. striata*, *Bambusa bambos*, *Bambusa tulda*, *Dendrocalamus membranaceus*, *Dendrocalamus strictus*, *Dendrocalamus asper*, *Gigantochloa aspera*, *Oxytenanthera abyssinica*, and *Thyrsostachys siamensis*.
- 1.2.4. Value-addition of Bamboo has been undertaken by Government Organizations (GOs) and Non-Government Organizations (NGOs). These include: a guideline on Bamboo

cultivation; well-equipped research centers at Karura (Nairobi), Londiani (Kericho) and training centres on production of Bamboo products including furniture and handicrafts to potential entrepreneurs. A private entrepreneur has established a workshop in Vihiga County for making small item products using bamboo culms.

- 1.2.5. Initiatives are being undertaken to promote growing of Bamboo and value-addition as an Alternative Crop and Livelihood Strategy for Tobacco Smallholder Farmers in the Country, particularly in Migori and Homa Bay Counties where a fully-fledged Nursery for producing Bamboo seedlings has been established at Rongo Sub County in Migori County.

2.0 KEY ISSUES AND CHALLENGES

2.1. Bamboo resources

Bamboo in gazette forest are unmanaged without harvesting and most of the standing bamboo culms are dead and deteriorated making them susceptible to fires, and infestation by pests and diseases. Bamboo growing in private farms has been sporadic and not optimally managed due to; lack of sustained market for bamboo poles, lack of technical capacity of growers, as well as lack of comprehensive enabling framework to promote private involvement in Bamboo value chain.

2.2. Bamboo Markets and value-chain

By the year 2000, an estimated 25 million bamboo poles were harvested annually mainly from gazetted forests. These were used for fencing, scaffolding, and construction of houses especially in rural areas. Bamboo splits are used for producing tea picking baskets, farm and household baskets. Communities living around Mount Elgon eat bamboo shoots as a delicacy. Bamboo poles, furniture, handicrafts and seedlings are the current top products from bamboo in the local market.

Kenya is a negligible player in the global bamboo trade. Bamboo import and export account for 0.06% and 0.02% respectively of the global trade. During 2009-2013, Kenya imported bamboo and rattan products worth USD 0.8 million; and exported bamboo products valued at USD 0.27 million. The major products imported were bamboo flooring tiles, plywood and furniture. Despite this low rate of trade in Bamboo, there is a great potential for improving the export trade while at the same time reducing import of bamboo products since the country is a major source of bamboo raw material. This will also enable the country to improve on balance of trade with other countries which are currently exporting bamboo products into Kenya.

2.3 Potential markets and value-chains

Since Kenya is well endowed with bamboo resources, it is in a good position to enhance the production to consumption of the resource and improve quantity and quality of Bamboo products. This will focus on the products such as furniture, reconstituted timber, and use of bamboo in the construction industry and for generation of clean energy for domestic and

industrial uses. For example, the furniture market is estimated to account for USD 496 million; reconstituted timber, USD 31 million. Bamboo value chain can contribute to the success of the Big 4 Agenda, housing, food, health and industrial processing; while at the same time benefiting communities at different levels.

2.4 Need for a policy

Despite the high potential of bamboo for economic, social and environmental development, the bamboo sector is hugely underdeveloped. In the country Key barriers impeding the development of the Bamboo sector are Inadequate supply of quality planting materials including the high price of bamboo seedlings; lack of coordinated development and allocation of resources; inadequate research emanating from low funding; low level of technology adoption; weak marketing systems and limited information and decision making tools at both National and County government levels

3.0 POLICY GOAL, OBJECTIVES AND GUIDING PRINCIPLES

3.1 Goal

The goal of this policy is;

To develop a vibrant Bamboo industry benefiting the present and future generations through sustainable management, increasing area grown with Bamboo and enabling commercialization and value-addition

3.2. Objectives

The objectives of this policy are to;

