



THE UNITED REPUBLIC OF TANZANIA  
PRIME MINISTER'S OFFICE  
TANZANIA NATIONAL BUSINESS COUNCIL



# NATIONAL ENGINEERED WOOD SECTOR DEVELOPMENT FRAMEWORK (2021-2031)

**June, 2021**

# **TNBC FOREST WORKING GROUP**

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## PREFACE

Robust and sustained forest sector will significantly contribute to the national industrialization agenda, employment creation, fiscal revenue generation and Gross National Product (GDP). For this to materialize, a strong strategic focus on value-added forest products and new value chains with high economic potential is required. Following the two studies conducted in the forest sector, it is evident that engagement in the development of engineered wood products will be more beneficial to Tanzania than the current practices. The first study assessed the market feasibility of EWP in Tanzania and barriers to be addressed for a viable sector. The second study focused on the fiscal and economic implications of promoting EWPs investment opportunities and development. Both studies show an enhanced economic and fiscal contribution by the forest sector if it embarks on EWPs development and promotion.

Consequently, the Tanzania National Business Council (TNBC) in collaboration with MNRT and Forestry Development Trust (FDT) prepared the National Engineered Wood Sector Development Framework. The Framework is expected to strategically and systematically enhance EWPs development and trade in Tanzania to promote internal consistency in the economy through import substitution of EWPs meanwhile increasing the foreign exchange revenue.

The Framework is also a part of the implementation of the National Forest Policy of 1998 and the Ministry of Natural Resources and Tourism (MNRT) Strategic Plan (2020/21-2025/26). The National Forest Policy, among others, is directed towards creating a favourable environment for the establishment of new forest industries to increase employment and foreign exchange earnings. The Ministry Strategic Plan likewise requires the development of the National Engineered Wood Sector Development Framework to enhance the effective utilization of forest plantations and woodlots.

It is our sincere conviction that the Framework will provide the strategic guidance and milestone towards the development of the engineered wood sector in Tanzania. This requires concerted efforts supported by effective and efficient coordination, and Result-Based Monitoring and Evaluation (RBME) by all stakeholders. In this regard, all actors in the sector are requested to participate fully in the implementation of this Framework.

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## EXECUTIVE SUMMARY

The forest sector is one of the key economic sectors that can drive the Tanzania National Industrialization Agenda. It is the sector that has relatively great potential in promoting both rural and urban industrialization; creation of decent employment to many Tanzanians; contribution to gross domestic product (GDP); and increase export earnings and fiscal revenues. This is because the sector has rich value chain activities which can reduce the spending of foreign currencies for imports and at the same time generate foreign currency from exports. Of significance, it is the **Engineered Wood Products (EWPs)** value chain, which could greatly increase the economic contribution of commercial forestry in the national economy. Engineered Wood Products present a genuine opportunity to diversify forestry value chains given the growing domestic, regional and global demand of products such as plywood, fibre boards, Medium Density Fibreboard (MDF), block and finger jointed boards.

The Tanzania commercial forestry sector, however, has for many years, been dependent on limited number of wood processing value chains, reducing economic gains including economic development, industrialization, employment creation and fiscal revenue generation. Primary processing has been the core value addition activity in the Tanzania commercial forestry sector dominated mainly by sawmilling which produces structural timber used in construction and, transmission poles for electricity and telecommunication distribution. Other value addition options with huge economic potential e.g. EWPs processing, have not been fully explored as demonstrated by limited investments.

EWPs present huge economic benefits to the investors, the forestry sector and the country at large. EWPs processing uses raw materials efficiently with recovery rates of around 80% compared to sawn timber processing that recovers about 30-50%. Furthermore, the EWP industry has the potential for processing integration, for example, with the sawmill industry and thus effective use of residues from sawmill to make other products which can target various end uses such as furniture, construction and energy. A study by Ruhinduka *et al.*(2020), for example, showed that a representative tree farmer would earn TZS. 5,600,000 more per hectare of harvested wood under the EWP regime compared to what s/he earns under the sawn-timber regime. On the other hand, the government and the processing investor would collect more revenue per a cubic meter from EWP value chain compared to sawn-timber regime. Slow growth of the engineered wood sector resulted to the following economic and fiscal consequences

basing on the studies conducted by Margules Groome, (2019) and Ruhinduka *et al.*(2020): -

**Unfavourable Balance of Trade:** Tanzania is the net importer of medium density fibre (MDF), particleboards and plywood;

**Loss of Fiscal Revenue per Hectare:** Government would earn TZS 66 million more revenues per hectare equivalent of produced wood from various stages of value chain under the EWP regime compared to only sawn-timber regime;

**Loss of Fiscal Revenue per Cubic Metre:** Government would earn between TZS 102,000 to 115,000 more from a produced cubic metre under EWP regime compared to what would be earned under sawn-timber regime;

**Relatively High Opportunity Cost on the Loss of Projected Fiscal Revenues:** It was projected that Tanzania government would substantially raise more revenues by TZS 200 billion for the next 15 years compared to the current trend based on the current situation if EWP processing is promoted;

**Poor Financial Performance of Forest-Based Enterprises (FBEs):** considering the promotion of engineered wood sector, FBEs would earn between TZS 217,000 to TZS 390,000 more from a cubic metre under EWP regime compared to what would be earned under sawn-timber regime.

Based on the aforesaid facts, the Ministry of Natural Resources and Tourism, in collaboration with the stakeholders, has developed the National Engineered Wood Sector Development Framework (2021-2031) to fast track the development of the sector. The Framework shows the implemented government efforts to stimulate sector growth, challenges facing the sector, and the existing and potential opportunities for EWPs. The challenges include lack of industrial zones/clusters, limited technological capacity, low quality EWPs, limited financial and technical capacity and, exposure to multiple taxes, charges and fees.

In addressing the aforesaid challenges, the Framework does not only explain 'what is to be done' but also 'why should it be done' and 'how it can be done'. It specifically includes the objectives, strategic directions, priority actions, expected results, monitoring and evaluation (M&E) indicators, budget, timeframe for implementation,

means of verification and the responsible institution (s). The following are the objectives of the Framework: -

**Objective 1:** To Unleash the Potential of EWP Value Chain Contribution to the Economy

**Objective 2:** Promote a Competitive, Inclusive, and Sustainable Engineered Wood Industrial Development and Trade

**Objective 3:** Enhance National Institutional and Human Resource Capacity to Manage and Develop the Engineered Wood Sector in Collaboration with Other Stakeholders to Meet National and International Standards.

**Objective 4:** Ensure Adequate and Sustainable Supply of Quality Raw Materials for EWP Sector

**Objective 5:** Integrate Cross Cutting Issues in Engineered Wood Products Development Agenda

The Framework also includes the policy and legal framework; risk identification, assessment and mitigation; sources of finance both national and international; M&E mechanisms; and the prerequisites for the effective implementation of the Framework. However, the effective implementation of this Framework depends on the commitment of all stakeholders, both public and private, in the forestry sector.

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## ENGINEERED WOOD PRODUCTS DESCRIPTIONS

### Medium Density Fibreboard (MDF)

A reconstituted panel product made from wood fibre by applying a waterproof glue, pressure and heat which are used for internal and external doors, framing, floor, wall and roof siding and cladding, constructions, etc.



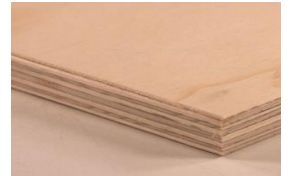
### Oriented Strand Board (OSB)

Made of wood strands from less valuable, fast growing species bonded under heat and pressure with a waterproof resin used in roof, wall and sheathing construction, siding and concrete formwork as well as the web material for I-joists and skin material for structural insulated panels.



### Plywood

It is a material manufactured from thin layers or "plies" of wood veneer that are glued together with adjacent layers having their wood grain rotated up to 90 degrees to one another. Plywood consists of three or more layers of veneers.



### Veneer

Thin sheets of wood of uniform thickness, rotary cut, sliced or sawn, for use in plywood, laminated construction, furniture, veneer containers, etc.



### Blockboard

A composite panel made from glued and/or finger-joined solid pieces of timber as core which may then be glued and overlaid with a cross grain rotary veneer, chipboard or MDF. It is used for internal applications such as wall panelling and furniture components.



### Wood Pellets

Pellets are biofuels made from compressed organic matter or biomass. Pellets can be made from any one of five general categories of biomass: industrial waste and co-products, food waste, agricultural residues, energy crops, and virgin lumber. **Wood pellets** are new biomass fuel for the low cost and high burning rate. It's a good substitute for firewood, coal, oil and gas. **Wood pellets** are widely used in heating, cooking, boiler and power plant.



## ABBREVIATIONS AND ACRONYMS

AF	African Forestry
AIDS	Acquired Immune Deficiency Syndrome
CIDA	Canadian International Development Agency
DID	Department for International Development of the UK
EWPs	Engineered Wood Products
FDT	Forestry Development Trust
FWG	Forestry Working Group
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IIDS	Integrated Industrial Development Strategy
LGAs	Local Government Authorities
MNRT	Ministry of Natural Resources and Tourism
NAFORMA	National Forest Resource Monitoring and Assessment
NFP	National Forest Policy
PFP	Private Forestry Programme
PPP	Public-Private-Partnership
SHIMIVITA	Shirikisho la Wenye Viwanda vya Mimitu Tanzania (Tanzania Federation of Forests Industries)
SIDA	Swedish International Development Agency
SIDP	Sustainable Industrial Development Policy
SMEs	Small and Medium Enterprises
TaFF	Tanzania Forest Fund
TAFORI	Tanzania Forestry Research Institute
TBS	Tanzania Bureau of Standards
TFS	Tanzania Forest Services Agency

TIC	Tanzania Investment Centre
TNBC	Tanzania National Business Council
TRA	Tanzania Revenue Authority
TTGAU	Tanzania Tree Growers Associations Union
UN	United Nations
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
URT	United Republic of Tanzania
VAT	Value-Added Tax

# CHAPTER ONE

## INTRODUCTION

### 1.0 Background Information

The forest sector is one of the key economic sectors that can drive the Tanzania National Industrialization Agenda. It is the sector that has relatively great potentials in promoting both rural and urban industrialization; creation of decent employment to many Tanzanians; contribution to gross domestic product (GDP); increase export earnings; and increased fiscal revenues. This is because the sector has rich value chain activities which can reduce the spending of foreign currencies for imports and at the same time generate foreign currency from exports. Of significance, it is Engineered Wood Products (EWP) value chain, which could greatly increase the economic contribution of commercial forestry in the national economy. Engineered Wood Products present a genuine opportunity to diversify forestry value chains given the growing domestic, regional and global demand of products such as plywood, fibre boards, Medium Density Fibre-Board (MDF), block and finger jointed boards.

Commercial forestry already plays a major role in industrial growth and economic development, with many sectors heavily reliant on wood-based products including construction, rural electrification, furniture, retail (paper, packaging), bio-mass energy and commodity exports (e.g. tea and tobacco). In 2012, Tanzania Revenue Authority (TRA) estimated that forestry contributes 4% to GDP, more than the contributions from mining and quarrying (3.3%), while TEITI estimated the forestry sector to be larger in value than the entire export crops sector in Tanzania. The sector also contributes to the growth of other sectors: e.g. the provision of construction materials for the rapid growth of the construction sector, supply of wooden poles for rural electrification, and in the manufacturing of wood and paper-based products. Driven by population growth, economic development and industrialization, major domestic sectors demanding wood products are in a growth phase until 2035 (Margules Groome, 2019). This is presenting tremendous potential to increase sector contributions with the right public and private investments.

The Tanzania commercial forestry sector, however, has for many years, been dependent on limited number of wood processing value chains. This has reduced micro and macro-economic gains including economic development, industrialization, employment creation and fiscal revenue generation. Primary processing has been the core value addition activity in the commercial forestry sector. It is dominated mainly by sawmilling which produces structural timber used in construction and lumber for basic furniture production, as well as production of transmission poles for electricity and

telecom distribution. Other value addition options with huge economic potential such as EWPs have not been fully developed as demonstrated by limited investments (Margules Groome, 2019).

Moving from current focus on primary processing to EWPs production presents huge gains in economic benefits to the investors, the forestry sector and the country. A study by Ruhinduka *et al.* (2019), for example, showed that a representative tree farmer would earn TZS.5,600,000 more per hectare of harvested wood under the EWP regime compared to what s/he earns under the sawn-timber regime. On the other hand, the Government would collect a total of TZS. 205,210 per m<sup>3</sup> and TZS. 322,304 per m<sup>3</sup> from plywood and block boards respectively compared to TZS. 100,400 per m<sup>3</sup> from timber. Moreover, EWP processing converts raw materials more efficiently with recovery rates of around 80% compared to sawn timber processing that recovers only about 30-50%. Recovery rate refers to the volume of timber/product recovered expressed as a percentage of the volume of logs consumed during the operation. In this fact, it was important to prepare the National Engineered Wood Sector Development Framework.



