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ANALYSIS OF RELATED POLICIES AND LEGAL FRAMEWORK HINDERING SUSTAINABLE CHARCOAL VALUE CHAIN PROMOTION IN TANZANIA

FINAL REPORT

Submitted by

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To

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EXECUTIVE SUMMARY

Background

In 2020, charcoal production in Tanzania was estimated at 1.9 million tons per year with a Gross Value Added (GVA) of TZS 2.1 trillion contributing about 44% of the forest sector GDP. According to 2012 estimates, charcoal generates at least USD 1 billion per annum in revenues, supporting the livelihoods of hundreds of thousands of suppliers, transporters, and traders. Charcoal is the largest source of household energy in urban areas for cooking and heating in Tanzania, as it is considered relatively available, affordable, and easy to transport, distribute, and store. It is also a source of income to the country and supports livelihoods at the community level but has serious environmental and health impacts. The national clean cooking energy strategy (2024 – 2034) was developed by the government and is under implementation targeting to increase use of clean cooking energy at the household level to around 80% by 2034. During the transition, it is important to ensure that (i) the production, trade, and use of charcoal is reduced significantly and (ii) the little that will still be in use is produced, traded, and used based on sustainable principles. For this to be realized, supportive policies and legal frameworks need to be in place and enforced.

TaTEDO SESO in collaboration with her partners (The Government of Tanzania, the Tanzania Natural Resources Forum, and the European Union) assigned a team of three experts to review and analyze related policies and legal frameworks hindering sustainable charcoal value chain promotion in Tanzania from Mid-June to the end of August 2024. The purpose of the review was to identify gaps, shortcomings, and conflicting areas that require interventions at various nodes of the charcoal value chain. In this document, the final report from the assignment is presented after incorporating stakeholders' comments from the validation workshop that was conducted on the 20th of August 2024 at White Sands Hotel in Dar es Salaam.

Methodology

Methodologically, the study largely relied on literature review in the form of a desk study. Additionally, consultations with key informants (government ministries, development partners, NGOs, the private sector, and community representatives involved in various nodes of the charcoal value chains were conducted to enrich the literature review. Charcoal producers and traders at various nodes of the charcoal value chain from the districts of Kisarawe and Mkuranga were consulted for their views on the various policy instruments and how they affected the charcoal business at community level. Information collected was mostly analyzed through content analysis and organized to generate this report which was triangulated through a validation workshop conducted on 20th August 2024.

Major Findings and Recommendations

The analysis has revealed how the Constitution of the United Republic of Tanzania (1977), the National Climate Change Response Strategy (2021-2026), the National Forest Policy of 1998, the Forest Act of 2004, the National Forest Policy Implementation Strategy (2021 – 2031), the National Charcoal Strategy and Action Plan (2021 – 2031) and the National CBFM Action Plan are supportive of sustainable charcoal value chains in the country. These policy and legal frameworks can make significant contributions to the realization of the national clean cooking energy targets if they are effectively implemented and enforced with some revisions in the forest policy and the Forest Act.

The analysis has demonstrated further that, there is a serious misconception that implementation of the national charcoal strategy and action plan shall contradict the current national focus on clean cooking energy spearheaded by the 2024 - 2034 national clean energy strategy. This is wrong because the charcoal strategy is very much supportive of the adoption of alternative clean energy sources and other alternatives to reduce the demand for charcoal as the country transits towards the target of ensuring that 80 percent of the households use clean energy by 2034.

The analysis puts forward the following recommendations aimed to improve the effectiveness of policy and legal frameworks that regulate charcoal value chains in the country towards more sustainable business models as the country transits to clean cooking energy:

1. The National Charcoal Strategy and Action Plan (2021 – 2031) should be implemented and championed to support the realization of national clean cooking energy strategy targets.
2. The National Forest Policy (1998) should be revised to include statements that foster intersectoral coordination of the charcoal value chains with effective instruments for enforcing compliance with forest management and harvesting plans at community level. Revision of forest policy and the act of 2002 should among other things consider issuing of guidelines that promote sustainable charcoal production and trade for improved livelihoods as well as the need for capacity building on sustainable charcoal production at various levels.
3. In the forest policy of 1998, sustainable charcoal production is not explicitly mentioned in the context of wood fuels rather the policy is seeking to replace natural forests as the source of wood fuel with plantations and woodlots. To that effect, sustainable charcoal production from natural woodlands is neither explicitly supported nor explicitly opposed, and no specific guidance is provided as to the desired outcome for charcoal production. There is therefore a need for revision of the forest policy to include specific statements that provide direction to sustainable charcoal production, trade, and use.
4. The National Agriculture Policy of 2013 should be revised to include policy statements and directives that control clearing of forests for agricultural activities and deal with the competing land uses between agriculture and forest development in order to reduce deforestation and unregulated charcoal business in the pretense of agricultural development. The policy should also give directives on land use management in areas covered by unreserved forests or woodland areas during the establishment of farming land and recognize charcoal production as one of the land uses. Effective policy instruments for its implementation/enforcement at community level should also be developed.
5. The National Land Policy, 1995, does not recognize natural forests and woodlands (popularly known as *mashamba pori*) as important developments on land. This encourages deforestation. The policy and the Land Acts of 1999 need to be revised to recognize the management of natural woodlands and forests as developments on land.
6. There are incoherent areas creating ambiguity in tenure and ownership between the Forest Act of 2002 and the Village Land Act of 1999. Particularly clear definition of “unused land” in the Land Act 1999 needs to be provided because it has been translated to mean public land or general land in the Forest Act of 2002 creating management and harvesting conflicts

between TFS and villagers implementing CBFM. There is a serious need for harmonization of these policy and legal frameworks.

7. The Land Use Planning Act of 2007, gives authority to the National Land Use Planning and District Councils, to serve as land use planning authorities and ensure adherence to land use plans. However, the law does not specify what penalties can be taken by the NLUPC and District Councils against a village, or villages that do not comply with a village land use plan. The weak monitoring and enforcement of land use plans by a national authority encourages deforestation, land degradation, and uncontrolled charcoal business. Although Village Land Use Plans are supported by bylaws that are enforceable in a court of law, without additional and regular monitoring of adherence by a national body, they are deemed to be largely insufficient. The Land Use Planning Act, of 2007 needs to be revised to institute tangible penalties for non-adherence to approved land use plans at village level and strengthen the monitoring capacity of the NCLUPC and district authorities. In order to support establishment of plantations for charcoal production, these instruments could further provide subsidized land for the establishment of plantations, woodlots, and agroforestry systems for charcoal production.
8. Both the national agricultural and livestock policies promote the expansion of land under agriculture and livestock grazing contrary to what the forest policy envisages. There are also growing social conflicts, environmental concerns, and land use conflicts due to the alienation of rangelands for large-scale agriculture. There is a need to harmonize the three policies (agriculture, livestock, and forest) and enhance control over natural woodlands and forests, and regulate clearance of forests for both agriculture and rangeland expansion.
9. The National Energy Policy, of 2015 recognizes biomass energy as the primary source of energy but there are no instruments in place to manage wood fuel energy, especially on the demand side. This is because both the Rural Energy Act of 2005 and the Electricity Act of 2008, focus much on electrification and the use of alternative sources of energy other than wood fuel or biomass. The energy policy and acts need to be revised to provide direction and controls on sustainable use of biomass energy sources including charcoal.
10. The Environment Management Act (2004) promotes overall sustainable environmental management systems but does not address issues related to charcoal production, although charcoal is one of the main sources of domestic energy in the country and an environmental concern. A revision of the EMA of 2024 to regulate environmental consequences associated with unsustainable charcoal value chains is required. On environmental considerations, the revised EMA could promote access to subsidized technologies, equipment, and facilities to realize sustainable charcoal value chains across sectors.
11. There is a need for the MNRT to develop a communication strategy for dissemination of information on appropriate technology on wood fuel production and use will enhance the stainability of charcoal value chains.
12. Although the identification of sustainable charcoal by using specified packaging material could improve marketing of sustainable charcoal, this has not been done in the charcoal sub-sector in Tanzania. Equally, there is no price differentiation between sustainably produced

charcoal and charcoal produced illegally in the market. To that effect, the government needs to develop guidelines that provide incentives (subsidies) for legally produced and labeled charcoal as opposed to illegally produced ones. The guidelines should provide direction on issues of packaging, labeling, and the need for regular capacity building and awareness raising to local producers and community members on sustainable charcoal production. Further, the standard packaging material recommended by TBS in 2022 should be piloted by various stakeholders to generate knowledge and experience on its suitability.

13. The provisions of GN 417 have significantly reduced revenues to communities implementing sustainable charcoal production models and the transfer of the authority to issue charcoal permits from village to district level by the same GN limits villages' trading options and causes delays. There is therefore the need to revise regulations to exclude Village Land Forest Reserves from the requirement to apply fixed charcoal royalty rates. It is also important that policy instruments and regulatory frameworks in the country uphold the decentralized forest management model for forests on village land and resolve tensions between policy tools seeking to centralize, rather than decentralize forest management
14. In order to institute effective controls on transportation of charcoal it is important that policies and legal frameworks institute high penalties for violators of supportive policy instruments and provide financial rewards for the bristle-blowers of violators. Further, to minimize ambiguities in the application of transportation regulations, guidelines specifying how much charcoal for domestic consumption should not be allowed to pass through checkpoints need to be instituted.

Policy Briefs

Three Policy Briefs were developed by the consultants and submitted together with this report for the purposes of informing policy-makers on policy and legal framework aspects that need immediate attention in order to sustain charcoal value chains in the country and contribute to the realization of national clean cooking energy targets. The policy briefs include:

1. *Recognizing the role of the National Charcoal Strategy and action plan (NCSAP) in the realization of the National Clean Cooking Energy Strategy (NCCES) targets*
2. *The Coordination Dilemma against Sustainable Charcoal Value Chain in Tanzania*
3. *Conflicting Policy and Legal Framework Instruments in Supporting Sustainability of Charcoal Value Chains in Tanzania*

LIST OF ABBREVIATIONS

BEST	Biomass Energy Strategy
CAMARTCH	Centre for Agricultural Mechanization and Rural Technology
CBFM	Community Based Forest Management
CHAPOSA	Charcoal Potential in Southern Africa project
CNG	Compressed Natural Gas
CPS	Custom Preventive Service
CSO	Civil Society Organization
DC	District Commissioner
DED	District Executive Director
DFM(s)	District Forest Manager(s)
DFO(s)	District Forest Officer(s)
DFoB	Director of Forestry and Beekeeping
DNRO(s)	District Natural Resources Officer(s)
EFD	Electronic Fiscal Device
EU	European Union
EWURA	Energy and Water Utilities Regulatory Authority
FBD	Forest and Beekeeping Division
FMUs	Forest Management Units
FREL	Forest Reference Emission Level
GN	Government Notice
IBEMK	Basic Earth Mound Kiln
ICS	Improved Cook Stoves
LPG	Liquid Petroleum Gas
MEM	Ministry of Energy
MJUMITA	*Mtandao wa Jamii ya Usimamizi wa Misitu* Tanzania
MNRT	Ministry of Natural Resources and Tourism
MoE	Ministry of Energy
MoU	Memorandum of Understanding
MTI	Ministry of Trade and Industries
NLUPC	National Land Use Planning Commission
PFM	Participatory Forest Management
REA	Rural Energy Agency
SUMATRA	Surface and Marine Transport Regulatory Authority
TAFORI	Tanzania Forest Research Institute
TaTEDO SESO	TaTEDO – Sustainable Energy Services Organization
TEMK	Traditional Earth Mound Kilns
TFCG	Tanzania Forest Conservation Group
TFS	Tanzania Forestry Services Agency
TNRF	Tanzania Natural Resources Foundation
TP	Transit Pass
VLA	Village Land Act
VLFRs	Village Land Forest Reserves
VPO	Vice President's Office
WWF	Worldwide Fund for Nature

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1.0 Introduction

1.1 The Charcoal subsector in Tanzania and unsustainable value chains

In 2020, charcoal production in Tanzania was estimated at 1.9 million tonnes per year with a Gross Value Added (GVA) of TZS 2.1 trillion contributing about 44% of the forest sector GDP (MNRT, 2021). According to 2012 estimates, charcoal generates at least USD 1 billion per annum in revenues, supporting the livelihoods of hundreds of thousands of suppliers, transporters, and traders. Charcoal is the largest source of domestic cooking and heating energy in urban areas, as it is considered affordable, available, and easy to transport, distribute, and store (URT, 2014). Notwithstanding such economic and social benefits, the central and local governments were estimated to lose about USD 100 million per year due to ineffective enforcement of revenue collection and taxation regulations in the charcoal sub-sector (World Bank, 2009).