- a) Enable production of quality planting material of required species in right quantities.
- b) Increase the area cover of Bamboo in government plantations, public spaces or private land
- c) Ensure sustainable supply of feed-stock to artisanal and large scale industries
- d) Sustainably manage the existing Bamboo resources to derive economic, social and environmental benefit.
- e) To facilitate development of holistic value-chain from quality planting material production, plantations, product development including primary processing, treatment; micro, small & medium enterprises, industrial products; marketing, and skill development.
- f) Intensify and expand research on Bamboo to cover a broad area of application including timber substitutes, bio-energy, fibres and textiles, and food, textiles, machines and tools, food and nutrition, construction and landscape restoration
- g) Establish a National and Country-based coordination structure to aid coherence in implementation of Bamboo policy, development strategies and regulations

- h) Promote capacity building at all levels including through technical assistance and technology transfer
- i) Create an enabling environment for investment and scaling up of Bamboo enterprises and industries.

3.3 Guiding Principles

Implementation of this policy will be guided by the following principles:

- a) **Right to a clean and healthy environment:** Under the Constitution of Kenya (2010), every person in Kenya has a right to a clean and healthy environment and a duty to safeguard quality of the environment. Growing Bamboo will contribute to safeguarding quality of water resources, eradicating poverty and ensuring food, nutrition, renewable bio-energy and biodiversity security.
- b) **Government led and Market Driven:** Market has a fundamental role in driving the sector. However, necessary support will be provided by the government to promote Bamboo value-chain clusters, upgrade product quality and market competitiveness of Bamboo products.
- c) **Bamboo for green growth:** Bamboo being a renewable resource is ideal for promoting low-carbon, environmentally friendly products, and thereby green growth. Bamboo sector growth will have impact on forest carbon sequestration, climate change adaptation and mitigation.
- d) **Bamboo for increasing Farmers' incomes and resilience:** Promoting Bamboo industry can contribute to increasing small scale farmers' income and resilience to climate change and persistent poverty.
- e) **Bamboo for reducing pressure on forests:** Utilization of Bamboo for production of diverse timber-based products, energy products will reduce pressure on plantation, private and natural forests.

4.0 BAMBOO RESOURCE DEVELOPMENT

Developing a strong resource base as well as sustainable management of existing Bamboo resource is critical for development of different value-chains. This will ensure sustainable supply of raw materials of appropriate species to Micro, Small and Medium Sized Enterprises (MSME) and industries.

This policy adopt three strategies in its implementation

- (1) Sustainably manage and harvest the unmanaged Bamboo forests by transforming unmanaged low-yielding Bamboo forests to managed high-yielding and functional forests.
- (2) Increase the Bamboo resource base on farm lands and forest land.
- (3) Increase production and dissemination of quality Bamboo plants and planting material.

Sustainably manage Bamboo forests

Bamboo in gazetted forests accounts for more than 95 percent of Bamboo resources in Kenya. These resources are not managed and / or harvested.

Note: *Annual selective harvesting of Bamboo does not result in degradation or deforestation. This is because Bamboo produces new shoots or culms every year and at same time older Bamboo poles die and deteriorate. Selective harvesting of mature Bamboo poles (3 years and older) results in improved clump structure, regenerative capacity, quality and quantity of Bamboo poles; and ecological functions.*

Classification: According to the draft Forest Policy and Forest Act of 2016, Bamboo is classified as a “tree” but Bamboo products are classified as “non-timber resource”. The classification as a “tree” mandates harvesting licensing and movement permit.

Policy statements:

The government will:

1. *Amend the Forest Conservation and Management Act of 2016, to classify Bamboo as a “grass” to aid sustainable harvesting and management of Bamboo.*
2. *Provide Bamboo access tenure to community forest association (CFA), private companies and investors to sustainably harvest Bamboo.*
3. *Strictly prohibit clear felling, prescribed burning, and reclamation of Bamboo forests into other land uses in line with the Forest Management and Conservation Act of 2016.*
4. *Support development of management plan and guidelines and implement the sustainable Bamboo forest management.*

Note: Bamboo is not a “tree” but a “woody grass”.