## CHAPTER TWO

### SITUATIONAL ANALYSIS

#### 2.0. Brief Overview

The situational analysis covers Tanzania government efforts towards promoting EWP investment and challenges. Specifically, it explains the current status of engineered wood processing subsector, characteristics of the engineered wood factories in Tanzania, Institutional and Human Resource Capacity; and Cross-Cutting Issues.

#### 2.1 Current Status of EWP Processing Sub-Sector

In the past, the Tanzania Wood Industry Corporation (TWICO), a parastatal organisation and a holding company was mandated to run the wood industry business in Tanzania. It had several forest industry subsidiaries including sawmills, treatment plants, paper making, furniture, etc., and those operating EWP factories. The EWP factories were Fibreboard Africa (FAL) Ltd, Tembo Chipboards Ltd and Sikh Sawmills Ltd. The former was in Arusha while the last two were in Tanga region. Sikh sawmills used to produce plywood and flush doors while FAL and Tembo chipboards produced fibreboards and particleboards, respectively.

Alongside the economic reforms including privatisation of parastatals which took place in 1980s, these factories were privatised. However, some of these mills have stopped production, while others continue to produce the traditional EWP products only in small amounts. Due to the vacuum created, Tanzania became majorly an importer of these products. The industry in Tanzania thus remained dominated by sawmills and production of transmission poles. Of recent though, EWP production has been taking off. For example, now there are 21 engineered wood factories in Tanzania. In addition, Kilombero Valley Teak Company (KVTC) and Sao Hill Industries Limited have value adding lines i.e., production of laminated panels for making furniture and floorings.

In the process of reviving engineered wood sector in Tanzania, among others, several policy interventions were instituted and implemented. For instance, the Forest and Beekeeping Division (FBD) of the Ministry of Natural Resources and Tourism (MNRT) was established and it is responsible for policy formulation and ensuring execution of forest legislation. The Tanzania Forest Service Agency (TFS) which was created in 2011 has the mandate to manage central government forest reserves and forest resources on general land. Furthermore, the forestry sector in Tanzania is guided by the National Forest Policy which came into force in 1998. The overall goal of the policy is to



enhance the contribution of the forest sector to the sustainable development of Tanzania and the conservation and management of her natural resources for the benefit of present and future generations.

The Policy has four policy areas of which forest-based industry and product is among them. Others are Forest land Management, Ecosystem conservation and Institutions and human resources. The situational analysis and subsequent Framework are focused on forest-based industry and product policy area. The objective of this policy area is to increase employment and foreign exchange earnings through sustainable development of forest-based industries and trade. Accordingly, the Policy issues a policy statement (Box 1) in relation to establishment of industries in the country. To exploit this opportunity, the proposed framework aims to that end by catalysing the production and trade of EWPs.

**Box 1: Policy statement (8):**

To enable the mechanical and chemical wood industry to plan its investment, information on raw base will be ascertained through periodic resource assessments, and made available to the industry. The rehabilitation of existing technology and establishment of efficient forest industries using appropriate technologies will be promoted.

The government effort resulted to the emergence of 21 engineered wood factories mainly located in Mafinga, Iringa. However, the EWP industry is dominated by small and medium enterprises (SMEs). SMEs normally dominate the newly developed industry because they can be easily established since their requirements in terms of capital, technology and management are not as demanding compared to large enterprises. The development of SMEs is guided by the Small and Medium Enterprise Development Policy of 2003. The overall objective of the Policy is to foster job creation and income generation through promoting the creation of new SMEs and improving the performance and competitiveness of the existing ones to increase their participation and contribution to the Tanzanian economy. On the other hand, the National Micro Finance Policy (2017) promotes the provision of financial services to small and micro enterprises in rural areas as well as in the urban sector that are engaged in all types of legal economic activities and thereby contribute to economic growth, employment creation and poverty reduction and provision of financial services.

The Sustainable Industrial Development Policy - SIDP (1996 - 2020) gives top priority to promotion of streams of industries around a single resource based on zero waste

strategy, where EWP factories fit perfectly. The SIDP emphasizes on creating enabling environment for industrialisation by supporting existing and new industries. Furthermore, the policy identifies measures to enable economic empowerment and inclusion. The Integrated Industrial Development Strategy 2025 (IIDS 2025) on the other hand sets a roadmap for implementation of the Tanzania Development Vision, 2025 to achieve the objectives of the industrial sector. The strategy identifies agricultural-led and resource-based industrialization as propellers to the goals set under the vision 2025. Unfortunately, the strategy failed to identify forest sector as a target sector, large enough in terms of market size with a long value chain and embracing Tanzania's comparative advantages.

The National Economic Empowerment Policy also provides guidelines to ensure that many of the citizens of Tanzania have access to opportunities to participate effectively in economic activities in all sectors of the economy including those of the forest sector. In this regard, sector policies will give preferential treatment to nationals where necessary to enhance their bargaining position and opportunities. Among other areas, the policy focuses on creating a favourable business environment for investment and economic growth; making easy availability of capital and enabling more Tanzanians to borrow; raising skills and knowledge levels; and improving the capacity to produce goods of a high quality. It moreover provides better and reliable public services, support establishment of appropriate marketing systems, including the use of government tendering system to assist Tanzanians to access markets.

In ensuring the effective coordination of the forest sector, the Policy is given legal force by the Forest Act of 2002 and it is operationalized through the Forest Regulations of 2004 which vests the responsibility of managing forest resources into various stakeholders. Several sections in the Forest Act of 2002 apply to the harvesting and trade in forest products. Policy and legislative revisions have been done to link forces of decentralising forest management, encouraging participatory forest management (e.g. Joint Forest Management or Community Based Forest Management), and ensuring that forests contribute towards national poverty alleviation goals.

## **2.2. CHARACTERISTICS OF THE EXISTING EWP FACTORIES**

### **2.2.1. Technology and Innovation**

The EWP mills in Tanzania run basic operations without advanced processes and technologies. There is no supply of high technology within the country and scarcity of relevant supporting industries such as providers of spare parts and services which together magnify the challenge. The existing EWP industries are of small capacity

consuming about 173,000 m<sup>3</sup> round wood equivalent (rwe) per annum. The wood processing sector in general records low recovery rates in ranges of 50-70%, 45-55% and 35-45% for veneers, for plywood and for timber, respectively. These figures support a fact that a huge amount of wood wastes is being produced by EWP industries. Improved recovery and usage of industrial residues represents a fundamental requirement to improve industry's efficiency and cost competitiveness and it can be achieved through the use of efficient and modern technology.

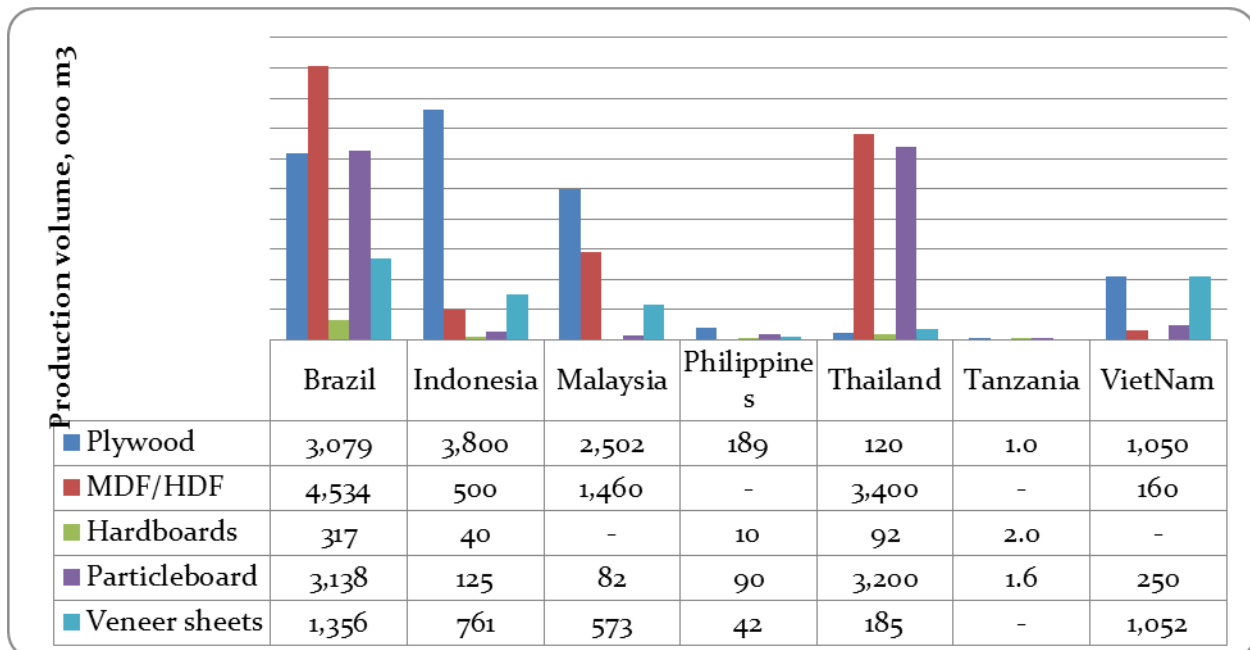
Majority of the existing EWP factories air-dry their veneers. The so-produced veneers have inconsistent moisture content distribution and higher thickness variation which subsequently impact on the quality of the end-products. In addition, plywood manufactured in Tanzania are urea formaldehyde-bonded with limited moisture resistance and thus less durable against exterior uses compared to imported phenol resin-bonded. Because of weak binding, locally-made plywood can only find uses in non-durable construction work while phenol resin-bonded plywood is being used in high paying uses like ship building and exterior construction.

In this regard, technological Innovation and advancement are required to promote the development of EWP industry in the country. Innovation can be technological or non-technological. The former is more adopted in developing countries than in the developed world. Technological innovation is channelled into an economy through three main conduits. First, it can be imported from abroad and adapted to local conditions. This is the most important form of technological absorption in the initial stages of industrialisation as where Tanzania is now. Second, it can be embodied in the form of foreign direct investment (FDI). Third, domestic research and development generates indigenous technologies. This is the most difficult but also potentially the most rewarding form of innovation and technology form that a country can engage in. This is despite its risky nature and the long-term time horizons involved in investing in new technologies or innovations.

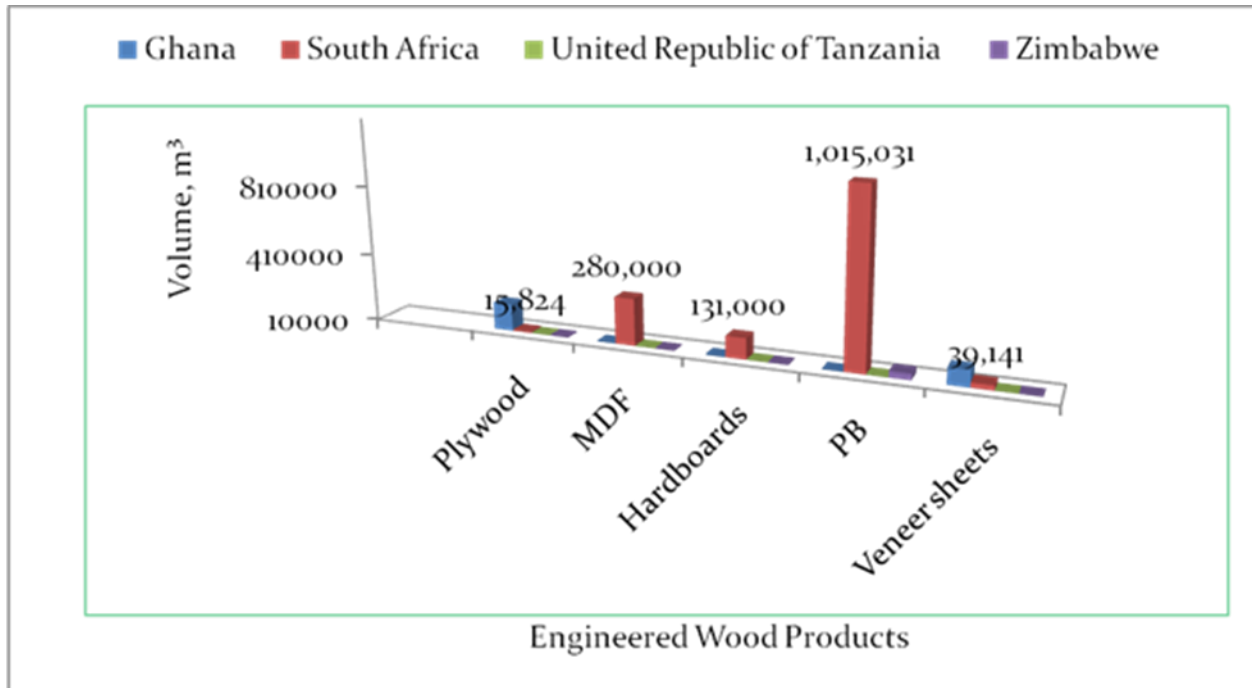
Currently, the EWP technology operating in the country has been imported mainly from China in the form of FDI. Domestically, Tanzania has not been in the position to develop any. Funding in research and development for many years has been a limiting factor. Adequate investment in forestry-related research and development could be the genesis of innovating new products or management approaches that can assist the country to move forward. Notwithstanding, Tanzanians have an opportunity to learn managerial and technical skills related to the imported technologies operating here from expatriates. Non-technological innovations such as developing new marketing networks, the development of new organisational practices or structures are even more important. Yet Tanzania hasn't been able to efficiently apply them. Incubation programmes could be helpful in this direction.