Most charcoal in Tanzania is produced unsustainably (URT, 2019). This is because it is produced haphazardly, without management and harvesting plans and efficient technologies. The result is unsustainable harvesting, especially in drier areas, where forests' regenerative capacity is lower and unplanned and unmanaged charcoal production accelerates deforestation. The estimated deforestation rate of 469,420 ha/year in Tanzania and its environmental cost which is contributed by unsustainable charcoal production is enormous. This deforestation in the country, among others, contributes to adverse climate change (URT, 2017). The country is making efforts to transition towards clean cooking energy, but charcoal remains a significant cooking energy option for the foreseeable future for many urban households during this transition. Only about 25% of charcoal revenue is collected partly because most charcoal is transported using motorcycles and bicycle by-pass checkpoints and do not pay the required permits and fees (MRT, 2022). Motorcycles are the main violators of regulations and sources of conflicts between charcoal traders and law enforcers.

It has been established that the policy and legal frameworks in the country are not always in support of sustainable charcoal production and trade. There are incoherent areas creating ambiguity in tenure and ownership between the Forest Act of 2002 and within the Village Land Act of 1999. Further, the MNRT as the main supplier of the raw materials for charcoal production and a regulator of charcoal value chains has issued several regulations and guidelines pertaining to charcoal production, packing, transportation, and marketing that are conflicting with other sectorial policies and legal frameworks (MNRT, 2022). This demonstrates the need for a thorough review of the existing policy and legal frameworks in the country and their hinderance to the sustainability of the charcoal subsector in Tanzania.

1.2 Significance of policies and legal frameworks

Policies and legal frameworks are essential components of governance and administration of any sector of the country's economy. While policies (particularly sectoral policies) provide guidelines and direction, legal frameworks establish the overarching rules and regulations that govern society and are enforceable by law (LEAT, 2010). Policies constitute principles that outline a course of action for the sector and are developed to achieve specific goals, address issues, and regulate conducts. Normally policies offer more flexibility than legal frameworks in terms of interpretation and enforcement. Essentially legal frameworks represent the formal structures of laws, regulations, and judicial decisions that establish the foundation for governance within a sector. They are legally binding and enforceable, and they set out the rights and responsibilities of individuals, organizations, and governments which is very useful in resolving disputes and upholding justice. In this context, fragmented or inconsistent policies and legal frameworks across different jurisdictions or levels of

government can create confusion and uncertainty for resource managers and stakeholders resulting in uncoordinated efforts in addressing sectoral and national challenges. Even when sustainable management principles are enshrined in policies or regulations, inadequate enforcement mechanisms may undermine the effectiveness of the policies and legal frameworks. To that effect, weak enforcement and uncoordinated policies/legal frameworks can hinder the sustainable management of natural resources including the charcoal value chains. In the context of this report, policies and legal frameworks are broadly contextualized as government policy instruments or tools used by the government to achieve its goals including national policies, laws, regulations, guidelines, and strategic plans.

1.3 The EU Co-Funded Project and the assignment

TaTEDO -SESO is an organization for developing sustainable energy services to increase energy access for rural and urban communities and in collaboration with the Tanzania Natural Resources Forum (TNRF) is implementing the EU-co-funded project on Integrated Sustainable Charcoal Value Chain Promotion in the Coastal Region of Tanzania. This is a three-year project that aims at improving capacities, commitments, and social-economic well-being of local communities in the five districts of the Coastal Region to improve productivity along the charcoal value chain, by sustainably managing wood resources, harvesting, improving charcoal production technologies, improving packaging and local marketing forests, towards sustainable charcoal value chain. The five districts selected for this project are Kisarawe, Kibiti, Nkuranga, Bagamoyo, and Rufiji. The project intends to address the problem of unsustainable charcoal value chains by enhancing forest management, harvesting, charcoal production, livelihood, sustainable land use in villages, and other practices along the charcoal value chains in the project areas. One of its components requires the assessment of conflicting policies legal frameworks and shortcomings that hinder Sustainable Charcoal Value Chain development in the country.

Considering the situation described above, and the needs of the EU-funded project, technical assistance was required to analyze related policies and legal frameworks hindering sustainable charcoal value chain promotion in Tanzania. The study assessed applicable policy instruments along the charcoal value chain and came up with policy options that could address challenges contributing to an unsustainable charcoal value chain and put forward recommendations to enhance the sustainability of the charcoal value chain in the country. The analysis also identified and recommended areas of improvement to strengthen the implementation of village land use plans and forest management plans of the shared forest resources for sustainable forest management and charcoal production in Tanzania.

2.0 The Objectives and the Scope of the Work

According to the terms of reference (ToR), the study reviewed related policies, and legal frameworks to identify gaps, shortcomings, and conflicting areas that require interventions at various nodes of the charcoal value chain and come up with recommendations to improve synergy and address prevailing challenges toward the sustainable charcoal value chain and land use and forest management in Tanzania.

The specific objectives for the assignment included to:

i). Assess and describe the charcoal value chain in detail to identify policy gaps hindering sustainable charcoal value chain promotion.

ii). Analyze the extent to which charcoal-related policies, strategies, and legislative framework are implemented to enhance the engagement of local communities to sustainably manage forest resources towards a sustainable charcoal value chain inTanzania.

iii). Conduct a detailed review to assess gaps in the charcoal-related and forest management policies and legal frameworks that undermine the engagement of stakeholders and benefits at different nodes of the sustainable charcoal value chain and its effects on the management of forest resources.

iv). Indicate how the gaps within the policies and legal framework will be reviewed, harmonized, and strengthened to improve synergy and address prevailing challenges in fostering the sustainable charcoal value chain; and

v). Provide recommendations from the study findings on how to ensure policies and legal frameworks explicitly support the principle of sustainability of charcoal value chains in Tanzania.

The assignment involved an assessment of the entire charcoal value chain to identify gaps, shortcomings, and conflicting policies and legal frameworks in different chain nodes, which affect the sustainability of the charcoal business in the country. The charcoal value chain has a few nodes. These include the production of raw materials, harvesting, charcoal production, local markets, transportation of charcoal, wholesaling, retail sale of charcoal, and end users/consumers of charcoal. Activities within each node are controlled and regulated by several policy and legal frameworks. Some of these regulatory instruments are developed and enforced by more than one sector of the economy and at times the instruments are contradictory. Such contradictions need to be resolved to facilitate the implementation of policy objectives and enforcement of legal frameworks. Additionally, some of the policies and legal frameworks governing activities along the value chain are outdated or overtaken by events because of the fast-evolving natural resources sector in the country and globally. Such outdated instruments are normally inadequate in addressing contemporary issues in the charcoal value chain. The inadequacy leads to enforcement gaps that ultimately result to the poor performance and unsustainability of entire value chains.

3.0 Deployed Methodological Approach

3.1 Overview

Detailed analysis of various policies and legal frameworks that influence the performance and sustainability of the charcoal value chains in the country was conducted. The analysis was largely based on literature review in the form of a desk study. To ease the adoption and implementation of recommendations from the analysis, some consultations with key informants including relevant government ministries, development partners, NGOs, the private sector, and community representatives involved in various nodes of the charcoal value were conducted with due consideration to the allocated time for the assignment. As such, the study adopted two main data collection methods namely literature review and consultations with key stakeholders. For triangulation purposes, one-day stakeholders' workshop to validate the findings shall be conducted after submission and initial review of this draft report. The deployed methods are briefly presented in sections 3.2 to 3.4.

3.2 Review of Policies and Legal Frameworks

Several policies and legal frameworks being implemented by various sectors and influencing the functioning of the charcoal value chain nodes were reviewed and analyzed. The purpose of the review was to identify gaps, provisions, and contradictions that do adversely affect the functioning and sustainability of the charcoal value chains in the country. The reviewed policy instruments and documents have been cited in the document and listed in the reference list (section 6). The review and analysis of these Policies and Regulatory Framework provided information pointing to the extent to which charcoal-related policies, strategies, and legislative frameworks are implemented to enhance the engagement of local communities, charcoal producers, transporters, and traders to sustainably contribute to the management of forest resources towards a sustainable charcoal value chain in the country. The analysis also revealed gaps in the charcoal-related and forest management policies and legal frameworks that undermine the engagement of stakeholders and beneficiaries at different nodes.

3.3 Consultations with key stakeholders

Several stakeholders have an interest in the performance of the charcoal value chains in the country for various reasons. Government institutions and ministries are interested in seeing to it that the resources are properly managed and that government revenues are collected guided by the existing taxation policies. Conservation agents are interested in the sustainability of forest resources. Energy efficiency is the interest of institutions working in the energy sector. Communities are interested in the local welfare while the private sector is interested in the profitability of the charcoal business. Given the short time available for this assignment, the consultants in collaboration with the client (TaTEDO-SESO) identified key stakeholders in Dar es Salaam and Dodoma cities for consultation as well as Kisarawe and Mkuranga districts where charcoal production and trade are among the conspicuous economic activities at community level (Plate 1). Some of these stakeholders were all invited to participate in a validation workshop. Special checklists (Appendix 3) were designed to guide discussions. The itinerary and list of consulted stakeholders are summarized in Appendix 1.

Plate 1: Field-level consultations with charcoal dealers in Kisarawe district

3.4 Data analysis, Draft of Report, Validation Workshop and Submissions

Content analysis was the main data analysis method deployed to analyze the collected data and distillate information on policies and legal frameworks that hinder the sustainable development of charcoal value chains in Tanzania. The Consultants prepared a draft report from the analysis based on the review and consultations undertaken. The draft report was presented in a validation workshop organized by the client and facilitated by the consultants. The workshop was conducted atWhite Sands Hotel in Dar es Salaam on 20th August 2024 (Plate 2). Views from stakeholders present in the validation workshop were incorporated into the draft report in the process of developing this final report for the assignment. Three policy briefs were also prepared as separate deliverables from the assignment.

Plate 2: Group Photo of Validation Workshop Participants

4.0 Analysis of Policies and legal frameworks along the value chain

4.1 Description of the adopted Charcoal Value Chain

According to MNRT (2019), three main types of charcoal value chain models exist in Tanzania. These include (a) the *common value chain*, (b) the *shortened value chain,* and (c) the *export value chain.* The common value chain is the most frequently encountered in various districts. In this model, all nodes in the charcoal production and trade are involved in the business but the charcoal is traded only within the country. The shortened value chain which is normally encountered in a few sites/villages/districts. The target of the producer is to look for external markets in developed towns, municipalities, and big cities. The model is shortened because some of the nodes (particularly on-site marketing) are bypassed to reach the whole sellers and other users in big cities. This has been reported to be most profitable to the producers compared to the common value chain because prices per unit are normally higher than those of on-site market.

MNRT, 2019 reports that although charcoal export is illegal in Tanzania Mainland (The Export Control Act Cap 381) an export value chain exists. Charcoal is traded to buyers outside the country (e.g. Democratic Republic of Congo, Burundi, Kenya, Zanzibar, Oman and Comoro). Charcoal is produced and transported illegally across borders (using trucks and motorbikes) and harbours (using ships, canoes and other vessels). The export value chain model is experienced in some border towns and ports. Charcoal produced in some areas of Mtwara region, Pangani, and Bagamoyo districts was

reported to be traded to Zanzibar through informal harbours (*Bandari bubu*). Tanga Region was reported to have about 180 informal harbours used for trading products including charcoal (MNRT, 2019). Examples of informal harbours in the Pangani District, Tanga region were Mkwaja, Stahabu, and Kipumbwi.

The reported study adopted the definition of charcoal production model by MNRT, (2019) which defines a charcoal production model as a simplified aggregation of all variables involved in the charcoal value chain. The key variables include source of raw materials, harvesting practices, production technology, local market, transportation, wholesale, retailers, end uses, governance, and its contribution to human welfare. These variables determine the sustainability of the model. Figure 1 presents a summary of the three charcoal value chain models in Tanzania. For analyzing the policy and legal frameworks that influence the sustainability of the charcoal value chain in the country, the common charcoal value chain was adopted. A summary describing the key players, value-addition elements, and possible externalities along the value chain is provided in table 1. The analysis of specific nodules of the value chain is provided from sections 4.5 to 4.13 of this report. A summary of conflicting policies and legal frameworks that hinder the sustainability of charcoal value chains in the country is presented in Appendix 2.