1. Unlike trees which grow as single stems, Bamboo produces multiple stems every year.
2. Unlike trees which grow in diameter and height; multiple Bamboo poles are produced every year. These attain harvestable size in terms of girth and height in three to four months and thereafter only maturation happens.
3. Unlike trees which produce more fibre cells on the outside while Bamboo produce intra-lamellae within each fibre cell.
4. The strength of a Bamboo "wood" increases every year until maturity during the 3rd year. After this, the strength declines. The strength of a timber “tree” does not change as much.

Intensifying growing of Bamboo

Increased area of Bamboo in forests and farm land will be aimed at increasing the Bamboo resource base for value-addition and also enhanced eco-system services mainly water and soil conservation and reduction in disasters such as landslides due to reduced run-off and decelerated debris flow during landslides. Bamboo with its drought, flood and fire tolerance, and its stellar regenerative capacity, can greatly enhance the resilience of rural households through additional income opportunities; and provision of feed and fodder and biomass - energy.

Policy statement:

The government will:

1. *Allocate at least 10 percent of overall annual planting budget to promote Bamboo plantation.*
2. *Promote large scale Bamboo planting in government land aimed at achieving dual objectives of production; and soil and water conservation.*
3. *Allocate suitable degraded forests lands to companies and private players for intensive product-targeted growing of Bamboo.*
4. *Promote Bamboo planting in small holder farm aimed at creating additional income opportunities for small holder farmers and to enhance their resilience.*
5. *Promote Bamboo planting in riparian areas and in watershed management in line with prevailing wetlands policy and regulations.*
6. *Mandate planting of Bamboo on river bank and lake shores. 30 meters surrounding river and 50 meter around water bodies (lakes, dams) should be planted with Bamboo.*
7. *Mandate block planting of Bamboo in forest land above 30-degree slope along with deep rooted trees; and planting of Bamboo as farm boundaries and in terraces in farm land.*

Production and Delivery of Quality Planting Material

Production of quality planting material is necessary for the success of establishment high quality Bamboo plantations and woodlots.

Policy statement:

The Government will;

- 1. Support production of quality planting material of required species in quantity through strengthening of government, private and community nurseries.*
- 2. Establish a certification and accreditation procedure for ensuring the quality of planting material.*
- 3. Support research, technology development and dissemination for production of quality planting material especially through vegetative propagation and tissue culture.*

Promoting value-addition and value-chains

Commercialization of Bamboo will be founded on private sector driven government propelled optimization of value-chains that target mass and niche markets. Complementary to this, artisanal enterprises by youth will augment growth of the sector.

Policy Statement:

The Government will;

- 1. Promote Bamboo value-chains to contribute to the “Big Four agenda” and “National development strategy” especially affordable housing, improved food and nutrition security and in the industrialization and manufacturing focus areas.*
- 2. Promote Bamboo value-chains and industries focussed on developing timber substitutes, energy and Bamboo fibre products to reduce import burden and enhance exports revenue.*
- 3. Support, develop and handhold micro, small and medium scale enterprises (crafts, basketry and furniture value-chains) by earmarking 2 per cent of budget of environmental and other funds (National Environment Trust Fund, Micro Enterprise Trust Fund, and Kenya climate Innovation centre fund).*
- 4. Incentivize commercialization of Bamboo through tax rebates on imported equipment and machines, lower electricity tariffs for Bamboo factories.*
- 5. Support access to affordable finance and credit facilities for entrepreneurs, industries and investors.*
- 6. Support development of technologies, package of practices and innovation for development of SME and industrial value-chain.*
- 7. Provide capacity building and extension services for SME and industries.*
- 8. Create Bamboo export promotion zones and allocate suitable infrastructure in existing industrial processing zones.*
- 9. Develop standards for Bamboo products to aid commercialization of Bamboo*

5.0 MARKET DEVELOPMENT

Markets for Bamboo products are largely underdeveloped due to lack of mature domestic markets for products, as well as lack of consumer awareness and confidence.