### 2.2.2. Low Production Volumes

From Figure 2, it is evident that EWP production volume in Tanzania is comparatively much lower than countries which are good performers in the EWP industry. Notably, other countries have also significantly diversified their EWP products, unlike Tanzania's low levels of product diversification. The main products currently produced in Tanzania include veneer sheets, plywood and marine boards. Minimum efforts and investment have been made towards development of other products such as MDF, particle boards and cross-laminated timber which have export potential, given quality assurance and strategic marketing. Narrow product diversity hinders the country from exploiting the full potential of the EWP value chain. Clearly, Tanzania is under-producing relative to other global producers, and despite of her already mentioned high potential as shown in figure 1 and 2.



**Figure 1: EWP Production Volumes in Tanzania, Asia-Pacific countries and Brazil (FAO, 2018)**



**Figure 2: EWP Production volumes in Tanzania and in some of the better performing Sub-Saharan countries (FAO, 2018)**

From Figures 1 and 2, it is obvious that there are countries that are doing better than Tanzania. However, with strategic interventions, Tanzania may become among the top producers of EWPs. Subsequent analysis will reveal factors that were behind the success of these countries.

### 2.2.3. EWP Industry Structure

Despite the blooming of EWP factories in the Southern highlands of Tanzania, the participation of Tanzania nationals is very low. The established factories are predominantly owned by foreigners while local investors who luckily engage into EWP industry mainly focus on establishing the engineered wood SMEs only with limited growth capacity. The existing situation is attributed by the start-up capital and technical knowhow as the main entry barriers to local investors.

The SMEs in the forest sector additionally experience weak human capacity, unreliable electricity supply, inadequate experience in market development, weak managerial acuity, low productivity and limited business culture. The domestic and regional EWP market can be serviced by cost efficient SMEs. Therefore, closer coordination and alignment of SME development policy with EWP framework is critical in the promotion of industrial development in Tanzania. To benefit more from the government and financial

institutions, SMEs may apply a Hub and Spoke model where a network of groups of enterprises, located in one geographic area, are engaged in the production of the same sort of or related products are connected (i.e. cluster processing). In 2018, the Private Forestry Programme (PFP) identified three potential clusters based on resources available in those areas: Mafinga, Njombe and Kilolo which could be considered for further development.

While it was observed that these areas were appropriate for cluster development, supportive infrastructure and guidelines are yet to be developed. A cluster is defined a cluster as *“a group of firms and institutions located in proximity whose businesses are interlinked through value and supply chains, labour, and use of similar inputs, technology, and complementary products. Companies locate close to each other because they have similar production interests and needs, and consequently depend on each other in achieving success as a group. Industry clusters are attractive to related companies because they create new business opportunities that would not be available if the companies operated in isolation.”* Cluster members can pool resources to access expensive equipment; purchase supplies in bulk, etc. The EWP industry is still fragmented thus failing to tap those benefits.

In addition, there is an absence of EWP industry support structure to provide support services to the engineered wood factories.

These are facilities that could prop up the development and operations of the EWP processing industry. They may include tool maintenance centres, research and development institutes, professional and trade associations. Such facilities provide services such as training and specialised advice while professional and industry associations are crucial in lobbying governments and representing strongly the interests of their industry sectors.

#### **2.2.4. Geographical and Product Diversification**

Tanzania is a large country with diverse agro-ecological zones; however, most of EWPs are concentrated in Southern highlands underpinned by the availability of raw materials. However, TFS and private sector have established plantation forests in Northern, Southern, Lake and south-western zones which in few years could be suitable for EWP production. On the Western and Southern Zones, natural forests are primarily converted in sawn timber. But they could also be used in “combi-ply” plywood whereby the core is made from materials of plantation origin while the face and the back are of natural forest origin. A *combi-ply* product has higher price than plywood produced in the country and much higher price than sawn timber. Therefore, it is worth considering production of such products from natural species with amazing texture.

#### **2.2.5. Technological Capacity**

The existing EWP firms in Tanzania, especially SMEs, use limited technology and poor production practices that have negative effects on the quality of EWPs and make them difficult to penetrate in the export market. For instance, the majority of the existing EWP factories air-dry their veneers instead of kiln machine to dry veneers that reduces the quality of the locally produced veneer and efficiency in terms of productivity. The so-produced veneers have also inconsistent moisture content distribution and higher thickness variation which subsequently impact on the quality of the end-products. This limits the competitiveness of the locally produced EWPs in the export market, while domestically they are used in non-durable construction activities.

#### **2.2.6. Integrated Processing Model**

There is a lack of industrial zones/clusters in the councils/municipalities with proper infrastructure to support the integrated processing which reduces the material and logistic costs. This, together with low technological capacity is resulting in increased processing waste and costs. It is evident that EWP value chain in Tanzania is missing the opportunities from integrating veneer with plywood production, structural and appearance timbers with finger jointed/glued boards (block board) as well as utilizing the processing residues and low quality logs for EWP, laminates as well as bio-energy. In addition, the industrial clusters/zones will enable the sharing of infrastructure, grouping complementary SMEs and hence efficiency in capacity development and, more efficient transport and logistics particularly on raw materials.

#### **2.2.7. Industrial Financing Schemes and Incentives**

Access to finance is one of the biggest challenges for the infant EWP industry. Establishment of EWP plant requires high initial capital to install the necessary equipment and facilities. There is no specific financing scheme for forest produce and wood products, leave aside EWP. Commercial banks are unlikely to give loans to business establishment in a relatively new EWP industry or to new entrants and small businesses. This increases risk perception for EWP firms and so even if they access loans, the interest charged may be high. This makes it challenging for tree growers, and EWP industries to grow, improve, modernise and diversify their production. Informal approaches such as village loan and saving schemes do not provide enough finance and are normally more expensive.

#### **2.2.8. Infrastructure**

Reliable infrastructure is of key importance to serve both the delivery of log resource to processors as well as the product to the market. The infrastructure to raw material base, processing and manufacturing plants and product markets must be accessible and continuously serviced. Poorly developed road infrastructure especially in most rural and

peri-urban areas imposes challenges on forest produce transportation. The dispersed nature of the raw material base and limited access to log resources outside of main trading routes makes it difficult and costly to move logs to processing sites. Unreliable power supply is preventing development of larger scale processing capacities and driving increased costs. Increased investment in strategic infrastructure, such as roads, railways and electricity is mandatory and must be prioritized and pursued by authorities. Some rural areas have no access to modern infrastructure (e.g internet, cellular networks, optical fibre, and social media) making it difficult to communicate within and outside the area. Cluster production model may be a better strategy to attract government investments in these areas to develop the necessary infrastructure.

### **2.2.9. Raw Material Demand and Supply**

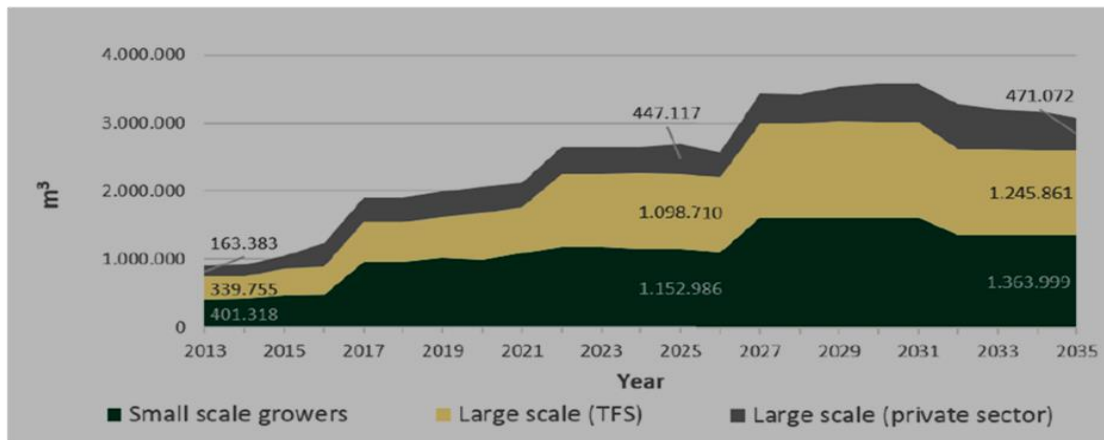
Tanzania covers an area of about 945,000 km<sup>2</sup> out of which 888,600 km<sup>2</sup> (94%) are categorised as land. According to the National Forestry Resources Monitoring and Assessment (NAFORMA) report, forest and woodlands cover about 48.1 million ha which are equivalent to 55% of the land area. The rest is covered by other land uses. Woodlands and forests are the main sources of wood raw materials for the primary forest-based industries in Tanzania. Out of 48.1 million ha, commercial forest plantations cover around 325,000+ hectares with key species being pine and eucalyptus. The wood raw materials for EWP production in Tanzania come from plantation forests although as already natural forests could also have a higher potential particularly when "**combi-ply**" plywood is manufactured.

Several studies have been conducted in Tanzania to establish patterns of wood supply and demand (e.g. Indufor 2011, MNRT/NAFORMA 2015, PFP 2016, PFP 2017, and UNIQUE 2017). Most of these studies focused in the Southern Highlands being the epicentre of both primary and secondary forest production. However, Tanzania is a large country composed of diverse agro-ecological zones, some of which are suitable for forest establishment and secondary processing. It is high time those areas are explored. For example, TFS has taken an initiative to establish one of the would-be largest forest plantations in Tanzania, i.e., the Biharamulo Forest Plantation which is being developed on the Biharamulo-Kahama Forest Reserve (FR) in Kagera region which has a total area of about 134,680 ha. However, the forest plantation will have 69,757 ha and so far, about 446 ha have been planted with *Pinus caribaea* in 2017. This plantation could be a wood supplier to EWP production centres established in the area, and export most of EWPs and other products to neighbouring countries. A purposeful plan may be needed on how resources being established in the Northwest and Southern of the country will be profitably used.

A study conducted by PFP (2017) indicated that in Southern Highlands, about 150,159 ha (73%), 36,182 ha(17%) and 20,573 (10%) are owned by small tree growers, the Government and large private companies, respectively. This makes a total of 206,914



ha mainly grown of pine spp (66%) and Eucalyptus (19%). Specifically, Tanzania Forest Services Agency, country-wide, has about 100,368 ha while large private companies and small tree growers in the Southern Highlands only have about 51,327 ha and 174,143 ha, respectively. In this case, public plantations were initially the major suppliers of wood raw materials but the forest private sector is currently a key player. It is projected that by 2030, almost half of the total demand for industrial roundwood will be sourced from woodlots (PFP, 2016). The same is observed by FDT (2016) as presented in Figure 4.