Figure 1: Summary of the three Charcoal value chain models (Source: MNRT, 2019)

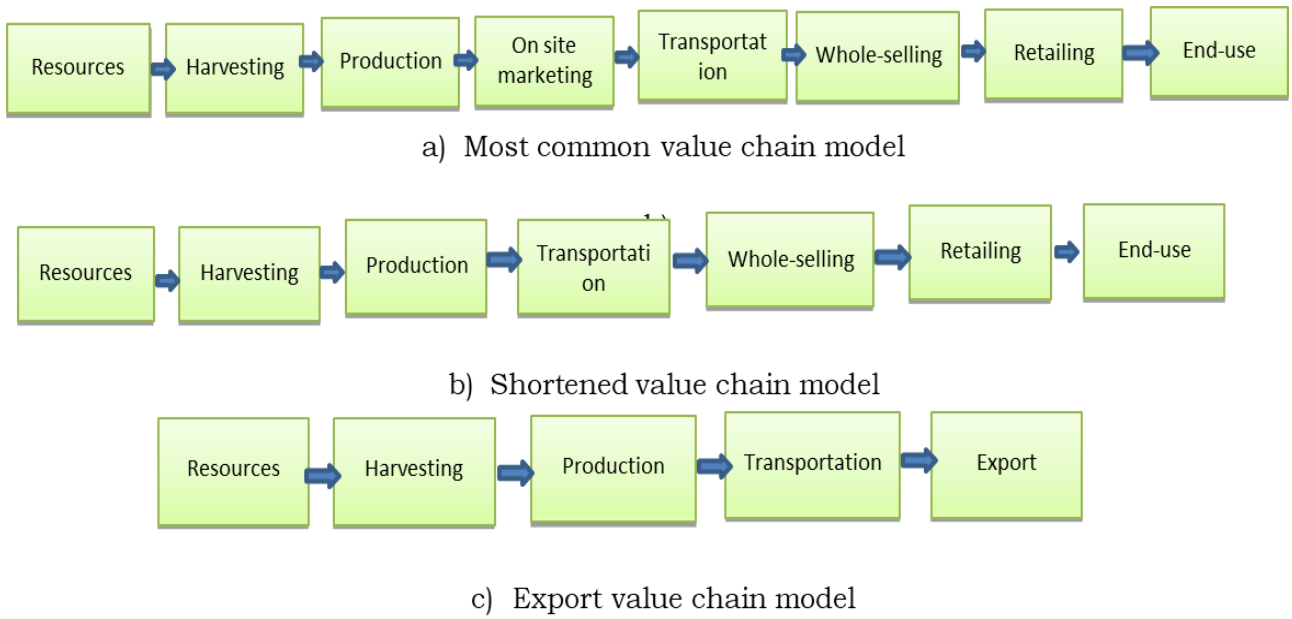

Table 1: Summary of key players, value addition and externalities along the value chain

Nodes	Key Players	Value Addition	Negative Externalities
Resources	Forests, woodlands, and plantations owners and managers including local community members, MNRT, TFS and LGAs	Management of forests, woodlands, and plantations (including natural regeneration)	• Deforestation & Degradation • Loss of carbon sink
Harvesting	District Harvesting Committees, Village Governments, Village Natural Resource Committees (VNRCs), Charcoal dealers	Harvesting and preparation of logs and billets for charcoal production	• Deforestation, • Loss of carbon sink • Poor regeneration due to improper tools and harvesting practices • Wood waste
Production	Charcoal dealers, VNRCs, TFS, Village leaders & community members	Conversion of wood biomass to charcoal through carbonization using various technologies	• Wood waste due to Inefficient technologies • Greenhouse gases • Human health hazards
Marketing	Communities / Charcoal dealers	Packaging and marketing of charcoal	• Human health due to charcoal tiny dusts
Transportation	Motorcycles and other related transport means with two or three tires	Charcoal translocated from one node to another node	• Safety risks • Human health hazards • Noncompliance to taxation
	Lories and large trucks	Charcoal translocated from one node to another node	• Safety risks • Human health due to charcoal tiny dusts
Wholesaling	Charcoal dealers	Stocking to take advantage of price changes over seasons	• Human health due to charcoal tiny dusts
Retailing	Charcoal dealers	Re-packaging of Charcoal to small units	• Human health hazards due to charcoal tiny dusts
End Use	Households and institutions (Communities)	Charcoal as a source of energy for cooking and heating	• Emission of greenhouse gases • Human health hazards

4.2 Citizens' rights on Environmental Stewardship and Sustainable Resource Use

The Constitution of the United Republic of Tanzania of 1977 (Cap. 2 R.E. 2002), underscores the critical importance of protecting natural resources and the environment. It establishes a legal framework for sustainable development and the responsible management of the country's natural resources. Article 27 outlines fundamental rights for citizens, including protection from environmental harm. It requires both the government and the public to ensure the sustainable use of natural resources, which directly impacts sustainable charcoal production. Article 33 mandates citizens to respect and protect the

environment and obliges the government to take measures for the effective management and conservation of natural resources. Article 64 authorizes the government to enact laws and regulations necessary for the preservation and management of natural resources and the environment. The Tanzanian Constitution provides a strong foundation for promoting sustainable development and effective resource management. Given the country's heavy reliance on charcoal for energy a practice that threatens forests and the environment, the Constitution's focus on environmental protection supports the development and implementation of policies promoting sustainable charcoal production practices. The constitutional principles guide efforts toward environmental stewardship and sustainable resource use. It emphasizes the need for laws and regulations that prevent environmental damage and resource depletion, ensuring that future generations can benefit from the country's natural resources. Initiatives aimed at promoting sustainable charcoal production align with these principles by improving production methods, enforcing regulations to curb illegal logging, and encouraging alternative energy sources. By adhering to these principles and embracing sustainable practices, Tanzania seeks to balance economic benefits with environmental conservation, ensuring that its charcoal industry contributes positively to the economy while preserving its natural resources.

The 2020-2025 CCM Manifesto has set priority areas for improving energy in the country. In this regard, CCM intends to improve the energy sector to ensure that the country produces enough electricity to meet the needs of the industrial economy and the foreign market. Also, CCM will continue with efforts to reduce the use of firewood and charcoal as sources of energy to strengthen and encourage the use of alternative sources by involving the private sector including designing and implementing alternative energy projects. In addition, CCM will encourage the use of natural gas (LPG) for cooking to reduce the use of firewood and charcoal which are harmful to health and the environment. Also, CCM will continue to design and set strategies to reduce the use of wood and charcoal to reduce the rate of environmental degradation by encouraging the use of renewable energy including gas and electricity.

4.3 Strategic climate change response at national level

The National Climate Change Response Strategy (2021-2026) is one of the most significant policy instruments at the national level that provides strategic direction on issues of climate change response with notable implications on sustainable charcoal production and adoption of alternative clean cooking energy options. The strategy aims to reduce deforestation, improve energy availability and diversification, and increase the efficiency of major energy-consuming sectors, including power generation, manufacturing, and transportation. The overall objective of the NCCRS is to enhance the national resilience to the adverse impacts of climate change and enable the country to pursue low-emission development pathways to achieve sustainable development by adopting adaptation, mitigation, and crosscutting strategies. It gives priorities to emerging opportunities such as digital and blue economy initiatives, low emissions development pathways, and climate financing among others. The strategy provides the basis for identifying short-, medium, and long-term adaptation activities designed to address existing and emerging threats of climate change. Sustainable forest management to enhance climate change resilience of forests, sustainable agriculture with particular focus on crops and efficient water use, and development of a less carbon-intensive and climate change resilient energy infrastructure are among the strategic areas of focus in the strategy that calls for more sustainable charcoal production and trade in the country including adoption of alternative clean coking energy sources. The NCCRS promotes climate change mitigation measures and activities aimed

at achieving economic development while contributing to the reduction of greenhouse gas emissions. The sectoral level areas of emphasis by the strategy include (i) Energy, to achieve sustainable and industrial development through the promotion of low-intensive carbon technologies; (ii) Forest and Mangroves, to enhance the contribution of the forest sector by exploiting the global GHG mitigation potentials; (iii) Industry; (iv) Transport, to promote an efficient transport system with minimum GHG emissions; (v) Waste management; (vi) Livestock, to enhance the productivity while reducing the greenhouse gas and methane emission and improving the efficiency. To that effect, sustainable charcoal production, transportation, trade, and adoption of clean coking energy alternatives are implied and supported by the strategy.

4.4 The Shelved National Charcoal Strategy and Action Plan (2021 – 2031)

The national charcoal strategy and action plan covering the 2021 – 2031 period was developed to address several gaps inherent in the charcoal sub-sector in the country. At the national level, there was a serious gap in terms of the absence of a general plan to achieve one or more long-term objectives and the sustainability of charcoal as a forest product and the sub-sector. Additionally, an action plan to provide a sequence of steps that must be taken by the country, and activities that must be performed well to ensure the sustainability of the subsector was missing.

Both the National Forest Policy of 1998 and the Forest Act of 2002 recognize charcoal as one of the forest products that require special attention because of the threat posed by the product to the environment. The serious need for the Ministry needs to take strategic actions to ensure that the product is produced and used sustainably and continues to contribute to the national economy was evident. Unfortunately, the two most important strategic documents at the Ministry namely the Strategic Plan (2021/22 – 2025/26) and the National Forest Policy Implementation Strategy (NFPIS) (2021 – 2031) did not sufficiently serve as strategic documents for the charcoal sub-sector in the country.

The Ministry Strategic Plan rightly points out the overdependence on charcoal and firewood as sources of energy, inefficient technologies in processing of forest resources, poor management of forest wastes and limited market of forest products including charcoal as some of the major challenges facing the natural resources sector in Tanzania. To that effect, the strategic plan puts in place strategies for promoting sustainable and efficient utilization and diversification of forest products, strengthening development, management and efficient utilization of plantation forest and woodlot resources. The Strategy Plan emphasizes that strategies to utilize and reduce forest wastes including sustainable charcoal production need to be developed and operationalized by June 2026. It points out further that the National Charcoal Development Strategy needs to be developed and operationalized by June 2026 implying that the Ministry Strategic Plan did not suffice to serve as a Charcoal Strategy for the country.

The MNRT is the custodian of the National Forest Policy (NFP) of 1998; Forest Act of 2002, National Forest Policy Implementation Strategy (NFPIS) (2021 – 2031), Forest Regulations of 2004, and regulations for development of alternative charcoal of 2021. These instruments provide guidance on forest products production, trade and utilization. As part of initiatives to reduce over utilization of traditional charcoal through promotion of alternative charcoal, the NFPIS has set targets of increasing both the consumption of alternative charcoal in urban areas from 100 to 200,000 tonnes and

sustainable charcoal production to 50% by June 2031. It also focuses on reducing logging waste in charcoal production from 80% to 30% by June 2031. However, given the fact that the charcoal sub-sector has multiple stakeholders' interests and different approaches, a responsive and well-elaborated coordination mechanism is required to address the impeding sub-sector development factors. Thus, considering the challenges facing entire charcoal value chains in the country, specific National Charcoal Strategy and Action Plan was imperative.

The National Charcoal Strategy and Action Plan is expected to facilitate the implementation of the national goals and objectives as provided by the Tanzania Development Vision, 2025; Five Year Development Plan (2021/22 – 2025/26); National Forest Policy of 1998; CCM Manifesto of 2020-2025; and National Economic Empowerment Policy of 2004. The Strategy is designed to promote the holistic and well-coordinated implementation of the National Environmental Policy of 2021; Environmental Management Act, 2004; the Small and Medium Enterprise Development Policy of 2003; the National Energy Policy of 2015; National Forest Implementation Strategy (2021–2031); Forest Act of 2002; Forest Regulations 2004 in relation to the transformation of the charcoal subsector. The absence of strategy and action plan for charcoal to support the implementation of functional policies and legal frameworks and sectoral and cross-sectoral implementation strategies was considered to be a major factor contributing to unsustainable production and utilization of charcoal in the country. It was also directly contributing to inadequate coordination of the sub-sector. The National Charcoal Strategy and Action Plan was developed to fill the gaps.