Policy statements

The Government will:

- 1. Include Bamboo and its products in preferential procurement list to provide initial market support for SME and industries.*
- 2. Legislate 30% of procurement opportunities for wood related items in favour of Bamboo.*
- 3. Support Import and Export Code (IEC) and public awareness through television and radio programs and promote Bamboo as a green and renewable product.*
- 4. Open up domestic government procurement by creating cross-sector linkages.*
- 5. Provide suitable land to association and cooperatives to develop local, county and national Bamboo hubs or market centers.*
- 6. Introduce export compensation scheme and export marketing development fund to facilitate domestic and international trade; and to provide cushion to absorb market shock.*
- 7. Develop regulations to protect local Bamboo manufacturers from domestic alternative product manufacturers and importers.*
- 8. Register Bamboo with the carbon credit to develop additional income to farmers through carbon markets.*

6.0 RESEARCH AND INNOVATION

Research Development and innovation will be key to achieve development of Bamboo resource and value-chain. In addition to research and innovation efforts will be made to effectively manage and disseminate the knowledge generated.

Policy Statements

The government will:

- 1. Support research and innovation through government research agencies and universities on Bamboo resource development, value-chain and product development and entrepreneurship.*
- 2. Create a Bamboo knowledge exchange platform drawing on representation from research institutes, universities, industries and entrepreneurs to accelerated need based technology generation, development, expansion and industrialisation.*
- 3. Develop South-South cooperation and mechanisms for technology transfer and investment.*

7.0 EDUCATION, TRAINING AND SKILL DEVELOPMENT

Developing human resource capital specialised in Bamboo and capacitating actors across the value-chain is critical for commercialization of Bamboo. Capacitated human resource capital will be necessary to provide extension services, capacity building of farmers, entrepreneurs and industry.

Policy statement:

The Government will:

- 1. Enable development of course curriculum and introduce in forest, agriculture and in related technical schools and universities.*
- 2. Introduce Bamboo value-chain entrepreneurship training course in Technical Education and Vocational Training Institutes (TVET).*
- 3. Support development of a pool of trained and technical manpower to provide extension support services and capacity building for farmers, SME entrepreneurs and workers and industries.*
- 4. Support developing training package and technical material for wider dissemination.*
- 5. Support production and dissemination of technical video and radio programs on different value-chain themes targeting farmers, and SME sector.*

8.0 AWARENESS, COMMUNICATION AND KNOWLEDGE MANAGEMENT

Awareness on the potential and possibilities of Bamboo to a wider audience especially consumers, development partners, industry and investors is critical for developing markets as well as investments in the sector.

Policy statements

The government will:

- 1. Develop Information Education and Communication materials and create awareness through video, radio, print and electronic media.*
- 2. Support workshop, seminar and conferences to enable knowledge exchange and awareness.*
- 3. Commemorate International Bamboo Day across the country.*
- 4. Develop centralized knowledge management and dissemination platform.*

9.0 CREATING FAVOURABLE ENVIRONMENT FOR INVESTMENT IN BAMBOO

Public-Private partnership (PPP) will be the main engine for propelling domestic and foreign investment. A set of measures are necessary for creating a favourable environment for investment.