**Figure 4: Round wood equivalent supply forecast until 2035 from all plantations.** Source: FDT, 2016

Despite the potential of small tree growers (STGs) and large private forestry companies towards forest establishment, they do face a number of challenges which need to be addressed to get the expected results from them. These challenges include the following, but not limited to: -

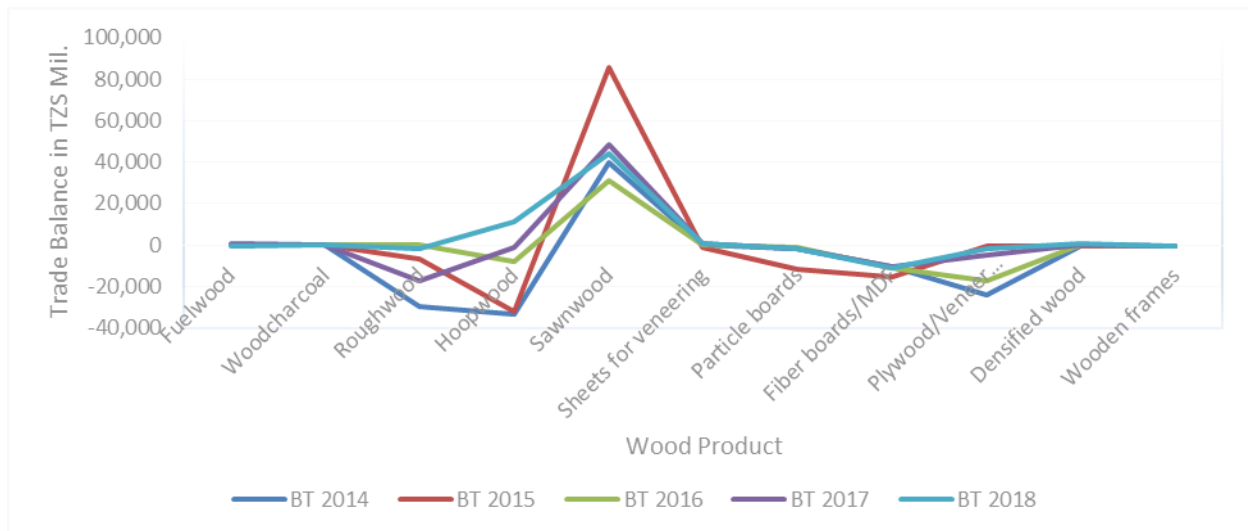
- i) STGs lack quality planting materials (i.e. good species with high growth rates) and good silvicultural practices and have inadequate management skills resulting to harvests below potentials thus achieving lower financial returns than expected;
- ii) Woodlots owned by STGs are of disperse nature with low stocking levels. This impacts negatively on efficient land use, aggregation and transportation of harvested trees;
- iii) Best practices are practiced by government extension, private out-grower scheme programs such as KVTC, FDT and PFP, however, such services have not reached all small tree growers and will take time to have an impact on the sector;
- iv) Information about the size, age and quality of plantations owned by the government and large private companies is widely known. However, details on age and quality of plantations owned by small and medium tree growers are still lacking. Equally, there is limited detailed data on growers and woodlot composition;

- v) Forest fire risk is one of the greatest threats to forest plantation development in Tanzania. Strategies need to be in place to ensure that future losses due to forest fires are minimized. There is no coordinated fire management plan in the country and the system for detecting and suppressing forest fires is grossly inadequate. The Municipal Fire Brigade charges TZS 2 million per plantation in order to be on standby in case of forest fires. This is considered expensive especially by small and medium scale tree planters;
- vi) Inadequate capital and/or short of access to finance and support establishment of plantation forest and development ;
- vii) The densities of primary and secondary roads are low in the Southern highlands, so are the tertiary roads that provide access to remote areas. Tertiary roads are typically in poor condition and impossible or very difficult to travel along during the rainy season;
- viii) Historically, Tanzania has suffered from serious pest outbreak, most notably resulting in the disappearance of cypress plantations. Evidence from other countries suggests a gradual spread of several pests and disease and it is expected to be a gradually increasing risk to Tanzania, especially given the potential effects of climate change which may alter the range of pests and diseases;
- ix) In addition, information on availability of land (i.e. quantity and location) and environmental data of the land (i.e. soil quality and climate data) for plantation development and to support planning and future investment is missing.

#### **2.2.10. Trade of EWPs**

Tanzania has been importing a big share of wood products from China, South Africa, India, United Arabs Emirates, Thailand, Kenya and Mozambique. In 2017, Tanzania imported wood in rough/transmission poles (the main imported wood product) from China and South Africa. Fibreboards (second imported wood product); and plywood and veneer panels (third imported) are imported from China, India, South Africa, Kenya, Thailand and United Arabs Emirates. Moreover, a great share of sawn wood imported was coming from Mozambique. The greatest share of exports (sawn wood) in 2017 was exported to China, India and Kenya. Others i.e. transmission poles, plywood, veneer sheets and panels were exported to Malawi, China, India and Kenya. Globally, the trend is a shift away from sawn timber and towards EWPs such as plywood, fibreboards and particleboard. While the demand trend for sawn timber in Tanzania is still positive, investors should consider diversifying production towards EWP to increase their resilience to market changes and exploit world markets to realise a positive trade balance.

The trade balance of wood products in the country has been improving overtime. Overall, the balance of trade has improved by TZS. 75 billion, from a deficit of TZS. 68.7 billion in 2014 to a surplus of almost TZS. 7 billion in 2017 (Fig. 8). This was mainly contributed by the dropping of imports by more than half from TZS.120 billion (2014) to TZS. 55 billion (2017). Exports, on the other hand increased from TZS 51.8 billion (2014) to 96 billion in 2015 (the highest in the period 2014-2017), followed by a stable trending afterward . Sawn wood has been recording a positive trade balance i.e. 39.7 billion (2014), 85.7 billion (2015), 31 billion in 2016 and 48.7 billion in 2017. Trade deficit was recorded on transmission poles (rough and hoop wood products) over the period. Moreover, except for veneer sheets which has positive trade balance, importation of other EWP products (particle boards, fiber boards/MDF and plywood/veneer panels) was higher compared to export during the period. The latter is against the policy whose objective is to increase foreign exchange earnings. Effort to strengthen and enhance EWP production in the country will lead to import substitution and thus save foreign exchange. On the other hand, EWPs have high export potential which is positive if well exploited.



**Figure 8: Annual balance of Trade in Tanzania by type of Wood Product from 2014-2018.** Source: Import and export data from TRA (2012-2017 and COMTRADE (2018)

On the other hand, the domestic demand for EWPs is small. A large share of EWPs produced is exported and the largest share of EWPs used in the country is imported. There is a potential to expand the domestic market of EWPs produced domestically. Construction activity and furniture production are the most important consumers. There is a general lack of knowledge in modern wood construction and the application of EWPs in the construction sector in Tanzania. Generally, EWPs domestic market developed around the world were sustained by government policies, programs and incentives (for example “Wood First” policies in councils or national public building

projects). In Tanzania, the National Housing Corporation (NHC), Watumishi Housing Company (WHC) and the Tanzania Building Agency (TBA) develop housing and large-scale public building projects (e.g. schools, universities, ministry buildings). These together with private construction companies could set a stage for domestic market of EWPs.

Regarding the production of quality EWPs, standards, quality assurance, accreditation and metrology (SQAM) infrastructure is critical in enhancing manufacturing capabilities and international competitiveness. Access to higher value markets has to be supported by strong R & D, investment, certification/legal verification and marketing efforts. Currently, marine plywood produced in Tanzania has inferior technical properties than the internationally recognised marine plywood. Accordingly, they cannot access the regional and international markets. Similarly, block boards currently produced in Tanzania are not comparable with the commonly traded block boards globally, due to a different composition and lower quality. Furthermore, there are few TBS standards for EWPs available as shown in Box 1 and somehow old to meet the current demands, although TBS has already initiated a process to update by customizing them to ISO standards.

**Box 1: List of TBS EWP Standards**

- TZS 1944: Wood-based panels — Fibreboard, particleboard and oriented strand board (OSB) — Vocabulary**
- TZS 1945: Wood-based panels — Dry-process fibreboard**
- TZS 1946: Wood-based panels — Particleboard**
- TZS 1947-1: Wood-based panels — Wet-process fibreboard — Part 1: Classifications**
- TZS 1947-2: Wood-based panels — Wet-process fibreboard — Part 2: Requirements**

### **2.3. Institutional and Human Resource Capacity**

Many countries in the Sub-Saharan Africa (SSA) lack workforce with managerial and technical skills required to support a modern industrial economy. Majority of the workers in the industry have acquired their knowledge through experience instead of formal training. There are capacity gaps in the current workforce especially in new value chains such as EWPs. Most of the EWP factories are owned by foreigners who perform almost all technical work while the locals perform mainly manual activities. Skills development and training is key requirement for a sustainable evolution of Tanzania's wood processing sector.

In addressing skills gap, the Sokoine University of Agriculture (SUA) offers tertiary professional forestry education while the Forest Training Institute-Olmotonyi, and the Forest Industry Training Institute (FITI) offer technical forestry programmes at different

levels (Certificate and Diploma) to build the bulk of required professional and technical personnel capacity in the sector, respectively. The link between Industry and, training and research institutions is however weak and needs to be strengthened so that solutions to problems facing the forest sector can be addressed adequately.

Ministry of Natural Resource and Tourism (MNRT) has invested substantially in a wood science laboratory at FITI (Figure 11). When it will be well fitted with the necessary equipment; it will be possible to conduct researches and test properties of different wood and wood products. Forest Industries Training Institute could be turned into a centre of excellence Special programmes such as apprenticeship, work-and-study programs and exchange programs could be possible to get people with good technical skills.



**Figure 11: Wood laboratory at FITI, Moshi Kilimanjaro region**

Moreover, increasing Tanzania's competitiveness in EWPs requires investing in Research and Development for EWPs. This includes research on diversification of species that would produce different products; research on high-quality seeds/planting material to increase plantation productivity and quality; research on value addition and product diversification and quality improvement; pest and disease research; marketing research; etc. The Tanzania Forestry Research Institute (TAFORI) is mandated to carry out enquiries, experiments and research and to collect or facilitate the collection of information for the purpose of promoting forestry and teaching of forestry, among others. However, the Institute suffers from limited funding to meet its objectives and inadequate human resources to sufficiently cover all ecological zones in the country.

Also, most of the research carried out is traditional forest research with limited R&D targeting industrial development. However, besides research carried out by TAFORI, there is collaborative R&D work on tree improvement started by Forestry and Beekeeping Division (FBD) of MNRT and the Forest Development Trust (FDT) since 2013. This has led to establishments of a Public-Private Tree Improvement Research Working Group; a Tree Improvement Strategy for the Southern Highlands; species trials with public and private partners; and some breeding populations and clonal seed orchards of Eucalyptus and Pines.

These are encouraging efforts that need to be scaled-up particularly through institutionalization in the Public research institutions research agenda. Yet, there is still a need to generate R&D agenda that is relevant to national needs; and that is development driven through collaboration with the forest industry/private sector for the entire EWP value chain. This requires incentives that will encourage individuals, institutions, companies, etc. to invest in R&D. This should involve the EWP industry and private sector stakeholders in deciding the scope of research programs which should address practical problems faced by the forestry sector and the EWP sub-sector. Also, the output from the forestry research institutions should disseminate research information which is relevant and usable by stakeholders.

### **2.3.1. Ministries and Regulatory Bodies Capacity**

Tanzania is one of the countries which have a relatively comprehensive institutional and legal framework governing forest sector. However, there is lack of adequate financial and human capacity by main responsible ministries (MNRT and PO-RALG) to enforce the regulation. This leads to inadequate implementation at all levels. Officials in other institutions which are also enforcing the forest regulations such as Customs are not exposed to technical terms necessary to authenticate documentations related to forest produce. There is also lacking enough capacity by the Occupational Safety and Health Authority to ensure that occupational, health and safety rules related to EWP industries are complied. To be competitive, Tanzania will need to commit adequate funds to enable enforcement of forest regulations. Equally, substantial funds are required to support related institutions.

in additional, the main challenge faced in governance is inadequate coordination among key actors who govern the forest sector . For instance, Departments and LGAs tend to report to their line ministries and horizontal collaboration across ministries is inadequate. Laws and policies on forest resources require the TFS, police and judiciary to administer and enforce them. TRA collects all the dues on forest products and brings to book the non-compliant in accordance with relevant laws. There is limited coordination between these four and accordingly many of the illegal activities persist. The actions of private sector organizations and the development partners are also uncoordinated each coming with their vested interests making it difficult for the government to support their needs and demands.

Industrial associations also play an important role in lobbying governments and participating in policy development processes on behalf of their members. They are also important in transferring new innovations and technologies to their industry sectors. Often relationships with overseas counterparts provide useful market access and product and market intelligence information for their members. In Tanzania, the private sector in forestry is still not well organized and lacks sector-wide strong governance structures to promote internal dialogue and sector representation.

Few forestry associations are in place including the Tanzania Forest Industries Federation also known as SHIVIMITA in Kiswahili, the Tanzania Wood Working Federation (TAWOFE), African Forestry (AF), Tanzania Tree Growers Associations Union (TTGAU), etc. Besides that, there is an advanced motive to form an apex body of associations, i.e., the Tanzania Private Forestry Council. The mission of the Council is to serve the interests of all commercial forestry actors in a manner that will enhance the long-term profitability of their activities and will promote the development of commercial forestry in Tanzania. A steering committee is in place to spearhead the process. It is wishful that producers of EWPs also form their association which could be part of the Council. One of the biggest challenges these organisations face is shortage of human and resource capacity. Lobbying and advocacy skills are scarce, shortage unity of purpose amongst members and failure to mobilise resources to support their operations, are among the challenges they face.