Implementation of the National Charcoal Strategy and Action Plan (NCSAP) is intended to focus at addressing issues that require attention in the charcoal sub-sector including sustainability of charcoal value chains, sectoral and cross-sectoral coordination, marketing and transportation, revenue collection and re-investment, alternatives cooking energy, legal and institutional framework. Further, the National Charcoal Strategy and Action Plan (NCSAP) has close linkages with the National Forest Policy Implementation Strategy (NFPIS) and the National CBFM action plan (NCBFMAP). Both the NCSAP and the NCBFMAP serve as implementation tools for the NFPIS. Whereas the NFPIS recognizes charcoal as one of the important forest products that needs to be produced and utilized sustainably, the national CBFM action plan puts in place activities aimed towards sustainable charcoal production and trade under community-based forest management arrangements.

It is unfortunate that since the completion (June 2021) and approval (November 2022) of the national charcoal strategy and action plan to serve as a policy instrument in support of the National Forest Policy of 1998, the Forest Act of 2002, and the national forest policy implementation strategy (2021-2030) there has been no effort at all to implement the national charcoal strategy. The strategy seems to be uncelebrated. There has been no single guideline, Government Notice (GN), or any directive by the Ministry to enforce the implementation of the national charcoal strategy and action plan. The ministry has not assigned any officer to take the responsibility of championing the implementation of the national charcoal strategy.

Consultations conducted at the ministry level involving several ministries during the data collection phase of the reported assignment revealed the existence of perceptions that the charcoal strategy works against the current national strive towards the adoption of clean cooking energy as spearheaded by the national clean cooking strategy (2024 – 2034). On the contrary, two of the

strategic objectives of the national charcoal strategy and action plan (namely SO*2 Enhanced production and use of alternative charcoal; and SO4 Enhanced adoption of alternative cooking energy*) do promote clean cooking and alternative sources of energy in order to lower the demand for charcoal as the country transits towards clean cooking solutions.

Failure to implement the national charcoal strategy and action plan is likely to impact negatively on the national target of ensuring that 80 percent of Tanzanians use clean cooking solutions by the year 2034. This is because the charcoal strategy puts forward strategic actions and targets that promote clean cooking, support energy switching, and call for sustainable production and efficient utilization of charcoal as the country transitions towards clean cooking energy. The national clean cooking strategy (2024 – 2034) clearly emphasizes that to achieve greater percentages of clean cooking energy utilization at the household level substantial awareness creation and sensitization towards decreased use of unclean energy and increased use of clean energy shall be required. These elements are already embedded in the national charcoal strategy and action plan (2021 – 2031) implying that the charcoal strategy is in support of the national clean energy strategy and, as such complements each other towards broader and more beneficial national goals. In the forthcoming sections, an analysis of other policies and legal frameworks affecting various nodules of the charcoal value chain is provided. The nodules include production of raw materials, harvesting, charcoal production, local markets, transportation of charcoal, wholesaling, retail sale of charcoal, and end users/consumers of charcoal. At each nodule, the analysis examines what good policies and legal frameworks are supposed to support in that node, how the current policies and frameworks are either supportive or otherwise, and what should be done to make the policies more supportive and less conflicting.

4.4 Sustainable Charcoal Initiatives under CBFM

As a policy instrument, the national CBFM Action plan translates the objectives of the NFPIS in the context of CBFM practices in the country and puts forward specific actions relevant to CBFM areas to enhance the contribution of CBFM in implementing the national forest policy. As such, proposed interventions in CBFM areas are expected to contribute towards (i) sustainable supply of forest products and services, (ii) increased employment opportunities and foreign exchange earnings, (iii) enhanced ecosystem stability, and (iv) enhanced national capacity to develop and manage the forest sector. The action plan cites charcoal as the single largest source of household cooking and heating energy in urban areas because it is affordable, available, and easy to transport, distribute, and store. Note that technologies used to produce charcoal in CBFM areas have low recoveries. The Action Plan sets the target that about 50% of Tanzania's charcoal is produced sustainably by June 2031, and that logging waste in charcoal production reduced from 80% to 30% by June 2031. The action plan also targets to increase the use of improved technologies in all wood and non-wood processing industries by year 2031. It strategizes to enhance institutional and human capacity to manage and develop CBFM forests in collaboration with key stakeholders for sustainability.

Implementation of the CBFM action plan is championed by the Forest and Beekeeping Division of the MNRT in collaboration with Local Government Authorities, the private sector, and development partners. An officer to oversee the implementation of the action plan has been assigned responsibilities for providing guidance to CBFM implementers in the country and regularly compiling data relating to the various targets set by the action plan. A number of sustainable charcoal production initiatives are implemented in the country with the aim of minimizing the negative

consequences of the charcoal business to the environment, increasing access to sustainably produced charcoal and improving rural livelihoods through sales of sustainably produced charcoal. One such initiative is implemented by TaTEDO in collaboration with her partners as described in section 1.3 of this report. Another example is presented in a summary form in text box 1 below. These initiatives are essentially supporting the implementation of the national CBFM action plan. In a nutshell, the national CBFM action plan supports the development of sustainable charcoal value chains in the country.

Text box 1: An example of a Sustainable Charcoal initiative under CBFM

In Kilosa District, TFCG implemented a project named 'the Transforming Tanzania's Charcoal Sector (TTCS)'. The TTCS project piloted a charcoal production model called a Sustainable Charcoal Model. The final phase of the project covering the 2019 – 2023 period was known as Conserving Forests through Forest-based Enterprise Support in Tanzania (CoForEST) and implemented the same model which is still being implemented under Community-Based Forest Management arrangements. Through the model, the villages have management plans, bylaws and harvesting plans for their VLFRs. The villages have well-trained Village Natural Resources Committees (VNRC) who oversee the implementation of the model including checking compliance including issuing harvesting licenses to charcoal producers. Harvesting is conducted in harvesting coupes of 50 square metres through selective harvesting with a felling rotation of 24 years. Tree harvesting is conducted by trained charcoal producers to ecologically sound harvesting principles (including leaving a tree stump of 50 cm long) and is monitored by the VNRC. Tree regeneration in the harvested areas occurs naturally through coppicing, sprouting from root suckers and seedlings. The VNRC oversees the harvested areas to monitor the regeneration and ensure that no disturbances which will detriment the regeneration.

Natural forests and woodlands are the main sources of raw material for charcoal production in the country. The raw materials are obtained from general lands, village land forest reserves, private lands in villages and reserves in Central and Local Governments. Often the raw materials are sourced illegally from reserves. Clear-felling (land preparation for farming) and selective harvesting are both used to get raw materials for charcoal production. The species used are indeterminate in the sense that consideration is not given to valuable timber and medicinal species except in areas with on-going interventions. If left unchecked, the sustainability of this approach is very low because of various reasons including inadequate management skills, depletion of resources base, inadequate knowledge of regeneration of raw materials, inefficient technologies, low contribution to welfare, ineffective governance and inadequate enabling environment for sustainable charcoal. There are limited value additions activities on the resource base. For sustainability purposes, policies and legal frameworks should support the widening of sources of raw materials through for example establishment of plantations, woodlots, agroforestry systems for charcoal production and production of briquettes. They should also enhance forest tenure and governance systems (e.g. establishment of Community Based Forest Management (CBFM)and the institutionalization of cost-efficient land use plans. Scaling up of best practices in charcoal production should also receive attention.

4.5.2 Analysis of the applicable policies and legal frameworks

With regards to production of raw materials for charcoal production, the National Forest Policy (1998) is a supportive instrument which encourages the widening of the raw material base. The policy encourages establishment of plantations, woodlots, and agroforestry systems for charcoal production

as well as the production of briquettes. Policy statement (9) of the national forest policy states that the establishment of private woodlots and plantations for wood fuel production will be encouraged and supported through research, extension services, and financial incentives. The policy gives direction that private individuals will be encouraged to establish woodlots in their farms through research and extension as well as through financial incentives. According to the policy, dissemination of information on appropriate technology for wood fuel production and use will be enhanced, and private investment in establishing wood fuel plantations will be promoted by introducing appropriate credit systems. Further, the use of alternative affordable sources of energy will be promoted through research and extension. However, the policy statement and directions on wood fuel are focused on tree-planting, fuel-switching, and more energy-efficient technologies. Sustainable charcoal production is not explicitly mentioned in the context of wood fuels rather the policy is seeking to replace natural forests as the source of wood fuel with plantations and woodlots. To that effect, sustainable charcoal production from natural woodlands is neither explicitly supported nor explicitly opposed. Despite the policy's recognition of the importance of charcoal to the nation, no specific guidance is provided as to the desired outcome for charcoal production. There is therefore a need for revision of the forest policy to include specific statements that provide direction to sustainable charcoal production, trade, and use.

The forest policy also supports enhancing forest tenure and governance systems (e.g. strengthening Community-Based Forest Management (CBFM) and promotion of sustainable management and utilization of forestry, wildlife, and wetland resources. The national forest policy implementation strategy (2021 – 2031) which is one of the instruments for implementing the forest policy of 1998 sets targets for measuring progress in these areas. For example, areas under community-owned forest plantations and woodlots are targeted to increase from 120,000 ha to 360,000 ha by 2031.

The Forest Act No. 14 of 2002 recognizes charcoal as one of the forest products. The Act has dedicated sections 58 to 64 to describe how trade in these products can be conducted and regulated. Besides that, there are subsidiary legislations such as the GN 417 "Sustainable utilization of forest produces regulations". The GN has provisions for sustainable utilization of forest produce. The provisions further direct on preparation of Harvesting Plans to guide the extraction process. The harvesting plan must be developed in accordance with the forest management plan, and as such the harvesting plan must be approved by the Director of Forest and Beekeeping Division. This forms the basis for charcoal extraction in both production forests such as Village Land Forest Reserves (VLFRs) and unreserved forest areas. Section 15. (1) of GN No. 417 stipulates that any person who intends to fell trees for farm preparation and or other land use purposes shall obtain a permit from the District Forest Conservator after approval of the District Forest Produce Harvesting Committee. However, agriculture in particular shifting cultivation is the main contributor to deforestation and so far, there is no policy directives from agriculture to control clearing of forests for agricultural activities. As demonstrated in other sections of this report, the GN 417 has a number of weaknesses that hinder the sustainability of charcoal value chains.

The National Land Policy, of 1995, puts emphasis on land development which ultimately leads to the convention of forest lands into other land uses. The policy emphasizes on issuing of permits, licenses, claims, and rights for the exploitation of natural resources in line with land use policies, environment conservation policies, and programs. However, the policy does not recognize natural forests and

woodlands (popularly known as *mashamba pori*) as important developments on land. This encourages deforestation and needs to be addressed at the policy level. The Village Land Act defines Village Land as the land category that most of Tanzania's unreserved forests and woodlands fall into; and confers upon the Village Council the responsibility to manage village land including the natural resources occurring on the village land based on principles of sustainable development.

The Village Land Act (VLA) of 1999 part II, outlines fundamental principles of the National Land Policy of 1995, under article "f" of section 3, states that land is to be used productively and that any such use must comply with principles of sustainable development. At the same time, the VLA, under part IV, section 14, requires any forest area, to be recognized, must be lawfully declared to be a forest reserve. These statements in the National Land Policy and VLA have been interpreted by many to lower the status of forests on village lands that are not in village forest reserves. It is perceived by many that forests on village lands, outside reserves, are deemed to be unproductive lands and can lead to appropriation of that land including forests. As a result, villagers feel encouraged to clear these forested lands and cultivate them as a way of assigning values. Without legislation that specifically recognizes sustainable forest management as a productive land use, villagers will prefer to clear forests and cultivate or construct buildings on the land as a way of claiming their rights of occupancy over these lands.

There are incoherent areas creating ambiguity in tenure and ownership between the Forest Act of 2002 and within the Village Land Act of 1999. For example, the "unused land" as provided for in the Land Act 1999 where such land under the forest-related laws has been translated to public land or general land. According to the Forest Act of 2002, forests in general or public land are managed by TFS followed by issuing harvesting licenses. Nevertheless, unused land/future land within the villages is under the jurisdiction of the village councils. The unreserved forest lands in villages are perceived to have relatively low value when compared to other land uses.

Under section 57, sub-sections 1 and 2, of the Land Use Planning Act of 2007, the National Land Use Planning Commission (NLUPC), in consultation with relevant land use planning authorities, is identified as having the responsibility to monitor and evaluate all land use and environmental phenomena with a view to making assessment of any possible change in the environment and the possible impacts. The legislation provides for the NLUPC and District Councils, as land use planning authorities, to monitor adherence to land use plans. However, the law does not specify what penalties can be taken by the NLUPC and District Councils against a village, or villages that do not comply with a village land use plan. The weak monitoring and enforcement of land use plans by a national authority are seen by many as a major reason why forests on village lands cannot be protected effectively. Although Village Land Use Plans are supported by bylaws that are enforceable in a court of law, without additional and regular monitoring of adherence by a national body, they are deemed to be largely insufficient. The Land Use Planning Act, of 2007 needs to be revised to institute tangible penalties for non-adherence to approved land use plans at village level and strengthen the monitoring capacity of the NCLUPC and district authorities. In order to support the establishment of plantations for charcoal production, these instruments could further provide for subsidized land for establishment of plantations, woodlots, and agroforestry systems for charcoal production.