Policy statement:

The Government will:

- 1. Coordinate with Kenya Investment Commission (KIC) to include Bamboo as a preferential sector, and develop attractive investment package for Bamboo industries and investors.*
- 2. Establish a fiscal and Tax incentives mechanism to support accelerated investment in Bamboo value-chains.*
- 3. Coordinate with bank and financial institution to give loans for investment in Bamboo sector at subsidised rates of interest.*
- 4. Coordinate with KIC and revenue authority to provide complete exemption of taxes for SME products and tax exemptions for industries and investors within the existing framework.*
- 5. Develop standards and certification mechanisms for products by Bamboo SMEs and industries.*

10.0 INSTITUTIONAL ARRANGEMENT

Bamboo sector developmental efforts in Kenya continue to be fragmented with lack of strong communication channels and structures. Planning and coordinated implementation is a crucial to develop a vibrant Bamboo sector. To enable intensified commercialization of Bamboo, an institutional arrangement that can enhance coordination among government agencies, private sector and entrepreneurs, informed by science should be put in place. The versatile nature of Bamboo implies wide relevance to various State, non-state actors and private sector entities.

Policy Statement:

The government will:

- 1. Establish a department of Bamboo development and commercialization under the Ministry for Environment and Natural Resources at national level. Institutional arrangements for implementation of Bamboo policy is attached as **Annexure I**.*
- 2. Facilitate establishment of department of Bamboo growing and commercialization in each of Bamboo growing counties to coordinate Bamboo development at county level.*
- 3. Establish an inter-agency steering committee with participation of relevant ministries: Ministry of Environment and Natural Resources, agriculture, energy, industry and trade, education, Donors and private sector to synergize development intervention. Incorporate Bamboo program performance in the Performance Contract of Ministries at national and county level.*

11.0 RESOURCE MOBILIZATION

Bamboo development will require both financial and manpower resources. The financial resources will be leveraged from domestic and external sources including: (a) government budget; (b) donor agency budgets and (c) private sector investment. The government budget will

be leveraged from existing and new government policies and programs especially agriculture, forestry, renewable energy, industrialization, land, social entrepreneurship, environment and climate change, which are relevant to Bamboo sector development.

Policy statement:

The government will:

- 1. Create Bamboo Trust Fund at National and county level.*
- 2. Develop a National Bamboo development program at National level and county level with cross-sector linkages to other sector to leverage resources.*
- 3. Mobilize resources from multilateral and bilateral development and climate change loan and grant funds to invest in Bamboo sector.*
- 4. Attract investment through domestic and foreign investments; including impact investment funds.*

12.0 MONITORING AND EVALUATION

Regular monitoring and periodic evaluation will be undertaken at national level and at county level.

Policy statements:

The government will:

- 1. Support development and application of monitoring and evaluation frameworks suited to different levels of implementation adapting National Integrated Monitoring and Evaluation System (NIMES).
Include Bamboo sector performance as a standing agenda at devolution consultative forums and the associated summit.*

Glossary of Terms

“Bamboo” refers to a group of plants of 1642 species belonging to grass family *Poaceae*, subfamily *Bambusoideae*.

“Bio-energy” means renewable energy in various forms that are derived from Bamboo.

“Clump” refers to a cluster of Bamboo poles or culm which are inter-connected or belonging to a single Bamboo plant.

“Community” refers to a clearly defined group, which may, but need not be, a clan or ethnic community. These groups of users hold a set of clearly defined rights and obligations.

“Community Forest Association” refers to a group of community members engaged in forest conservation and management holding signed agreement as stipulated in Forest Act 2005.

“Culm” refers to individual Bamboo poles; hollow cylinder or main stem above the ground.

“Forest and Landscape restoration” refers to an active process that brings people together to identify, negotiate and implement practices that restore an agreed optimal balance of the ecological, social and economic benefits of Bamboo and trees within a broader pattern of land uses”

“Species” means a population of Bamboo plant which are capable of producing offspring though sexual and asexual means in that share common and specialized characteristics different from others.

“Stakeholder” refers to an individual or group having a vested interest in Bamboo.

“Sustainable management” means present harvesting or use of Bamboo culms, which does not compromise the ability to regenerate the same or degrade the carrying capacity of ecosystems and habitats.

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