Regarding public-private dialogues, Tanzania Business Council Forest Working Group (TNBC FWG) that was formed in 2005 brings together public and private actors working on forestry issues including forest law enforcement, governance and trade. Various development partners including, governmental, inter-governmental and non-governmental organisations have been supporting the forestry sector in Tanzania in various ways such as funding research, providing technical support and knowledge exchange and opening markets. the Tanzania National Business Council Forest Working Group (TNBC FWG) was formed with equal representation of public and private sector members in order to facilitate public-private-dialogues (PPDs) on various forestry issues including EWPs.

The Tanzania National Business Council Forestry Working Group is acknowledging great potentials of EWPs in promoting both rural and urban industrialization; creation of decent employment to many Tanzanians; contribution to gross domestic product (GDP); and increasing export earnings. The Tanzania National Business Council Forestry Working Group is in forefront catalysing the development of this important industry. For this to be actualized strong coordination with and within the private sector is needed. However, in Tanzania, the private sector in forestry is not well organized and lacks strong sector-wide governance structures to promote internal dialogue and sector representation. The private forest sector is at its relative infancy and needs to be nurtured to become stronger and better organized for it to significantly contribute to the

national economy. In this regard, with the support of the government and development partners, the sector needs to develop structures and systems that take into consideration the diversity of actors, including small enterprises operating informally.

## **2.4. Cross-Cutting Issues**

### **2.4.1. Environment**

Well planned and sustainable tree planting and harvesting can be good to the environment. It is therefore important to raise awareness and understanding of the essential linkages between environment and development and promote individual and EWP community participation in environmental action. Additionally, promotion of environmentally sound technologies, that is, technologies which protect the environment; less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products and handle residues in a more acceptable way should be prioritized. The economies of many SADC countries are mainly resource-based. Therefore, a call is made to countries in the region, Tanzania inclusive, to adhere to the principle of sustainable development in the exploitation of resources and ensure appropriate governance and institutional frameworks as well as corporate social responsibility. EWP production processes are known for being resource efficient, re-use of byproducts and therefore are not only environmentally friendly but also are aligned with the principle of sustainable management.

### **2.4.2. Gender, Youth and People with Disability**

Gender inequalities are in almost all economic activities with women either being involved in lower proportions or concentrated in low paying activities with low representation in higher paying activities within the industry. In the forest sector, women are mainly working in early stages of forestry value chains such as nursery activities, tree planting, weeding and pruning. Activities such as harvesting, loading, off-loading and industrial activities such as wood product machine operations and maintenance and marketing are considered as men's jobs. Majority of females engage in preparing and sell food at mill sites, though some do carry sawn timber from operating sites to forest roads. This situation provides women with limited opportunities to generate income out of the forest sector. The youth on the other hand play a significant role in the whole of EWP value chain. Gender and youths' involvement in all EWP related interventions should be mainstreamed.

### **2.4.3 HIV and AIDS**

The nature of activities involved in EWP industry necessitates movement and interaction of people, particularly transporters and traders, in both domestic and cross-border trade. As such, they are potentially at high risk of acquiring HIV and AIDS if they are not adequately sensitized. HIV and AIDS will have severe social and economic



effects on EWP industry and forest sector development in general as it erodes the productivity of the working groups. HIV and AIDS awareness on its transmission, prevention measures and methods to avoid infections need to be addressed to the forestry stakeholders by the responsible institutions. The heavy impacts from the recent pandemic disease, i.e. COVID-19 including expected economic recession after, it cannot be ignored but factored in the EWP development framework.

## CHAPTER THREE

### NATIONAL EWP DEVELOPMENT FRAMEWORK

#### 3.0. Introduction

The challenges, gaps and opportunities that were revealed during the situational analysis are the basis for the identification of the strategic objectives and targets that are spelt out in this 2021 to 2030 Engineered Wood Product Development Framework.

#### 3.1. Rationale of Developing the Framework

Robust and sustained economic growth of Tanzania, among others, requires effective and efficient management of forest resources and promotion of Engineered Wood Products (EWPs) as part of the commercial forest industry sub-sector. The industry is expected to promote rural and urban industrialization, direct and indirect employment, and, inclusive economic growth which is the cornerstone of any economic transformation agenda.

The real situation in the field is however quite different despite the high demand for EWPs in the domestic, regional and international markets. Tanzania commercial forestry sector has for many years been dependent on limited wood products/processing value chains, limiting micro and macro-economic gains that would have been achieved with diversified value chains including EWPs. Sawn timber for construction and utility poles have been the main value chains despite huge domestic, regional and international market opportunities for other value chains especially EWPs e.g. veneer/plywood.

In addressing such mentioned issues, the government of Tanzania took various initiatives to promote the growth of engineered wood-processing subsector. These initiatives included but not limited to, the introduction of the National Forest Policy of 1998 which recognises the need for developing wood processing industries, promotion of investment by the private sector in the engineered wood subsector and strengthening of the public-private dialogues on the growth of Tanzania engineered wood industry. The initiatives paid off whereby Tanzania was able to attract an investment in the engineered wood processing and to date there are 24 engineered wood processing firms, mainly foreign-owned, concentrated in the Southern Highlands particularly Mufindi District.

While celebrating the initial achievements in the engineered wood processing subsector, more has to be done in order to enable the subsector to significantly contribute to the economy. Currently, the subsector is dominated by foreign nationals with limited engagement of local investors and limited backward linkages between FDIs and local SMEs. Local investors particularly SMEs experience several structural challenges including low technological and financial capacity; lack of competitiveness in the export market regulatory burden including licenses and permits and uncoordinated administrative, supportive and effective marketing strategies especially for the domestic market. Generally, the engineered wood subsector has been experiencing shortage of quality raw materials and skilled human resources in the engineered wood processing. Despite the aforementioned challenges, there is limited focus of the existing policy framework on how the engineered wood subsector can be developed.

The National Forestry Policy has clearly stated the need for promoting industrial transformation and product development in the commercial forestry sector. However, there is no National Strategic Framework that explains how the engineered wood subsector can be developed and sustainably grow. In addition, absence of the National Framework makes difficulty to strategically implement, coordinate, monitor and evaluate the national efforts towards the development of engineered wood subsector. Due to the aforementioned gaps in the National Policy Framework, it is then known **‘what is to be done’** and **‘why it should be done’** with scanty knowledge on **‘how it should be done’** and **‘by whom should it be done’** to promote the development and growth of Tanzania engineered wood processing subsector.

Based on the aforesaid facts, the Ministry of Natural Resources and Tourism (MNRT) in collaboration with the Tanzania National Business Council (TNBC) Forest Working Group (FWG) decided to develop the National Engineered Wood Development Framework. The EWP Development Framework is being prepared in order to provide implementation guidance on how Engineered Wood Products (EWP) sector activities can be developed and promoted.

### **3.2. Vision**

To become a vibrant commercial forest sector that contributes significantly to economic growth, employment creation and wellbeing of the people.

### **3.3. Mission**

To provide sustainable and inclusive economic and environmental benefits to the society through EWP industrial transformation and enhanced competitiveness in domestic and export markets

### 3.4. Objectives of the Framework

Engineered Wood Products Framework strategic objective is to initiate concrete programmes/actions that are aimed at enabling Tanzania to become and remain a strong and competitive producer and trading nation of EWPs. Engineered Wood Products Development Framework Strategic Objectives are as follows:

- a) To unleash the potential of EWP value chain contribution to the economy including increasing employment and foreign exchange earnings.
- b) Promote a competitive, inclusive, and sustainable engineered wood industrial development and trade.
- c) Enhance national institutional and human resource capacity to manage and develop the engineered wood sector in collaboration with other stakeholders to meet national and international standards.
- d) Ensure adequate and sustainable supply of quality raw materials for EWP sector, and
- e) Integrate cross cutting issues in engineered wood products development agenda.

### 3.5. Framework Objectives, Strategic Directions and Interventions

**Objective 1:** To unleash the potential of EWP value chain contribution to the economy including increasing employment and foreign exchange earnings.

**Strategic Direction 1:** Enhance and Promote Engineered Wood Investments in the Forest Sector

The long-term focus of the forestry sector should not only be on the production of the primary wood products such as timber but also on the production of secondary processed wood products like EWPs. The latter products provide high value products compared to the former. The concept sounds the same as in agricultural cash crops because if a business is focused on primary products, farmers will get quick returns but relatively low returns. Products that move into value addition corridors unavoidably acquire high returns because of their enhanced quality. In this regard, it is important to improve business environment in order to promote and attract engineered wood investments. It is important to look at, but not limited to, the tax structure, number of permits and licenses, fees associated with certification and licenses and investment in strategic physical infrastructure such as roads and electricity.

**Intervention 1:** Create a Favourable Business Enabling Environment for Promoting a Sustainable EWP Industry

The following issues should be done to create the favourable business enabling environment for promoting sustainable wood industry: -

- i. The Government must have long-term policy and strategic commitment to the promotion of EWP industry;
- ii. The Government has to provide fiscal and non-fiscal incentives for EWP investments;
- iii. Review legal and regulatory framework which govern the EWP industry;
- iv. Promote harmonisation of licences and permits for fast-tracking EWP investments;

### **Intervention 2: Promote Infrastructure Development for EWP Industry**

The following issues should be done to for promoting infrastructure development for EWP industry: -

- i. Improve transport infrastructure for easy accessibility of raw materials from the plantations and woodlots;
- ii. Ensure reliable supply of electricity and other utilities for EWP investments;
- iii. Develop ICT infrastructure for e-business promotion in the EWP sector.

### **Strategic Direction 2: Support Emergence and Development Local SMEs**

Encouraging investment and participation of local SME's in EWP manufacturing have significant macro-economic benefits. SME's offer employment opportunities, promote technology transfer and increase government revenue. Targeted efforts such as guarantee schemes to support access to finance, establishment of EWP supporting industries, skills development for technology and management of operations, promote partnership models with foreign investors, equity in allocation of raw materials. Supporting SME's will enhance the realization of opportunities and capacities to invest.

### **Interventions**

- i. Provide accessible and affordable financial and insurance services at affordable rates;
- ii. Facilitate establishment of EWP supporting industries or structures;
- iii. Ensure accessibility to low-cost quality raw materials and other inputs;
- iv. Facilitate an access to new knowledge and technology to increase production and productivity;
- v. Provide access to managerial and technical skills for the workforce in a cost effective and efficient manner;
- vi. Facilitate locals SMEs to partner with foreign companies thus benefit from their market networks, capital and technical knowhow;
- vii. Establish SME development plan or framework;

- viii. Support the development of the furniture industry as one of the major consumers of EWPs;
- ix. Support spatial distribution of SMEs to other potential forest areas in the Lake, Southern, Northern and South Western zones.

**Objective 2:** Promote a competitive, Inclusive, and Sustainable Engineered Wood Industrial Development and Trade

**Strategic Direction 1:** Capital Accessibility

The government intends to continue having policies in place that entice financial institutions to provide loans to local entrepreneurs of the wood industry. Access to investment finance in wood processing is among the major limitation for local processors venturing in EWP.

- I. Establish a Guarantee Schemes to provide financial support to EWP Investors;
- II. Provide monetary incentives for micro-financing institutions and other lending institutions for EWP investment financing;
- III. Establish engineered wood technology financing schemes through vocational and technical institutions;
- IV. Promote public-private partnership arrangements in engineered wood investments;
- V. Facilitate joint venture arrangements among small and medium local investors in the engineered wood sector.

**Strategic Direction 2: Promote EWPs Quality Improvement**

The country should thrive to ensure the quality of domestic products is high enough to compete with imported products through development of EWP quality standards. Tanzania Bureau of Standards (TBS) and other responsible institutions need to be equipped with the required resources and skills so as they can set and enforce quality and standards specific for EWPs.

**Interventions**

- I. Review and update the existing EWP quality standards;
- II. Ensure certification of raw materials for EWP industry;
- III. Establish EWP Quality Assurance Centres in EWP investment areas;
- IV. Develop conducive quality assurance and control mechanisms for small and medium engineered wood investments.

### **Strategic Direction 3: Promote Processing Integration through Industrial Clusters**

Promote industrial clusters to facilitate processing integration practices in wood processing to ensure efficient utilization of wood resources. In this case, products and residues from one wood product are efficiently used as raw material for other wood products. Investment in infrastructure such as roads, electricity, and communication will encourage establishment of the industrial clusters.

#### **Interventions**

- i. Identify strategic locations for industrial clusters;
- ii. Provide relevant infrastructure such as road network, water, communication and power within the industrial clusters;
- iii. Provide other support infrastructure and services such as storage facilities, maintenance workshops, spare parts outlets and logistics centres;
- iv. Establish adequate forest resources within reachable distances;
- v. Establish processing cluster–networks of primary and secondary wood processors in Mafinga, Njombe and, Kilolo based on a clear set of rules, quality control measures and contractual terms;
- vi. Provide business development and incubation services to cluster members.