The National Fisheries Policy, 2015, states that processing of fish is among the challenges facing the

sector. In most cases, fish has been processed using either firewood or charcoal. Section 4.2.4 of the policy recognizes responsibilities and roles of the MNRT which include to: - Promote sustainable management and utilization of forestry, wildlife, and wetland resources; Ensuring the conservation of forest and wildlife reserves, wetlands, and water catchment areas; and Strengthen mechanisms for sustainable utilization of fisheries resources in forestry and wildlife reserves by neighboring fishing communities. Policy statements raised in this policy are not directly related to charcoal value chain development. However, the policy recognizes the role of MNRT in promotion of sustainable management and utilization of forestry and ensuring the conservation of forests are important elements of the charcoal sub-sector. The National Livestock Policy, 2006 recognizes that increased livestock population and human activities related to livestock production have resulted to overexploitation of natural resources including deforestation. In the country, rangeland resource is estimated at 60 million hectares comprising of 40 million hectares devoted to grazing and 20 million of fallow and forestland. Both the national agricultural and livestock policies promote the expansion of land under agriculture and livestock grazing contrary to what the forest policy envisages. There are also growing social conflicts, environmental concerns and land use conflicts due to alienation of rangelands for large-scale agriculture. There is a need to harmonize the three policies (agriculture, livestock, and forest) to enhance control over natural woodlands and forests and regulate clearance of forests for both agriculture and rangeland expansion.

The National Energy Policy, of 2015 recognizes biomass energy as the primary source of energy. However, there are no instruments in place to manage wood fuel energy, especially on the demand side. The Energy Acts including the Rural Energy Act of 2005 and the Electricity Act of 2008, both focus much on electrification and use of alternative sources of energy other than wood fuel or biomass. The energy policy and acts need to be revised to provide direction and controls on the sustainable use of biomass energy sources including charcoal.

4.6 Harvesting

4.6.1 Tree harvesting practices for charcoal production

Major practices in harvesting trees for charcoal making in un-intervened natural forests include clear-felling and selective harvesting. Harvesting is done without guidance from existing forest management plans and or harvesting plans. Trees are harvested without following proper harvesting techniques and harvesting stump height that favors regeneration of harvested trees is often not considered. The recommended harvesting stump height in accordance with the technical order no. 1 of 2021 is 15cm from the butt to optimize wood recovery. However, in the case of harvesting for charcoal production, this height does not favor natural regeneration (coppicing). Other limitations include harvesting without considering the regeneration capacity of the trees, harvested places not being managed, and therefore frequently encountered by agricultural encroachment, grazing, and wildfires, causing degradation and deforestation. To that effect, harvesting of trees for charcoal in many places is not sustainable.

In a few intervened areas where Community-Based Forest Management (CBFM) and VLFR are established, deliberate interventions have been introduced to enhance regeneration. Some of these interventions include the use of harvesting plans and introduction of coppicing technologies regeneration (e.g. in Kilosa, Bahi and Mpwapwa). In Kilosa in TFCG/TTCS/TaTEDO SESO project areas

land use plans, forest management plans, harvesting plans, and bylaws are used to regulate harvesting. In Bahi and Mpwapwa District, about 25% of the villages have land use plans and this has tremendously reduced illegal production of charcoal. To enhance sustainability, policies and legal frameworks need to ensure that there is compliance with forest management and harvesting plan requirements to forests and that harvesting guidelines should be developed and instituted to include regeneration in natural forests. Further, the frameworks should emphasize on management of the harvested areas to ensure forest regeneration.

4.6.2 Analysis of the applicable policies and legal frameworks

In this node, the National Forest Policy (1998) is supportive as it provides legal frameworks that set compliance with forest management and harvesting plan requirements to forests. However, at the level of implementation, most forest management and harvesting plans are either outdated or not founded on sound inventory making them unrealistic and misguiding instruments. The Forest Act No. 14 of 2002, has provided criteria to follow when planning to harvest wood for charcoal making. Also, issues of harvesting permits, licenses, claims, and rights for exploitation of natural resources in line with land use policies, environment conservation policies, and programs are taken on board with the Forest Act 2002. On the other hand, the National Forest Policy 1998, does not put forward statements to coordinate, regulate and sustain charcoal business along the value chain. As the policy is the main instrument guiding the harvesting of the raw materials for charcoal making, it should ensure that the business is well coordinated.

GN No. 417 of 24th May 2019 Section 15. (1) (of the Forest Regulations 2004), stipulates that any person who intends to fell trees for farm preparation and or other land use purposes shall obtain a permit from the District Forest Conservator after approval of the District Forest Produce Harvesting Committee. Similar guidelines from the agricultural sector would have enhanced sustainability of existing forest resources. However, agriculture in particular shifting cultivation is the main contributor to deforestation and yet so far there are no policy directives from agriculture to control clearing of forests for agricultural activities.

The National Agriculture Policy of 2013 emphasizes on sustainable environmental conservation and environmentally friendly crop husbandry practices (sustainable agriculture). It directs to enforce of environmental laws and regulations that minimize environmental degradation as a result of agricultural activities. However, the policy is silent on the competing land uses between agriculture and forest development. Implementation of the policy has not been effective in reducing deforestation leading to unregulated charcoal business in the presence of agricultural development. The policy is silent on land use management in areas covered by unreserved forests or woodland areas during the establishment of farming land. In terms of land uses, the policy makes no mention of charcoal production. Only timber harvesting is mentioned as a forest use. The policy is founded on the ‘use it or lose it’ principle however the concept of ‘use’ is not defined either to include or exclude sustainable charcoal production. The policy is also silent on forest or natural resources management as a cross-sectoral service. Some other uses are more explicitly covered including agriculture both for crop cultivation and livestock, mining, and settlements. The policy also recognizes community rights to manage communal areas of village land.

The Environment Management Act (2004) promotes the enhancement, protection, conservation, and

management of the environment. It provides a national legal framework necessary for coordinating harmonious and conflicting activities with a view of integrating such activities into an overall sustainable environmental management system by providing key technical support to Sector Ministries. The Act does not address issues related to charcoal production, although charcoal is one of the main sources of domestic energy in the country. A revision of the EMA of 2024 to regulate environmental consequences associated with unsustainable charcoal value chains is required. On environmental considerations, the revised EMA could promote access to subsidized technologies, equipment, and facilities for sustainable charcoal value chains across sectors.

4.7 Charcoal Production

4.7.1 Charcoal production technologies and practices

In terms of technology used in charcoal production in the country, Traditional Earth Mound Kilns and Traditional Pit Kilns with varied sizes and shapes are dominant (Figure 2). The arrangement of billets in a kiln influences recovery since it affects air circulation. The size of the kilns ranges from 1 to 3 m in height and width of up to 10m. Documented reasons for adopting traditional earth kilns included ease of construction, ability to utilize different sizes of wood billets, and ability to be used in all seasons.

Figure 2: Common arrangement of logs in traditional kilns in Tanzania

TaTEDO SESO pioneered improved basic earth mound kilns charcoal production methods and trained several charcoal producers intending to reduce wood wastage and production time. According to CHAPOSA (2002), one m^3 of wood yields 2.6 bags of about 53 kg of charcoal using the traditional kiln of an estimated efficiency of 19%. The Improved Earth Mound Kilns, promoted by TaTEDO SESO have efficiencies of up to 25%. However, there is scanty evidence of continued use the modern technology beyond the piloting phase. It is assumed that modern kilns were faced with the problem of additional investment costs, especially for the corrugated iron sheet chimney in constructing the kilns.

Although efficient technologies with high recovery and sustainability exist in the country there is low adoption because of various reasons including low awareness, high costs of the technology, high production time and low skills. In addition, the perception of forest resources being abundant and free goods serves as a disincentive to optimize the use of wood resources in the production of charcoal. Unfortunately, efficient technologies with high recovery are not instituted by existing law. Types of technology used and its management influence the efficiency, recovery, and sustainability of charcoal production and value addition.

To foster sustainability in this node, policy and legal frameworks need to support the adoption of technologies of choice in the country. Through research and practice the country should put forward acceptable charcoal production technologies of choice and legally enforce their use by charcoal producers. They should also encourage the formation of (registration) of charcoal producers' associations and establish /designate areas for charcoal production. The country needs to assign value to unreserved forest tree resources on village lands which are prone to conversion to other land uses.

4.7.2 Analysis of the applicable policies and legal frameworks

The Forest Policy of 1998 and the Forest Act of 2002 recognize and support charcoal as one of the forest products and hence its production. However, as mentioned earlier in this report, the policy statements and directions on wood fuel in the policy are focused on tree-planting, fuel-switching and more energy-efficient technologies. Sustainable charcoal production is not explicitly mentioned in the context of wood fuels rather the policy is seeking to replace natural forests as the source of wood fuel with plantations and woodlots. Revision of these two instruments should among other things consider issuing of guidelines that promote sustainable charcoal production and trade for improved livelihoods as well as the need for capacity building on sustainable charcoal production at various levels.

GN No. 417 of 24th May 2019 provides directives on the methods for charcoal production. According to Section 10. (1) of GN No. 417, the Chief Conservator shall provide guidelines for methods of charcoal production, that are efficient, significantly offset carbon dioxide, reduce deforestation, and ensure ecosystem resilient to climate change. The MNRT has issued guidelines for charcoal production which instruct that charcoal production shall utilize improved earth kiln technologies including earth kilns with chimneys. With this guidance, the most suitable and recommended technologies include the improved Earth Mound Kiln technology and improved Casamance kilns. However, the enforcement of the guidelines has been very poor. Improved technologies are mostly encountered in intervened CBFM areas where sustainable charcoal production is piloted. There is a need to develop a communication strategy for the dissemination of information on appropriate technology in wood fuel production and use will to enhance the stainability of the charcoal value chain.

The National Environmental Policy, of 2021 outlines that, the Government shall promote affordable, accessible, and reliable alternative energy to charcoal and firewood to reduce wood-biomass energy dependency; to enhance integrated approaches in addressing drivers of deforestation and promote collaboration between the Government and private sector in forest management. However, the policy does not state about promoting sustainable charcoal production and trade for livelihood improvement. The National Energy Policy, of 2015 focuses on the facilitation of efficient biomass conversion and end-use technologies, enhanced fuel switch, and adoption of appropriate cooking appliances. Additionally, it recognizes biomass energy as the primary source of energy. However, the policy is skewed towards modern energy (electricity, petroleum products, and natural gas). As charcoal is still in use, the policy should recognize and develop strategies to ensure its sustainability through efficient utilization.

The National Sustainable Industrial Development Policy, of 1996 promotes development of other sources of energy. It is important that production and promotion of efficient, durable, and affordable energy technologies for development of charcoal should also be given attention as far as the energy

source has a substantial contribution to the energy sector in the country. The National Forest Policy Implementation Strategy (2021 – 2031) has a target that states that about 50% of Tanzania's charcoal will be produced sustainably by June 2031. These are among the efforts that the Government is focusing to ensure the sustainability of the resource.

4.8 Marketing of Charcoal

4.8.1 Current practices

Although TFS has directed that all charcoal should be sold in charcoal selling centers; charcoal is sold haphazardly limiting monitoring of the charcoal business countrywide. Value-addition activities that take place at this node include packaging and marketing. The types and quality of packaging materials are not of importance because they have no bearing on price differentiation. Traders used sacks made of sisal fiber and woven polypropylene bags (*viroba*/*sandarusi*) of various sizes. Although, the identification of sustainable charcoal by using specified packaging material could improve marketing of sustainable charcoal, this has not been done in the charcoal sub-sector in Tanzania. Equally, there is no price differentiation between sustainably produced charcoal and charcoal produced illegally in the market. To that effect, the government needs to develop guidelines that provide incentives (subsidies) for legally produced and labeled charcoal as opposed to illegally produced ones. The guidelines should provide direction on issues of packaging, labeling and the need for regular capacity building and awareness raising to local producers and community members on sustainable charcoal production.