### **Strategic Direction 4: Invest in Comprehensive Research and Development**

Investment in continuous research and development capacity is critical for development and sustainability of EWP value chain through undertaking demand-driven researches on species for planting materials, wood properties utilization options, product design and development, production and management systems, use of ICT, etc.

#### **Interventions**

- I. Promote R&D on engineered wood technological advancement;
- II. Strengthen research capacity on short-rotation cycle and high yield tree species;
- III. Promote market research for EWP market development;
- IV. Promote action research on the possible utilisation of lesser-used tree species for EWP development;
- V. Establish EWP research agenda to coordinate and guide research activities for engineered wood sector development.

### **Strategic Direction 5: Promote Marketing for Local Engineered Wood Products**

It is important to strategically promote marketing for Tanzania EWP's in the domestic, regional, and global markets to enhance uptake of the products and increase volume of

sales by local manufacturers. Among others, encouraging the use of domestically produced EWPs, branding, participation in both domestic and international trade fairs showcasing competitive wood/EWP products is of great importance. Also the use of diplomatic and trade missions overseas and the effective use of Free Trade Agreements such as GSP and GATT and other regional agreements may provide great opportunities for the locally produced EWPs.

### **Interventions**

- i. Review of public procurement laws and regulations to allow encourage the purchase of locally produced EWPs;
- ii. Establish Municipal or Councils' Market Information Centres for EWPs marketing;
- iii. Strengthen the national capacity to collect, analyse and disseminate regional and international market information for EWPs;
- iv. Efficiently and effectively utilise EWP market opportunities arising from regional and international cooperation or integrations;
- v. Develop the National EWP Marketing Strategy and Branding;
- vi. Establish EWP Market Information System for tracking EWP market information nationally, regionally and internationally.

**Objective 3:** Enhance National Institutional and Human Resource Capacity To Manage and Develop the Engineered Wood Sector

### **Strategic Direction 1: Strengthen Capacity for Skills Development**

It is important investment in strengthening capacity for skills development through equipping forestry training institutions such as FITI and SUA by improving curriculum and equipping them with appropriate machineries for practical trainings, and promoting exchange programs and practical attachments of students with the existing factories. Provision of adequate numbers of graduates in vocational and technical fields such as science and engineering and strengthen the integration between vocational and technical institutions and industries is important.

### **Interventions**

- i. Strengthen FITI and SUA training facilities including laboratories to provide the well needed trained personnel at the artisanal, engineering and managerial levels;
- ii. Review curricula to suite demand of the engineered wood industry;
- iii. Mainstream engineered wood industry and trade in business higher learning education;
- iv. Introduce apprenticeships/attachment and incubation programmes to train EWP traders and technicians;



- v. Introduce exchange programme for capacity building in the country on lacking EWP capacities
- vi. Establish a Centre of Excellence for engineered wood sector development;
- vii. Launch a link between the engineered wood industry and, training and research institutions.

**Objective 4:** Ensure Adequate and Sustainable Supply of Quality Raw Materials for EWP Sector

**Strategic Direction 1:** Enhance the Sustainable Supply of Quality Engineered Wood Industry Raw Materials through Effective and Efficient Forest Land Management

It is important to have adequate raw materials to support the industry and strictly enforce the sustainable use of the available forest resources otherwise unsustainable use and management of forest resources may have a negative effect on the environment and finally lead to the collapse of the local wood industry. In this regard, there must be a strategic policy framework that ensures tree farmers are encouraged to plant trees by ensuring that they get a fair price when they sell their trees or logs and while at the same time, they sustainably manage the forest resources. Further, tree farmers should be supported to adopt recommended silvicultural practices, species selection and appropriate forestry management.

- i. Develop silvicultural practices, species selection and appropriate forestry management plans to support the development of a sustainable small plantation holders' sector.
- ii. Promote public-private partnership in tree planting through lease and concession arrangements;
- iii. Develop a database on available forest land in terms of quantity and location, suitability and its environmental conditions including soil quality and climate data
- iv. Continuously evaluate quantity and quality of industrial raw material available on farms and in public forests in accordance with the technical order;
- v. Conduct periodic assessment on raw material supply against the national demand for wood products;
- vi. Continuously invest in state-owned, private-owned and community-owned forest plantations/woodlots;
- vii. Encourage participatory forest management (PFM) to ensure sustainable management of general public and village land and, tree planting;
- viii. Reduce pests and diseases occurrences in forest plantations and woodlots;

- ix. Reduce plantation and woodlots wildfire incidences
- x. Ensure small tree growers (STGs) accessing quality extension services;
- xi. Establish germplasm supply centres and tree seed orchards to ensure easy accessibility of quality seeds.

## **Objective 5. Integrate cross cutting issues in engineered wood products development agenda**

### **Strategic Direction1: Ensure Ethical Business Practices**

The development and growth of Tanzania engineered wood industry will have a significant impact to the national fiscal revenues both foreign and domestic and, employment if both the public and private stakeholders comply to ethical practices. In this case, it is of great interest to strengthen institutional capacity to ensure that the sector produces the intended outcomes.

#### **Interventions**

- i. Strengthen the private sector self-regulation capacity to ensure an existence of responsible and disciplined private sector;
- ii. Strengthen the coordination of the private sector by establishing the National Forest Private Sector Council.

### **Strategic Direction 2: Promote Inclusiveness in the EWP Sector**

#### **Gender, Youths and People with Disability**

The EWP sector must have social and economic positive impact on the livelihood of the local community. Among others, this will be achieved when the wider Tanzanian population takes part and effectively participates in the EWP sector. The framework will set up mechanisms to enable local wood processors diversify and venture in EWP processing. If the local EWP businesses continue to remain small and marginal players in the domestic and export market, the EWP sector will not significantly benefit the local population. In addition, the forex leakages will be a daily reality in the sector and there will be little impact on the country's foreign reserves. Based on this fact, it is important to promote inclusiveness in the EWP sector.

#### **Interventions**

- I. Promote the participation of women, youths and people with disability in the engineered wood industry;

- II. Promote local content compliance in the engineered wood sector.

### **HIV/AIDS**

Mainstreaming of HIV/AIDS awareness programs enhance the sustainability and productivity of the sector by reducing the impacts of HIV/AIDS and stigma among the engineered wood sector workforce and the surrounding communities. Engineered wood sector activities may be associated with various social relations and urbanisation, which may contribute to the spread of HIV/AIDS among the local communities. Furthermore, it is of great importance to address all sorts of stigma to the people who are living with HIV/AIDS in the forest sector and surrounding communities in order to curb discrimination and promote inclusiveness in the sector.

### **Interventions**

- I. Support engineered wood sector workforce living with HIV/AIDS;
- II. Conduct HIV/AIDS prevention programmes in the engineered wood sector.

## **3.6. Log Frame for the Framework**

The Log Frame (Table 5) explains the logical process for the development of EWP investments and trade in Tanzania. It consists of the objective of the Framework; priority actions; targets; expected results; indicators; required budget; timeframe; means of verification and responsible institutions. The Log Frame has been informed by the issues raised in Chapter Two of this Framework which is the situational analysis.

OBJECTIVES	STRATEGIC DIRECTION	PRIORITY ACTIONS	EXPECTED RESULTS	INDICATORS	RESOURCE TZS (*1 million)	TIME FRAME	MEANS OF VERIFICATION	RESPONSIBLE INSTITUTIONS
<b>Objective 1.</b> <b>To unleash the potential of EWP value chain contribution to the economy including increasing employment and foreign exchange earnings.</b>	Make forest Industry a priority industry, EWP inclusive	Review national documents	Increased EWP contribution to GDP and employment creation	Value of EWP contribution to GDP, Number of employments created, Value of EWP exported	200	2022	5-year development plan documents; Industrial strategy document	MNRT and Ministry of Industry and Trade, Private Sector, Ministry of Finance and Planning, TIC
	Enhance Capital Accessibility	Establish credit guarantee schemes for SMEs growth in the EWP sector by June, 2022	Increased investment for SMEs in the EWP processing value chain	the Number and Value of credit extended to SMEs	6,000	June, 2022	Government notice, Access to finance survey reports	Ministry of Industry and Trade, Ministry of Finance and Planning, MNRT, TADB, TIB, FSDT, BoT, Private Sector
		Develop credit window for Forestry SMEs within TADB/TIB	Enhanced access to low cost finance	Number and Value of credit extended to SMEs	<b>5,000</b>	From 2022, Annually	Access to finance survey reports	Ministry of Finance and Planning, MNRT, TADB, TIB, FSDT, BoT, Private Sector
	Enhance and Promote Value Addition in Forestry Products	Promote development of furniture industry	Increased market for locally produced EWPs	Volume and type of EWPs that is consumed by the furniture industry	<b>1,500</b>	Annually	Traded Volumes Survey Reports	MNRT, Ministry of Industries and Trade, NGO's
		Promote Processing Integration through Industrial Clusters	Increased competitiveness in EWP Value Chain	Production Cost per unit in the established industrial clusters	<b>2,000</b>	August, 2025	Competitiveness assessment report	MNRT, Ministry of Industry of Trade, PO-RALG, Private Sector
		Promote uptake of technologies and	Increased efficiency in wood	Resource utilization	<b>800</b>	October, 2023	Industrial Survey	MNRT, Private Sector

		utilization of residues from primary wood processing	utilization	recovery rate			Report		
		Develop incentives to encourage value addition	Increased investment in value addition	Number of new investments and products in value addition	500	June, 2023	Industrial Survey Report	MNRT, Sector	Private
Support Emergency and Development of Local SMEs		Facilitate establishment of support industries	Increased productivity in EWP processing	Production rate (Volume per time/shift)	<b>1,200</b>	June, 2023	Industrial Survey Report	MNRT, Sector	Private
		Facilitate linkage between SMEs and, training and research institutions	Increase in demand driven research and capacity building initiatives	Number of research initiatives undertaken in collaboration between training and research institutions	<b>1,300</b>	November, 2022	Memoranda of understanding, Research Publications, Research Output Uptake Surveys	MNRT, Sector, University of Agriculture, TAFORI, FITI, FTI, NGOs	Private Sokoine
		Establish Centre of Excellence for EWP catalyzation and development	Enhanced uptake of EWP and related technologies	The Centre of Excellence established	<b>1,100</b>	February, 2025	Progress Reports	MNRT, Sector, Development Partners	Private
		Provide necessary managerial and technical skills for EWP processing to SMEs	Increased productivity in EWP processing	Production rate (Volume per time/shift)	<b>750</b>	December, 2022	Industrial Survey Report	MNRT, Sector	Private
		Develop strategies for supporting local investors to participate in the investment and development of EWP value chain	Increased participation of local investors in the formal engineered wood business	Number of local enterprises participating in EWP	250	June, 2025	EWP industries survey report	MNRT and Ministry of Industry and Trade, PO-RALG, Private Sector, Ministry of Finance and Planning, TIC	

<b>Subtotal 1</b>	<b>Potential of EWP and Contribution to the Economy</b>				<b>20,600</b>			
<b>Objective 2: Promote a competitiveness, Inclusive, and sustainable Engineered Wood Industrial development and trade</b>	Promote sustainable EWP investments	Ensure environmental management practices incorporated in EWP processing	Clean and safer environment	Number of EWP factories with clean technologies and practices	950	March, 2022	NEMC certificates and Environmental assessment reports	VPO, NEMC, MNRT, Ministry of Industries and Trade, Private Sector
		Establish EWP code of conduct	Increased use of good practices in EWP processing	Number of EWP industry complying to EWP code of conduct	350	July, 2022	code of conduct compliance assessment reports	MNRT, Ministry of Industries and Trade, Private Sector, Ministry of Labour
		Increase Productivity and Efficiency for profit making	Increased EWP business profit margins	Percentage of EWP businesses making profit	450	Annually	Production and Financial reports	Ministry of Industries and Trade, TRA, Private Sector
		Ensure Occupational safety and health measures and regulations compliance in EWP processing	Improved workers health and Reduced number of industrial accidents	Number and level of EWP industries complying to OHS regulations	600	Annually	OSHA Annual Reports	Ministry of Industries and Trade, OSHA,
		Ensure EWP industries engage in corporate social responsibility (CSR) initiatives	Improved relationships between EWP industries and communities	Number, type, and value of investment in CSR projects	300	Annually	CSR reports	PO-RALG, Private sector
		Develop EWP quality standards and certification procedures which comply with ISO	Enhanced competitiveness and sustainability of Tanzania EWP sector through	Number of available and updated standards for EWPs	650	June, 2024	Wood Products Standards Report, Standards	Ministry of Industry and Trade, Tanzania Bureau of Standards (TBS), MNRT

	Promote EWP Quality Improvement		quality improvement of local products				certificates	
		Train adequate EWP Graders to facilitate product grading	Enhanced EWP standards compliance	Percentage of products complying to EWP standards	550	June, 2025	Wood Products Standards Report, Standards certificates	Ministry of Industry and Trade, Tanzania Bureau of Standards (TBS), MNRT, Private Sector
		Facilitate establishment of private accredited certification bodies to facilitate operationalization and enforcement of standards	Increased access to high value markets (esp. export markets) products/factories in Tanzania	Volume and Value of EWP product exports	100	2025	Wood Products Standards Report, Standards certificates	Ministry of Industry and Trade, Tanzania Bureau of Standards (TBS), MNRT, Private Sector
		Incorporate EWPs in the national building codes	Increased acceptability of EWPs in the local building industry	Volume and value of EWPs consumed locally by the construction	500	March, 2025	National Building Code Publications	TBS, Ministry of Works Transports and Communication, National Construction Council, ERB, CRB, AQRB, Private
	Promote Processing Integration through industrial clusters	Develop infrastructure in the allocated industrial sites	Improved access to raw material resource and markets	Logistics costs (for inbound and outbound)	3,500	July, 2027	Investors in cluster survey report	PO-RALG, MNRT, Ministry of Industry and Trade, SIDO, Private Sector
		Allocate land to set up processing clusters	Improved availability of land for EWP processing investment	Number and size of allocated cluster land	1,150	August, 2023	LGA reports	PO-RALG, MNRT, Ministry of Industry and Trade, SIDO
		Facilitate support structures	Increased productivity in	Production rate (Volume per		February, 2023	Industrial Survey	SIDO, PO-RALG,

	(workshops, fuel supply, establishment etc.)	EWP processing	time/shift)			Report	
	Develop investment guidelines, checklists, and regulations in the allocated processing clusters	Increased compliance to regulations and investments in EWP	The number of EWP firms comply with the investment guidelines, checklists and regulations	500	June,2021, Annually	Guidelines, Checklists and Regulations Publications, Industrial Survey report	TIC, MNRT, Ministry of Industries and Trade, TRA, TFS
	Promote product diversification to absorb economic shocks	Increased EWP investment resilience to shocks	Number of marketable EWP products	800	Annually	EWP industry survey	MNRT, private sector,
	Support establishment of SMEs to other potential forest areas in the Lake, Southern, Northern and South Western zones	Increased employment and EWP production	Number of employments created, and type and volume of EP produced	300	2025	TFS reports, Industrial survey reports	MNRT, Private sector
	Allocate adequate funding to facilitate	Enhanced Capacity to	Number of well-equipped	2,000	Annually	Physical Infrastructure	MNRT, TAFORI, TaFF, Private Sector



Invest in comprehensive Research and Development	research and development infrastructure	undertake Research in EWP	research facilities			in place, TAFORI Report, MNRT budget	
	Promote research and development of new and improved species for diversifying forest species in plantations	Increased availability of new species other than pine and Eucs	Number of other species planted	500	Annually	Research Publications	MNRT, TAFORI, SUA, FTI, NGOs
	Establish database on the suitable tree species for EWP production including lesser known species	Increased diversity of species suitable for EWP production	Number of species available for EWP processing	500	Annually	Wood Properties Publications, TAFORI publications	TAFORI, MNRT, FTI, SUA, Private Sector
	Establish database for wood properties and utilization options	Improved wood utilization in EWP processing	Percentage of tree species utilization in EWP	500	Annually	Wood utilization research reports, TAFORI publications	TAFORI, SUA, FITI, MNRT, Private Sector
	Invest in skills development for research and development	Enhanced capacity to undertake research and development for EWP	Number of qualified researchers	2,500	Annually	TAFORI reports	MNRT, TAFORI, TaFF, Private Sector
	Promote linkages between research institutions and industries	Increased innovations (technological and non-technological) in	Number programmes/linkages established	1,000	Annually	Research publications, New products developed	TAFORI, Private Sector

			product development					
		Develop the National EWP Export Strategy to facilitate access to the regional and international markets	Increased export volumes for EWP products from Tanzania	Volume and value and market destinations, EWP exports	500	June, 2023	TRA reports, National export strategy document,	MNRT and Ministry of Industry and Trade, TFS, TRA, Ministry of Finance, TANTRADE, NBS, Private Sector
Enhance Marketing of local Engineered Wood Products		Conduct the EWP market survey to understand requirements, and tariff and non-tariff trade barriers in the export and domestic markets	Increased market penetration for Tanzania's EWP products	Volume and value and market destinations, EWP exports	450	June 2021 and June, 2027	TRA National export strategy document,	MNRT and Ministry of Industry and Trade, TFS, TRA, Ministry of Finance, TANTRADE
		Participate in international exhibitions and trade fairs	Increased International market access for local EWP products	Value, volume of EWP products traded in international markets, Joint Ventures established	800	Annually	Balance of trade reports, Bilateral Trade agreements	Ministry of Industries and Trade, TANTRADE, TRA, TFS, MNRT, Private Sector
		Engage effectively with diplomatic and trade missions to market EWP (Placement of marketing officers within embassies)	Increased international market access for local EWP products	Volume of EWP products traded in international markets	1,500	2021-2030, Annually	Balance of trade reports, Bilateral Trade agreements	Ministry of Foreign Affairs, TANTRADE
		Explore and Exploit opportunities emanating from GSP's, GATT,	Increased International market access for Local EWP	Volume of EWP products traded in international	2,200	2021-2030, Annually	Balance of trade reports, Bilateral Trade	Ministry of Industries and trade, Ministry of Finance, TANTRADE, TRA,

		Bilateral trade agreements, free trade other institutions like WTO	products	markets			agreements	Private Sector
		Promote domestic demand through mainstreaming EWP in public procurement	Increase domestic demand for EWP	EWP balance of Trade, Volume and Value of EWP trade from Tanzania	500	Annually	EWP Balance of Trade Report	Ministry Finance; TRA), Ministry of Industries and Trade, MNRT, TANTRADE, PPRA, TFS
Promote Participation of the Private Sector		Encourage and Facilitate a well-organized Forestry Private sector	Increased coordination and efficiency of the private sector	Private Sector apex body established and functional	500	March, 2022	Apex body meeting minutes, MoU signed	Private Sector, NGOs, MNRT, TFS, TNBC, TPSF
		Facilitate Private-Private Partnership arrangements for investment	Increased investment by local private sector in EWP	Value and volume of EWP products by the private sector	800	Annually	TIC Investment reports, TFS reports TNBC Reports	MNRT, Private Sector, TIC, TFS Ministry of Industry and Trade; LGA's, TNBC.
			Increased local private sector engagement and value of EWP investment	Value of private sector investments in EWP through PPP arrangements				
		Enhance mechanisms for Public-Private Dialogues (PPDs).	Improved business environment for investment in EWP	Number of fora and issues addressed through PPDs	2,000	Annually	Minutes, PPDs reports, TNBC	MNRT, Private Sector, TNBC, NGOs, TPSF
		Enhance access to technology through promoting technology transfer and increased	Increased local SMEs efficient investments in EWP	Volume of production and value of investment by local SMEs in	2,500	June 2025	TFS reports, TIC reports, SIDO reports	SIDO, Private Sector, Ministry of Industries and Trade, Private Sector, TIC, TFS,

		technical support		EWP				NBS
		Develop fiscal and monetary incentives to promote technological advancement in the EWP value chain	Increased number of SMEs with access to appropriate technology required for investing in EWP	Number of fiscal incentive packages developed to promote technological advancement	900	June 2023	National Budget document, SME survey reports	Ministry of Finance, Ministry of Industries and Trade, MNRT, SIDO, TFS
<b>Subtotal (2)</b>	<b>Competitiveness, inclusiveness and sustainability</b>				<b>30,350</b>			
<b>Objective 3: To enhance national institutional and human resource capacity to manage and develop the engineered wood sector in collaboration with other stakeholders to meet national and international standards</b>	Strengthen Training Institutions Capacity for EWP Skills Development	Training Institutions to enter agreements/MoUs with international institutions with known expertise in EWP to facilitate exchange program for staff and students	Increased capacity of training institutions to address challenges in managerial and technical skills in EWP	Number and type collaborative of skills development programmes	<b>500</b>	June, 2021	Signed MoU and Agreements	SUA, FITI, FTI, MNRT, NGOs, Private Sector, International Training Institutions and companies
		Establish practical attachments and apprenticeship programs for students in EWP industries to enhance practical experience	Enhanced hands on skills of graduates to increase labour productivity of local labour force	Number of students in practical attachments	<b>900</b>	Annually	Curriculum documents, MoU	MNRT, Ministry Education and Vocational Training, Private Sector, TCU, NACTE, FITI, SUA
		Introduce new or improve exiting curricula in training institutions to meet the needs of EWP processing	Enhanced managerial, technical and business development skills for graduates entering into EWP	Number of curricula introduced or reviewed	<b>500</b>	Annually	Curricula documents approved and uploaded of NACTE and TCU	FITI, SUA, TCU, NACTE, Ministry of Education and Vocational Training, MNRT, NGOs
		Establish incubation programs to enhance EWP production and	Enhanced local capacity to participate in	Number of programs established to	<b>800</b>	Annually	Incubation programs reports	SIDO, FITI, NGO's, MNRT, SUA, Ministry of Industries

		management skills of the investors and graduates	engineered wood processing and management	enhance skills with appropriate support facilities				and Trade, Private Sector
		Establish Centre of Excellence with adequate laboratory and workshop equipment and infrastructure to catalyze EWP development	Increased capacity for research and training which provide relevant technical solutions to the EWP industry	Number of new products developed, Properties of new species potential for EWPs	<b>1,200</b>	June, 2025	Physical facility in place, Annual Reports from FITI	TAFORI, FITI, SIDO, TEMDO, TIRDO, Nelson Mandela University, MuST, UDSM-CoET, VETA, COSTECH, TaFF, MNRT, Ministry of Industries and Trade, Development Partners
		Establish and Conduct on the job training programs to enhance EWP managerial and technical skills to existing processors	Improve technical managerial capacity of existing processors	Number of on the job capacity building programs and incubation services conducted	<b>950</b>	June 2021 – June, 2030	Industry Survey Reports, Training Reports,	MNRT, FITI, TFS, NGOs, Private Sector
	Improvement of Business Environment	Reduce cost of doing forestry related business in Tanzania through harmonizing and reducing the number and type of taxes, fees, levies, charges and related transaction costs	Enhanced competitiveness and sustainability of Tanzania EWP sector	Cost of doing business in Tanzania ranking, Number of taxes, levies and fees dropped	900	June 2024 and June, 2029	Sub-national cost of doing business survey Report,	MNRT, MoFP, MIT, TRA, LGAs, TFS, Private Sector, NGOs, TNBC
<b>Subtotal (3)</b>	<b>Institutions and Human Resource Capacity</b>				<b>5,750</b>			
<b>Objective 4: Ensure adequate and sustainable</b>	Enhance Contribution of small, medium and large-scale tree	Establish credit and guarantee schemes to enhance tree growers acces to	Increased area under plantation for increased raw material supply	Value of credit facilities extended to tree growers,	5,400	Annually	Plantation Mapping Report, Access to finance in	TADB, PASS, TIB, Ministry of Finance and Planning, FSDT, MNRT, Financial