4.8.2 Analysis of applicable policies and legal frameworks

The Draft Tanzania Bureau of Standards (2022)[1] MEDC 12 (1323) DTZS - Solid biofuel — Sustainable charcoal and carbonized briquettes for household and commercial use — Specification, in Section 6 (Packing), states that sustainable charcoal and briquettes shall be packed and sealed in a) multi-wall bags, corrugated board containers or any suitable packaging material such as to be acceptable to maintain product integrity; b) units of 1 kg to 50 kg as required. This draft Tanzania Standard has been prepared under Clean Cooking Stoves and Clean Cooking Solutions (MEDC 12) Technical Committee, under the supervision of the Mechanical Engineering Standards Divisional Committee (MEDC). This standard packaging material can be piloted by various stakeholders including TaTEDO SESO.

Both men and women were involved in on-site marketing. To enhance sustainability, policy and legal frameworks need to institute charcoal market centers, establish regulating organs that will check the charcoal business at different levels, and introduce standard and peculiar packaging materials. The National Investment Promotion Policy of October 1996 in Section 1.2.6 (Energy) mentioned that Tanzania has vast biomass (forest resources and agricultural residuals) that could be used as the source of energy. Section 3 (g) encourages investment in developing all possible commercial and alternative energy with the encouragement of utilizing domestic resources with aims of ensuring energy security, continuity of supplies, and as well as reducing dependence on biomass fuel.

GN 417 has significantly contributed to reduced revenue collection from sustainable charcoal

[1] https://www.tbs.go.tz/uploads/publications/en-1651140360-MEDC%2012%20(1323)%20DTZS%20Solid%20biofuel%20%E2%80%94%20Sustainable%20charcoal%20and%20carbonized%20briquettes%20for%20household%20and%20commercial%20use.pdf

produced in CBFM areas. Before GN 417, the rate for fees payable on forest products, as prescribed in government regulations, was only applied to products from Government Forest Reserves and General Lands. It was not used for products from Village Land Forest Reserves. Instead, villages set their VLFR forest produce fees, as permitted in the Forest Act 2002 (49(6)). Then, the Forest (Sustainable Utilization of Logs, Timber, Withies, Poles or Charcoal Regulations 2019, also known as Government Notice 417 (GN), require that forest produce from VLFRs must also follow the government forest rates. The regulations state: ***7.-(1) A person shall not be considered to be granted a license under these Regulations, unless such person: (f) has paid the appropriate fees as prescribed in the Forest Regulations, 2004.***

The requirement that villages set their charcoal fees to be equal with government royalty rates has meant that CBFM charcoal is no longer economically viable largely because the higher fees have made sustainable charcoal from VLFRs too expensive to compete with charcoal from other sources including illegally produced charcoal. This is reported to have significantly reduced revenues to communities of more than TZS 2.3 billion (US$ 1 million) since its enactment (Meshack et al, 2022). The same source confirms that the transfer of the authority to issue charcoal permits from the village to the district level by GN 417 limits villages' trading options and causes delays. There is therefore the need to revise regulations to exclude Village Land Forest Reserves from the requirement to apply fixed charcoal royalty rates. Further, it is important for policy instruments and regulatory frameworks to uphold the decentralized forest management model for forests on village land and resolve tensions between policy tools seeking to centralize, rather than decentralize, forest management

4.9 Transportation of Charcoal

4.9.1 Current practices

Transportation of charcoal involves trucks/vehicles, motorcycles, railways, bicycles, drought animals, headloads, boats, and dhows. The main means of transport from previous studies were vehicles, the TF observed that the use of motorcycles and bicycles (in Shinyanga) has increased significantly. Motorcycles are the main violators of regulations (e.g. SUMATRA, Forest Act 2002, Road Traffic Act 2017). Most of them transport charcoal beyond the allowable time, the load and size of the charcoal bag is bigger than the allowed weight (50 kg), and the majority of the transporters are not registered. However, the current charges (see GN 417) are collected based on quantity (kg) and not necessarily a bag weighing 50kg as before. For charcoal transported to Zanzibar, their packaging is less than 50 kg, it ranges between 30 to 35 kg, thus posing monitoring challenges along the value chains. Motorcycles evade checkpoints. The mode of transport and distance to be covered to the market or customer determines the value of charcoal. Value addition at this node was improved by transporting charcoal to towns, municipalities, cities, and beyond country borders. In these places, charcoal fetched high prices compared to when sold at on-site market. In this node, men were relatively observed to be highly involved as compared to women in the surveyed regions. To achieve sustainability in this nodule there is a need to standardize licensing procedures and review current royalty levels to affordable magnitudes.

4.9.2 Analysis of applicable Policy Instruments

The National Transport Policy 2023 emphasizes that both motorized and non-motorized transport are

recognized by the policy as means of transport for the transportation of agricultural inputs and outputs from fields to the markets. However, motorcycles and bicycles are used to transport charcoal from production sites to either the retail or end-user nodes. The Forest Regulations through GN 417 of 2019 Section 16 (1), stipulates that any person evacuating, hauling, or transporting forest products including charcoal on transit shall ensure that the forest produce transported is lawfully obtained. Section (2) requires that any person evacuating, hauling, or transporting forest products including charcoal for domestic consumption should pass through the roads or routes and checkpoints stipulated on the Transit Pass for inspection purposes. The regulations did not specify how much charcoal for domestic consumption should not be allowed to pass through checkpoints. However, the GN does not specify the amount except for domestic use.

The Forest Regulations through GN 417 of 2019 Section 18 (1) stipulates that a person transporting forest products including charcoal for domestic consumption on any road shall be required to show proof of a receipt indicating that forest products including charcoal were purchased from a registered and licensed dealer. The National Transportation Policy of 2003 controls all aspects related to the transportation of various products including charcoal. The National Road Safety Policy of 2009 and Roads Act of 2007 guide road safety transportation and recognize the need for road safety rules, regulations, and other guidelines. Currently, most charcoal is transported using motorcycles violating transportation regulations and guidelines. Transportation regulations need to be harmonized and enforced. Field observations during the reported study confirmed that Kisarawe and Mkuranga districts have taken serious measures in enforcing transportation regulations and the use of motorcycles for transporting charcoal has been reduced significantly (Plate 1). This should be emphasized throughout the country. Legal frameworks should also guide the sizes of charcoal bags/ that are being transported with different means along the charcoal value chains. In order to institute effective controls in this node as well as other nodes in the charcoal value chain, it is important that policies ad legal frameworks institute high penalties for violators of supportive policy instruments and provide financial rewards for the bristle blowers of violators. Further, to minimize ambiguities in the application of transportation regulations, guidelines specifying how much charcoal for domestic consumption should not be allowed to pass through checkpoints need to be instituted.

Plate 1: Hundreds of confiscated motorcycles encountered at Kisarawe TFS Offices

4.10 Whole selling of Charcoal

4.10.1 Current practice on whole selling of charcoal

Whole selling is normally practiced by charcoal stockiest who sell charcoal in a bag. However, some wholesalers are selling in small quantities to increase market niches. Value-addition activities at this node involve stocking charcoal in large quantities. This increases availability of charcoal even during the wet season which is a low-production season. Stocking improves prices and consequently the value of charcoal. Whole selling is mainly encountered in towns, municipalities, and cities and is done by both men and women in an unorganized manner, a situation that also contributes to the loss of Government revenues. According to MNRT (2021), about 50% of charcoal revenue emanates from wholesalers and retailers who are not formally organized/governed and recognized. The main challenge in this node is business competition with charcoal dealers who use motorcycles and bicycles to make home delivery of charcoal.. Most of the transporters using motorcycles and bicycles evade taxes and are selling at lower prices and sometimes they make both whole and retail sales at the same time, thus occupying all customers at once.

4.10.2 Analysis of the applicable policies and legal frameworks

Less is mentioned in the policies and legal framework about charcoal business formalization. However, the National Charcoal Strategy and Action Plan of 2021 – 20231 '*the untapped gold*' recommends a need for formalization of charcoal producers and traders with legal recognition. The legal recognition and formalization would enable the responsible business regulators to enforce the exclusion principle. The legal recognition provides incentives for producers to operate with confidence and comply with the laws that govern the charcoal sub-sector. The policies and legal frameworks also include all stakeholders in the charcoal value chain including dealers, and transporters (e.g. trucks, motorcycles, and bicycles) carrying charcoal.

4.11 Retail Sale of Charcoal

Retailing node normally occurs in towns, municipalities, and cities. Value addition activities were mainly done through repacking into smaller quantities (*tin-kopo*, plastic buckets, and small bags) for the purpose of attracting customers of various income brackets. Policies and legal frameworks should standardize the retail business in terms of packaging and pricing. This activity is dominated by women.

In this node, the National Forest Policy (1998) is supportive as it provides legal frameworks through the Forest Act No. 14 of 2002, that set compliance to charcoal traders to secure charcoal yard permits to undertake the business. However, at the level of implementation, most of the charcoal dealers at the retail node do not possess permits, the business is done illegally making it not formal or giving the perception to other people that charcoal is not allowed to be sold.

4.12 End Users

4.12.1 Current practice at the end user/consumers Node

End users/consumers constitute the final node where charcoal as a product is consumed. For example, about 70% of the households in Dar es Salaam use charcoal as the first-choice cooking fuel (URT, 2022). Value addition is supposed to contain efficient utilization of charcoal. More than 40% of Dar es Salaam City households use efficient charcoal stoves. Cooking and vending of food are mostly done by women (URT, 2022). However, the quality and performance of some improved stoves are questionable raising issues of standardization.

Furthermore, Improved Cook Stoves (ICS) have been developed, studied, promoted, and commercialized in Tanzania since the 1980s to address environmental challenges. Specifically forest degradation and deforestation resulting from increasing charcoal use as a source of energy. Despite those efforts, still, inefficient charcoal stoves are still widely used in Tanzania. Most households use low-quality charcoal stoves with combustion efficiency of less than 15%. Adoption of improved cookstoves (with an efficiency level of more than 30%) could reduce charcoal consumption by more than 50%. However, the key challenges to improved cooking stoves are low coordination, standardization, accreditation of the stove, low awareness of the existing improved cooking technologies, low affordability, limited investment, and working capital (URT, 2022).

4.12.2 Analysis of the applicable policies and legal frameworks

The National Energy Policy of 2015 acknowledges that the national energy mix for cooking is dominated by charcoal and firewood and its contribution is about 85% of the total national energy consumption. The sustainable charcoal addresses some of the biomass energy challenges for cooking identified in the National Energy Policy of 2015, including low conversion, deforestation, and inadequate legal and institutional framework to support sustainable production. Sustainable is supportive and facilitates the implementation of the Local Government (District Authorities) Act No. 7 of 1982. For example, the existing sustainable charcoal project supports District and Village councils to formulate bylaws that promote the rule of law and good governance. As mentioned by Abdallah et al. (2021), some of the activities implemented by the sustainable project in Kilosa were in harmony with the National Water Policy of 2002, the National Wildlife Policy of Tanzania of 2007, and the National Environmental Policy of 1997. This is because the project considered the protection of wildlife, water sources, and the environment during its formulation.

However, sustainability of sustainable charcoal for cooking in Tanzania is facing a number of challenges, according to Abdallah et al. (2021), they include non-compliance with village Land Use Plans, harvesting guidelines, and inadequate protection of the harvested Forest Management Units (FMUs) leading to conversion of some charcoal harvested areas to agriculture and grazing lands; unacceptability of the model by some key stakeholders e.g. TFS; weak law enforcement outside the project areas leading to high leakage; implementation of the GN 417 causing less competitiveness of sustainably produced charcoal for cooking as compared to those produced from other sources; inaccessibility due to poor road infrastructure, the unreliable market of charcoal from some villages, implementation of GN 417, and involvement of some village leaders (e.g. VEO, VNRC) in corrupt practices related to illegal charcoal productions. These constraints are gradually causing sustainable charcoal produced for cooking to be less competitive compared to other charcoals. However, it is hoped that the operationalization of the National Forest Policy Implementation Strategy (2021-2031) that was prepared through broad consultations of stakeholders at local and national levels will address most of these issues. Since the strategy took into consideration macro-economic and socio-policy development and other related policies such as land and agriculture, it is anticipated that these constraints will be minimized.

The National Health Policy (2007) aims to strengthen basic and scientific research on traditional medicine practices, traditional medicines, and medicinal plants for the improvement of traditional health services. In addition, the Policy aims to ensure efficient and safe management of waste, enhance systems for healthcare waste management, and improve capacities to adopt and mitigate public health risks from climate change. However, the policy does not mention directly health in relation to charcoal development. Research on environmental pollution control and clean energy development are important policy issues. There have been claims over charcoal use against human health, it is important for the policy to state about this.

Other policy and legal framework support/governing charcoal production and use are: The National Investment Promotion Policy of October 1996 mentioned biomass (forest resources and agricultural residuals) that could be used as the source of energy and encourage utilization of domestic resources with aims of ensuring energy security, continuity of supplies and as well as reducing dependence on biomass fuel. TBS through MEDC has drafted standard packaging material that can be piloted by various stakeholders including TaTEDO SESO.

4.13 Coordination and power relations of sustainable charcoal

There are several national level institutions that are dealing with charcoal. The main actors in this context are the VPO, MoE, MNRT, MITI, MWT, and PO-RALG. The VPO is more concerned with environmental consequences of charcoal production and use. The MoE is more focused on the demand side of charcoal as cooking energy. The MNRT is focusing on the supply side and trade of charcoal. MITI deals with SMEs, is mandated to develop standards, and regulates the exportation of charcoal and weights and measures of products including charcoal. MWT regulates transportation. PO-RALG deals with production, CESS collection, conservation and community livelihoods. Each of these key stakeholders develops and implements their policies and legal frameworks in isolation without adequate consideration of other actors. This has resulted in remarkable contradictory policies and coordination challenges.

Generally, there is persistent power tension between stakeholders that are implementing sustainable charcoal (For example TFCG/MJUMITA) and TFS which was earlier observed and reported by Abdallah et al. (2021 and UNIQUE (2018). Stakeholders feel that TFS is anti-community and paramilitary. On the other hand, TFS alleged that villagers, through CBFM guidelines, are given excessive power with the limited technical capability to manage the forests, particularly for charcoal production and trade, and in many cases, the power is abused causing forest destruction. The negative power relations could arise from the past where CBFM Guidelines allowed villages to make decisions on forest harvesting applications in their areas of jurisdictions and if positive issue harvesting licenses. However, this was revoked by the GN No. 417 of 2019 on the Forest Regulations. During the assignment, the consultant received various views regarding GN No. 417 as compared to the CBFM Guidelines of 2007 which:

i. *Allowed applications for forest product harvest in VLFRs to be considered at the village level*. Nevertheless, the GN No 417 Section 7(2c) requires that in cases of village forest area, an application be submitted to the respective village Executive Officer who shall submit the same to the District Forest Officer or the District Forest Manager. The District Forest Officer shall submit the applications to the District Harvesting Committee for consideration, approval, or otherwise. Stakeholders were of the view that this section withdraws the power of villages to approve applications for harvesting in VLFRs. Other stakeholders had a view that TFS is stirring towards centralization and ridicule CBFM despite the long-term investment done by MNRT since the 1990s. According to section 6(1), the district committee meets at least once a year in its ordinary meeting. According to stakeholders, this might delay the approval of harvesting applications. Contrary, the opinion of the TFS was the villages were given enormous power to make decisions about forest resources while they have limited technical capacity.

ii. *Limited flexible powers to set royalties at the village level. In principle, villages under CBFM were not required to follow government royalty rates but could sell their produce at prices of their choice (Forest Act: Section 78 (3))*. Consequently, villages had set their royalty at about 50% of the government royalty per bag of charcoal. On the other hand, GN No 417 Section 7(1f) states that a person shall not be granted a license under this regulation unless such person has paid the appropriate fees as prescribed in Forest Regulations of 2004. The fees for forest products are provided in the Fourteenth Schedule of 2017 whereby a fee for a bag of charcoal (50 kg) is TZS 12,500. This means there is a strict application of GN 417 across all forests including VFRs. Stakeholders were of the view that this section withdraws the power of villages to set prices for their forest produce. Villagers claim that customers by paying a royalty of TZS 12,500 per bag for charcoal produced in remote places where the sustainable charcoal activities operate, cannot compete with other producers who harvest, produce, and trade haphazardly. On the other hand, the TFS thought some villages could deliberately set very low rates to attract more customers hence accelerating forest harvesting.

5.0 Conclusion, Recommendations, and Policy Briefs

Guided by the terms of reference for the study, a detailed description of the most common charcoal value chains in Tanzania has been provided with details of key players, value addition elements, and possible negative externalities at each node. The main nodes of the value chain include resources and raw materials for charcoal production, harvesting, charcoal production, marketing of charcoal,

charcoal transportation, whole selling, retailing, and end use of charcoal. An analysis of the extent to which charcoal-related policies, strategies, and legislative framework are implemented to enhance engagement of local communities to sustainably manage forest resources towards a sustainable charcoal value chain in Tanzania has been provided with details of conflicting areas, weaknesses in enforcement, and possible areas of improvements. The analysis has also included a detailed review assessing the gaps in the charcoal-related and forest management policies and legal frameworks that undermine the engagement of stakeholders and benefits at different nodes of the sustainable charcoal value chain and its effects on the management of forest resources.

The analysis has revealed how the Constitution of the United Republic of Tanzania (1977), the National Climate Change Response Strategy (2021 - 2026), the National Forest Policy of 1998, the Forest Act of 2004, the National Forest Policy Implementation Strategy (2021 – 2031), the National Charcoal Strategy and Action Plan (2021 – 2031) and the National CBFM Action Plan (2021 -2031) are supportive of sustainable charcoal value chains in the country. These policy and legal frameworks can make significant contributions to the realization of the national clean cooking energy targets if they are effectively implemented and enforced with some revisions in the forest policy and the Forest Act.

The analysis has demonstrated further that, there is a serious misconception that implementation of the national charcoal strategy and action plan shall contradict the current national focus on clean cooking energy spearheaded by the 2024 - 2034 national clean energy strategy. This is wrong because the charcoal strategy is very much supportive of the adoption of alternative clean energy sources and other alternatives to reduce the demand of charcoal as the country transits towards the target of ensuring that 80 per cent of the households use clean energy by 2034. In fact, among the existing strategies at national level that are supportive of the national clean energy strategy is the charcoal strategy. The focus of the charcoal strategy is to ensure that the e charcoal that shall be used during the transition to clean cooking energy is sustainably produced and efficiently utilized while we promote clean cooking alternatives. Failure to implement the charcoal strategy is likely to have negative implications on the success of the national clean cooking energy strategy given the current high demand for charcoal nationwide.

The analysis puts forward the following recommendations aimed to improve the effectiveness of policy and legal frameworks that regulate charcoal value chains in the country towards more sustainable business models as the country transits to clean cooking energy:

1. The National Charcoal Strategy and Action Plan (2021 – 2031) should be implemented and championed to support the realization of national clean cooking energy strategy targets.
2. The National Forest Policy (1998) should be revised to include statements that foster intersectoral coordination of the charcoal value chains with effective instruments for enforcing compliance to forest management and harvesting plans at the community level. Revision of forest policy and the act of 2002 should among other things consider issuing of guidelines that promote sustainable charcoal production and trade for improved livelihoods as well as the need for capacity building on sustainable charcoal production at various levels.
3. In the forest policy of 1998, sustainable charcoal production is not explicitly mentioned in the context of wood fuels rather the policy is seeking to replace natural forests as the source of wood fuel with plantations and woodlots. To that effect, sustainable charcoal production from

natural woodlands is neither explicitly supported nor explicitly opposed, and no specific guidance is provided as to the desired outcome for charcoal production. There is therefore a need for revision of the forest policy to include specific statements that provide direction to sustainable charcoal production, trade, and use.

4. The National Agriculture Policy of 2013 should be revised to include policy statements and directives that control clearing of forests for agricultural activities and deal with the competing land uses between agriculture and forest development in order to reduce deforestation and unregulated charcoal business in the pretense of agricultural development. The policy should also give directives on land use management in areas covered by unreserved forests or woodland areas during the establishment of farming land and recognize charcoal production as one of the land uses. Effective policy instruments for its implementation/enforcement at community level should also be developed.
5. The National Land Policy, 1995, does not recognize natural forests and woodlands (popularly known as *mashamba pori*) as important developments on land. This encourages deforestation. The policy and the Land Acts of 1999 need to be revised to recognize the management of natural woodlands and forests as developments on land.
6. There are incoherent areas creating ambiguity in tenure and ownership between the Forest Act of 2002 and the Village Land Act of 1999. Particularly clear definition of "unused land" in the Land Act 1999 needs to be provided because it has been translated to mean public land or general land in the Forest Act of 2002 creating management and harvesting conflicts between TFS and villagers implementing CBFM. There is a serious need for harmonization of these policy and legal frameworks.
7. The Land Use Planning Act of 2007, gives authority to the National Land Use Planning and District Councils, to serve as land use planning authorities and ensure adherence to land use plans. However, the law does not specify what penalties can be taken by the NLUPC and District Councils against a village, or villages that do not comply with a village land use plan. The weak monitoring and enforcement of land use plans by a national authority encourages deforestation, land degradation, and uncontrolled charcoal business. Although Village Land Use Plans are supported by bylaws that are enforceable in a court of law, without additional and regular monitoring of adherence by a national body, they are deemed to be largely insufficient. The Land Use Planning Act, of 2007 needs to be revised to institute tangible penalties for non-adherence to approved land use plans at the village level and strengthen the monitoring capacity of the NCLUPC and district authorities. In order to support establishment of plantations for charcoal production, these instruments could further provide for subsidized land for establishment of plantations, woodlots, and agroforestry systems for charcoal production.
8. Both the national agricultural and livestock policies promote the expansion of land under agriculture and livestock grazing contrary to what the forest policy envisages. There are also growing social conflicts, environmental concerns, and land use conflicts due to the alienation of rangelands for large-scale agriculture. There is a need to harmonize the three policies (agriculture, livestock, and forest) to enhance control over natural woodlands and forests, and regulate clearance of forests for both agriculture and rangeland expansion.

9. The National Energy Policy, of 2015 recognizes biomass energy as the primary source of energy but there are no instruments in place to manage wood fuel energy, especially on the demand side. This is because both the Rural Energy Act of 2005 and the Electricity Act of 2008, focus much on electrification and use of alternative sources of energy other than wood fuel or biomass. The energy policy and acts need to be revised to provide direction and controls on the sustainable use of biomass energy sources including charcoal.
10. The Environment Management Act (2004) promotes overall sustainable environmental management systems but does not address issues related to charcoal production, although charcoal is one of the main sources of domestic energy in the country and an environmental concern. A revision of the EMA of 2024 to regulate environmental consequences associated with unsustainable charcoal value chains is required. On environmental considerations, the revised EMA could promote access to subsidized technologies, equipment, and facilities to realize sustainable charcoal value chains across sectors.
11. There is a need for the MNRT to develop a communication strategy for the dissemination of information on appropriate technology on wood fuel production and use will to enhance the stainability of the charcoal value chain.
12. Although the identification of sustainable charcoal by using specified packaging material could improve marketing of sustainable charcoal, this has not been done in the charcoal sub-sector in Tanzania. Equally, there is no price differentiation between sustainably produced charcoal and charcoal produced illegally in the market. To that effect, the government needs to develop guidelines that provide incentives (subsidies) for legally produced and labeled charcoal as opposed to illegally produced ones. The guidelines should provide direction on issues of packaging, labeling and the need for regular capacity building and awareness raising to local producers and community members on sustainable charcoal production. Further, This standard packaging material recommended by TBS in 2022 should be piloted by various stakeholders to generate knowledge and experience on its suitability.
13. The provisions of GN 417 have significantly reduced revenues to communities implementing sustainable charcoal production models and the transfer of the authority to issue charcoal permits from village to district level by the same GN limits villages' trading options and causes delays. There is therefore the need to revise regulations to exclude Village Land Forest Reserves from the requirement to apply fixed charcoal royalty rates. It is also important that policy instruments and regulatory frameworks in the country uphold the decentralized forest management model for forests on village land and resolve tensions between policy tools seeking to centralize, rather than decentralize, forest management
14. In order to institute effective controls on the transportation of charcoal it is important that policies and legal frameworks institute high penalties for violators of supportive policy instruments and provide financial rewards for the bristle blowers of violators. Further, to minimize ambiguities in the application of transportation regulations, guidelines specifying how much charcoal for domestic consumption should not be allowed to pass through checkpoints need to be instituted.

Three Policy Briefs were developed by the consultants and submitted together with this report to

inform policy makers on policy and legal framework aspects that need immediate attention in order to sustain charcoal value chains in the country and contribute to the realization of national clean cooking energy targets. The policy briefs include:

4. *Recognizing the role of the National Charcoal Strategy and action plan (NCSAP) in the realization of the national Clean Cooking Energy Strategy (NCCES) targets*
5. *The Coordination Dilemma against Sustainable Charcoal Value Chain in Tanzania*
6. *Conflicting Policy and Legal Framework Instruments in Supporting Sustainability of Charcoal Value Chains in Tanzania*

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7.0 Appendices

Appendix 1: Itinerary and List of Consulted Individuals

LOCATION	STAKEHOLDER	INSTITUTION	DATE
Dar es Salaam	Mr. Pedretti Massimiliano , Mr. Francis Songela, Frank and Mr. Mathew Mpanda	EU	11th June 2024
	Ms. Elizabeth Ngoye Mr. Immanuel Muro	UNCDF	11th June 2024
	Mr. Diomedes Kalisa Mr. Geofrey Bakanga	FAO	11th June 2024
	Mr. Ibrahim Muhazi Ms. Salvina Mtikire Eda Mayoda	Treasury	11th June 2024
	Mr. Charles Meshack	TFCG	10th June 2024
	Mr. Savinus Kessy	WWF	17th July 2024
	Baraka Mtemwa (DFC - TFS)	Kisarawe	17th July 2024
	Charles Kaselya (DFC – TFS)	Mkuranga	18th July 2024
	Mr. Zakaria Faustine	TNRF, Executive Director,	10th June 2024
Dodoma	Mr Deusdedit Bwoyo	MNRT	6.6.2024
	Mr. Seleboni Mushi	MNRT Focal Person	6.6.2024
	Prof Dos Santos Silayo	TFS - CC	15th July 2024
	Mr. Ali Majid	TFS Focal Person	14th July 2024
	Mr. Ngereja Mgeju Ms. Anita Ringia Ms. Agnes Nkulila	Ministry of Energy	15th July 2024
Consultations at district level			
Kisarawe District	Ronald Mlingi (Principal Beekeeping Officer); Rehema S. Mwangoke (Licensing Officer) Boniface Peter Pinja (Producer & Transporter = P&T); Mtonga Mbegu (P&T); Mwajuma Abdallah (P&T); Elinaike Tarimo (P&T); Athumani A. Feruzi (P&T); Ali Juma Athumani (P&T); Musa Abdallah Mkwelembe (P&T); Kondo Muhamed (P&T); Halima L. Lungo (Firewood trader); Elias Machwa (P&T)		17th July 2024
Mkuranga District	Alan Rogers (TaTEDO Field Officer); Omari Nassor (P&T); Rashid Mohamed (P&T); Kondo Shomari (P&T); Salum Omari (P&T); Hamisi Ramadhani (P&T); Gideon Ringo (P&T); Said Mohamed (P&T); Isa Mohamed (P&T); Juma Mwalika (P&T); Jonas Nambua (P&T);		18th July 2024

Appendix 2: A Summary of Conflicting Policies and Legal Frameworks

Summary of the conflicting policies and frameworks that hinder sustainability of charcoal value chains in Tanzania is as indicated in the Table below:

(a) National Policies

SN	Relevant Policies	Conflicting Statements/Area	Recommendation
1	National Forest Policy (1998)	The policy is a supportive instrument which encourages widening of the raw material base encourages establishment of plantations, woodlots and agroforestry systems and enhancing forest tenure and governance systems (e.g. strengthening Community Based Forest Management (CBFM) and promotion of sustainable management and utilization of forestry, for charcoal production as well as production of briquette	The two policies need to be harmonized in order that they have common position as the are both Government Instruments
	The National Land Policy, 1995	The policy puts emphasis on land development which ultimately leads to convention of forest lands into other land uses. The policy emphasizes on issuing of permits, licenses, claims and rights for exploitation of natural resources in line with land use policies, environment conservation policies and programs. However, the policy does not recognize natural forests and woodlands (popularly known as *mashamba pori*) as important developments on land	
2	National Forest Policy, 1998	The policy recognizes the importance of charcoal and intends to promote production and consumption of alternative sources of energy.	There is a need for establishing biomass energy coordination unit, which will be ensure that national policies have one position along charcoal value chains
	National Energy Policy, 2015	The policy recognizes biomass energy as primary source of energy in the country. However, the policy statements are skewed to modern energy (electricity, petroleum products and natural gas). Policy has no statements that state about sustainable production of biomass energy.	
3	The National Land Policy, 1995	The policy puts emphasis on land development which ultimately leads to convention of forest lands into other land uses. The policy emphasizes on issuing of permits, licenses, claims and rights for exploitation of natural resources in line with land use policies, environment conservation	• The policy is silent on the competing land uses between agriculture and forest development. • Implementation of the policy has not been

		policies and programs.	effective in reducing deforestation leading to unregulated charcoal business in the pretence of agricultural development
	National Agriculture Policy, 2013	The policy emphasize on sustainable environmental conservation and environmentally friendly crop husbandry practices (sustainable agriculture) enforce environmental laws and regulations that minimize environmental degradation as of result of agricultural activities.	
4	The National Livestock Policy, 2006 & National Agriculture Policy, 2013	the National Agricultural and Livestock Policies promote the expansion of land under agriculture and livestock grazing contrary to what the forest policy envisages.	The polices could be harmonized have common position with regards to sustainable management of forests in the country
	National Forest Policy (1998)	The policy i encourages widening of the raw material base through enhancement of forest tenure and governance systems (e.g. strengthening Community Based Forest Management (CBFM) and promotion of sustainable management and utilization of forests for charcoal production.	
5	National Transportation Policy 2023	One of the contents of the policy is that motorised and non-motorised transport are recognised by the policy as means of transport for transportation of agricultural inputs and outputs from fields to the markets.	Charcoal transportation using motor cycles and bicycles is a policy issue requiring intervention

(b) Legal Frameworks

SN	Relevant Policies	Conflicting Statements/Area	Recommendation
1	e Land Act of 1999	The Act translates the unused land under the forest related laws as public land or general land areas, thus creating ambiguity in tenure and ownership. Nevertheless, unused land/future land within the villages are under jurisdiction of the village councils. The unreserved forest lands in villages are perceived to have relatively low value when compared to other land uses. As a result, villagers feel encouraged to clear these forested lands and to cultivate them as a way of assigning values.	The Acts need to be harmonized in order that they have common position as both address Government Agenda.
	Forest Act of	The Act recognizes that forests in general or	

	2002	public land are managed by TFS and issue harvesting licenses. Similarly, GN No. 417 of 24th May 2019 Section 15. (1) (of the Forest Regulations 2004), stipulates that any person who intends to fell trees for farm preparation and or other land use purposes shall obtain a permit from the District Forest Conservator after approval by the District Forest Produce Harvesting Committee.	
2	Forest Act of 2002	The Act has provision for establishment of Village Forest Reserves through the Participatory Forest Management regimes.	There is a need for harmonizing the Acts in order to enhance charcoal value chain development.
	Land Use Planning Act of 2007	on 57, sub-sections 1 and 2, of the Act gives power to the National Land Use Planning Commission (NLUPC), in consultation with relevant land use planning authorities, to monitor and evaluate all land use and environmental phenomena with a view to making assessment of any possible change in the environment and the possible impacts. The legislation provides for the NLUPC and District Councils, as land use planning authorities, to monitor adherence to land use plans. However, the law does not specify what penalties can be taken by the NLUPC and District Councils against a village, or villages that do not comply with a village land use plan.	
3	Forest Act of 2002	Act though through GN 417 of 2019 Section 18 (1) of the Forest Regulations 2004, stipulates that a person transporting forest products including charcoal for domestic consumption on any road shall be required to show proof of a receipt indicating that forest products including charcoal were purchased from a registered and licensed dealer.	Transportation regulations need to be harmonized and enforced according.
	Roads Act of 2007	The Act, guides road safety transportation and recognize the need for road safety rules, regulations and other guidelines. However, there is less enforcement on charcoal that is transported using motorcycles and bicycles which violates transportation regulations and guidelines.	

Appendix 3: Checklists used to guide consultations with stakeholders

Section 1: Central, Local Government, Agencies and NGOs

1. To the best of your knowledge which policies/laws/regulations/guidelines/strategies are currently used to regulate the charcoal value chain in the country?
2. Would you say that the existing regulatory frameworks are adequately supportive in developing sustainable charcoal value chains?
3. In your opinion which regulatory frameworks are conflicting or need to be harmonised immediately?
4. Which mechanisms are used to raise awareness of actors in the charcoal value chain on these regulatory frameworks? Are they adequate?
5. Are there any regulatory frameworks that hinder developing sustainable charcoal value chains in the country? Which are those, and how?
6. Do actors in the charcoal value chains have mechanisms to provide feedback to the government of the weaknesses of the regulatory frameworks? Which ones?
7. Are you aware that the government has a national charcoal strategy and action plan for the 2021 to 2031 period? How did you get to know this?
8. Do you know of any government instrument that has been designed to support implementation of the national charcoal strategy?
9. In your opinion what should the government do to ensure that the national charcoal strategy is implemented and supportive of sustainable charcoal value chains?
10. Can you comment on the regulatory frameworks used in issuing permits, licenses, registering traders and issuing TPs;
11. In your opinion what should be done to ensure that regulatory frameworks that regulate charcoal business in the country are supportive in diversifying charcoal raw material sources
12. Do you think the existing regulatory frameworks are adequately inclusive and supportive of gender? What do you think should be done to improve the situation?
13. Can you comment on the issues of taxation as applied in the charcoal value chains? Are the current taxes supportive of sustainable value chains development?
14. Are the roles of the central and local government systems in handling the charcoal value chain clearly defined and executed?
15. What do you consider to be the most critical regulatory frameworks that should be revised for sustainable charcoal value chains to be realized in the country?
16. Which significant change would you like to see in the charcoal business in Tanzania in the coming ten years? What should the MNRT do to facilitate the realization of this change?

Section 2: Development Partners and Treasury

1. What are your main expectations from the policy and legal frameworks analysis on charcoal value chains that we are currently conducting?
2. How are you likely to make use of the results/findings from the analysis?

3. In your opinion what do you think should be our main priority during the analysis and why?
4. Are you aware of any conflicting policies and legal frameworks that adversely affect the sustainability of the charcoal value chains in the country? What do you think should be done?
5. Can you please suggest policy and legal reforms that can positively influence the development of sustainable charcoal value chains in the country?
6. Are you supporting interventions that relate to our current work and provide opportunities for building synergies?
7. As the country is in the transition period to clean cooking energy, what do you see the position of charcoal in the future?
8. In your opinion what do you think we should not miss out during our analysis?

Section 3: Charcoal producers and transporters

Charcoal Producers

1. Which laws and regulations/guidelines have the greatest influence on your business as a charcoal producer?
2. What do you think should be done to make the regulatory frameworks mentioned in (1) above more supportive of your work?
3. What are your main sources of wood raw materials for charcoal production?
4. Your business involves cutting of trees and making charcoal. If this is not properly controlled, it can lead to deforestation. What do you think should be done to avoid this from happening?
5. Are you aware that charcoal can be made from wood harvested from plantations? Do you think this can be possible in your current working environment? What government regulation would be needed?
6. Are you aware that charcoal can be made from off cuts and delimbed branches instead of cutting down trees? Have you practiced this?
7. Do you have a licence? How easy was it to get a licence? Do you suggest any improvements?
8. Do you normally pay taxes on the charcoal you produce for sale? Which ones? Any suggestions on the taxes?
9. Do you have organized markets for selling your charcoal at village level? Which arrangements are there for you to sell the charcoal you produce?
10. Are the laws and regulations supportive on the pricing of the raw materials for charcoal production?
11. Are there any challenges associated with pricing of charcoal production raw materials?
12. Which mode of transport is used transport your charcoal to end users?

Charcoal Producers and Transporters

1. What is the dominant transportation modes used along the charcoal value chain?
2. What are the challenges embedded in the charcoal transportation mode?
3. What do the laws and regulations (e.g. LATRA, Forest Act 2002, Road Traffic Act 2017) say regarding transportation of charcoal and mode of transport?

4. What is the level of compliance on rules and regulations regarding transportation of charcoal?
5. How charcoal can be transported without affecting its market prices?
6. What should be done to ensure that the right mode of transport is practised at rational way?
7. Please suggest how the existing regulations should be improved to support your business as a transporter of charcoal.