<b>supply of quality raw materials for EWP sector</b>	growers	finance					forestry reports	Institutions, TTGAU, NGOs
		Promote establishment of seed multiplication infrastructures (i.e seed orchards) to minimize cost of improved planting materials	Ensure availability and access to low-cost quality planting materials	Volume and value of improved planting material available to growers	1,500	Annually	TFS reports	TFS, Private Sector, NGOs, TOSCI, MNRT
		Strengthen capacity of public and private suppliers of improved planting materials to provide good quality planting materials (seeds, tissue culture, cuttings, clonal materials and seedlings)	Improved productivity and quality of established tree plantations	Volume of tree growth rate (Mean Annual Increment), Plantation Rotation Age, Wood Properties	1750	Annually	Plantation Mapping reports, TFS planting material access survey report	TOSCI, TFS, MNRT, FTI, FITI, SUA, TAFORI, LGAs, NGO's, Private Sector
		Strengthen quality assurance and control mechanisms and procedures for ensuring the quality planting materials	Increased productivity of tree plantations	Volume of certified improved planting materials accessed by growers	800	Annually	Improved planting materials and Silviculture practices adoption survey reports, TFS and TOSCI reports	TFS, TOSCI, MNRT, LGAs, TAFORI, NGOs, TTGAU,
		Conduct regular assessment of raw material to establish demand and supply	Increased availability of up to date information on	Volume, quality, and location of suitable	900	Annually	Plantation mapping reports	TFS, MNRT, SUA, TAFORI, Private Sector, NGOs

		distribution including volume, location, species and quality (i.e. plantation mapping)	raw material resource to facilitate planning and EWP investments (demand and Supply trends)	plantations				
		Establish matching grants to promote tree planting for growers	Increased area under plantation and raw material supply for EWP processing	Value and Size of plantations established under the matching grants arrangement	2,500	June, 2025-2030	TTGAU and TFS reports	TFS, TTGAU, MNRT, Development Partners, Private Sector
		Establish and promote outgrower schemes to promote tree planting and management of plantations by private/small growers	Increased availability of quality raw materials through increased plantation area and extension services	Number of growers, stocking volume and area planted under out grower schemes	1,500	June 2025-August, 2030	Out grower management reports	TFS, TTGAU, MNRT, Private Sector, TIC, Communities, Forestry Programmes, NGOs
		Enhance involvement of other stakeholders in tree planting (eg. Schools, NGO's, Faith Based Organizations)	Increased availability of raw material through increased area under plantation forest	Volume of raw material supplied from the other stakeholders	500	June 2022-November, 2030	TFS Reports	TFS, MNRT, Private Sector, Schools, NGO's, Faith Based Organizations
		Establish Public Private Partnership and concessions arrangements in	Increased raw material supply through increased area plantation	Value and Size of plantations established under	500	June, 2022	TFS reports	TFS, MNRT, Private Sector

		plantation establishment	forest	concessions arrangements and PPP				
		Strengthen fire prevention and fighting efforts to minimize damage caused by fire incidences in plantations	Reduced value, volume and area of tree plantations lost to fire incidences	Number, frequency and severity of fire incidences in plantation forest	1,100	June 2021 – June, 2031	TFS reports, LGA reports on fire	TFS, MNRT, Private Sector, TTGAU
		Establish national pest and disease monitoring unit with efficient information dissemination	Reduced volume and value of tree plantation lost to pests and disease	Number, frequency and severity of pest and diseases outbreak in plantation forest	500	June, 2023	TAFORI Annual reports, TFS annual reports	TFS, TAFORI, MNRT, Private Sector, SUA, FTI, NGOs
		Make forestry land category that is distinct from agricultural land category and adjust forestry land rent accordingly given the long gestation period	Reduced plantation management and operation costs	Forest category introduced in land regulations and Value of land rent adjusted	500	June, 2022	Land regulations document	Ministry of Lands and Settlement, TFS, Private Sector, TNBC
		Provide technical advisory and extension services through Public-Private Partnership	Increased income and productivity and quality of raw material from plantations forest	Volume, Quality of plantation forest	2,450	Annually	TFS Report, Silviculture adoption Survey reports	TFS, LGAs, MNRT, Private Sector, TTGAU, NGOs, Communities
		Increase the number	Increased access	Number of tree	1,620	June	TFS reports	MNRT, TFS, LGA's,



		of extension officers at the local government level	to extension services for tree growers	growers per forestry extension officer		2022 to June, 2031		Private Sector, TTGAU, NGOs, Communities
Enhance Delivery of Extension Services		Establish farmer field schools and demonstration plots to promote improvement of silvicultural practices amongst tree growers	Increased income and productivity and quality of raw material from plantations forest	Volume, Quality of plantation forest	1,300	June 2021- June, 2030	TFS, LGA reports	MNRT, TFS, LGAs, TTGAU, Private Sector, NGOs
		Promote use of post-harvest forest residues	Increased forest resource utilization	Increased raw material conversion efficiency (Recovery Rates)	1,400	March 2021- August, 2030	TFS Reports, Private Forest companies reports	TFS, Private Sector, LGAs, NGOs, SIDO
Ensure Sustainable Use of Forest Resources		Promote Sustainable harvesting practices	Increased efficiency in the use of raw material	Increased raw material conversion efficiency (Recovery Rates) and Increased value	800	June 2021- June, 2030	TFS Reports, Private Forest companies reports	TFS, Private Sector, MNRT
		Establish and institute log grading standards for various uses	Increased value and conversion efficiency from harvested raw material	Log standards in place, Number of forest institutes complying to log standards	850	June, 2023	Log standards publications, Private Sector reports	TFS, TBS, MNRT, Private Sector

<b>Subtotal (4)</b>		<b>Raw Material Supply</b>			<b>25,870</b>			
		Promote gender mainstreaming and awareness raising programs in EWP workplaces	Enhanced gender equality and equity in the engineered wood value chain	Percentage of women and disadvantages groups participating in EWP value chain	800	Annually	Labour survey reports	MNRT, PMO, Institute of Social Work, NBS, Private Sector and LGAs
<b>Objective 5: Integrate Cross Cutting Issues in Engineered Wood Products Development Agenda</b>	Promote Inclusiveness in the EWP processing Value chain	Facilitate awareness among women and youth to encourage participation in EWP	Enhanced gender equality and equity in the engineered wood value chain	Percentage of women and youth participating in EWP value chain	750	Annually	Labour survey reports	MNRT, PMO, Institute of Social Work, NBS, Private Sector, CBOs and NGOs
		Promote compliance to good governance and ethical business practices in the engineered wood value chain	Increased social and economic welfare in EWP value chain	Percentage of EWP firms complying to good governance and ethical business practices	1,420	April, 2021	Social welfare survey reports, Labour survey reports	LGAs, MNRT, TFS, Private Sector, PMO, Ministry of Labour
	Promote Good Governance and Ethical Business Practices EWP	Develop and implement ethical guidelines and best management practices in EWP value chain	Increased social and economic welfare in EWP value chain	Ethical guidelines and best management practices in place and implemented	1,200	June, 2021	Social welfare survey reports, Labour survey reports	LGAs, MNRT, TFS, Private Sector, PMO, Ministry of Labour

	value chain	Develop and implement mechanisms for effective coordination among the Central Government, LGAs and the Private Sector in forest management in 2021	Enhanced strategic collaboration among the Central Government, LGAs and the Private Sector in forest management	Number of collaborative arrangements between Central, Local Government and Private Sector	1,920	Annually	TNBC reports, MNRT reports, Private sector reports	LGAs, MNRT, TFS, Private Sector, TNBC, TPSF
		Facilitate accessibility of health and social welfare services to the working population in the engineered wood value chain	Increased Protection and health of workforce	Percentage of working population accessing quality health and social welfare services in EWP workplaces	1,000	Annually	Labour survey reports, Social welfare survey reports	PMO, Ministry of labour and Employment, OSHA, TFS, Private Sector
		Improve compliance to occupational safety, and health legislation EWP	Improved working conditions for the safety and health of workforce in EWP value chain	Percentage of working population accessing quality health and social welfare services in EWP workplaces	800	Annually	Labour survey reports, Social welfare survey reports	Ministry of Industries and trade, OSHA, PMO, Ministry of Labour and Employment, Private Sector and LGAs, Ministry of Health and Social Welfare
		Improve awareness among workers on occupational safety, and health in EWP	Improved working conditions for the safety and health of workforce in EWP value chain	Percentage of working population accessing quality health	700	Annually	Labour survey reports, Social welfare	Ministry of Industries and trade, OSHA, PMO, Ministry of Labour and Employment, Private

	Improve Health and Social Welfare			and social welfare services in EWP workplaces			survey reports	Sector
		Mainstreaming of HIV/AIDS awareness, protection and control measures at the workplaces in EWP	Ensure protection and health of workforce and, elimination of stigma in the engineered wood value chain	Number of people accessing HIV/AIDS awareness and protection services	1,500	Annually	welfare survey reports,	Ministry of Health and Social Welfare, Ministry of Labour and Employment, OSHA, Private Sector, LGAs, TACAIDS, NACP, BWM Foundation
<b>Subtotal (5)</b>					<b>10,090</b>			
<b>Grand total</b>					<b>92,460</b>			

### 3.7. Policy and Legal Framework

This section presents legal and regulatory arrangement for the Forestry sector. The section outlines existing legal and regulatory framework and their shortfalls to allow smooth implementation of this Framework.

#### 3.7.1. Policy Framework

The National Engineered Wood Development Framework is guided by the National Development Vision, 2025 that intends to transform the country into a middle-income class through industrial transformation and, the Five-Year Development Plans. It is also guided by the National Environmental Policy on the sustainable management of natural environment and National Local Content Policy in promoting inclusiveness in the sector. Furthermore, the Framework has largely been informed by the existing National Forestry Policy of 1998 and stakeholders' views on the review of the Policy that were collected in 2019 and included in the Situational Analysis of the 1998 Policy Review.

#### 3.7.2. The Legal and Regulatory Arrangement

The Framework will be implemented through the Forest Act Cap 323. However, the Framework may call for the new rules and regulations that will be developed in favour of sustainable growth and development of Tanzania EWP sector. Moreover, coordinated efforts by institutions responsible for enforcement of forest management rules and regulations will be given a deserving emphasis. The Forest Regulations of 2004 and existing Guidelines will guide the implementation of this Framework. Generally, the legal review of the Forest Sector will also take cognizance of the revised roles of different stakeholders carrying out operational and managerial functions about EWP sector in the country.

### 3.8. Risk Identification, Assessment and Mitigation

Table 6 presents the identified risks, risk assessment, risk type, risk consequences and mitigation. The identified risks are based on the objectives of the Framework.

**Table 6: Risk Identification, Assessment and Mitigation**

S/N	Objective	Risk	Risk Type(Operational or Strategic)	Consequences(if the risk is not treated/controlled)	Risk Rating	Mitigation
1	To unleash the potential of EWP value chain contribution to the economy including increasing	Limited financial capacity to carry out EWP industrial development initiatives	Strategic	Slow development and growth of EWP industry and trade	High	Develop fund mobilization strategy and enhance ownership of EWP Framework to key stakeholders
		Changes in the global	Strategic	Increased uncertainties in the	High	Promote EWP development and

	<b>employment and foreign exchange earnings.</b>	demand for EWP due to social and economic shocks		EWP sector and hence low investment		diversification Promote market diversification for EWPs
		Unwillingness of the private sector to comply with the stipulated quality assurance and control standards	Operational	Limited competitiveness of Tanzania EWP industry in the domestic and export market	High	Strengthen institutional capability to enforce quality assurance and control standards  Strengthen the private sector capacity on self-regulation
		Unwillingness of the private sector to formalize their EWP businesses	Strategic	Limited contribution of EWP sector to the economy	High	Involve private sector organisations (PSOs) in the formalization programmes  Design fiscal incentives to make business informality more costly than formalization
		Perception of the lending institutions towards SMEs as the risky business	Strategic	Limited growth of EWP SMEs	High	Establish guarantee schemes  Promote the formalization of EWP SMEs
		Lack of trust between public sector and private sector in public-private partnerships	Operational	Limited engagement in public-private partnerships and hence marginal contribution of EWP sector to the economy	High	Strengthen institutional capability to enforce public-private partnership laws and regulations  Strengthen the private sector capacity on self-regulation
2	<b>Promote a competitiveness, Inclusive, and sustainable Engineered Wood</b>	Possible delays in Environmental Impact Assessment Survey and issuance of environmental	Operational	Increased investment costs in the EWP sector	Low	Introduce information system in EIA applications and issuance of the environmental clearance certificates

	<b>Industrial development and trade</b>	clearance certificate				
		Lack of compliance to EWP Codes of Conduct and Quality Standards	Strategic	Lack of trust of the domestic and international markets on the domestically produced EWPs	High	Strengthen the monitoring mechanisms
		Limited financial capacity to implement CSR activities, infrastructure development projects, marketing programmes and R&D activities	Strategic	Limited linkage between EWP investments and the host economy  Increased investment costs in the EWP sector  Focus on the limited markets with low value demands	Medium	Encourage PPP in infrastructure development  Strengthen the provision of intellectual property rights in R&D innovations  Strengthen PPP in marketing domestically produced EWPs
		Ineffective participation of main stakeholders in PPDs	Strategic	Limited linkage between policy interventions and the practice	Low	Strengthen the criteria for choosing participants in PPDs
3	<b>To enhance national institutional and human resource capacity to manage and develop the engineered wood sector in collaboration with other stakeholders to meet national and international standards</b>	Limited financial capacity to carry out institutional and human resource capacity enhancement initiatives	Strategic	Slow development and growth of EWP industry and trade	High	Develop fund mobilization strategy and enhance ownership of EWP Framework to key stakeholders
		Misuse of business environmental reforms by the private sector	Strategic	Lack of trust between the public sector and private sector in promoting the growth of the Tanzania EWP sector	High	Strengthen the private sector self-regulation capacity
		Unwillingness of private sector towards investing in institutional and human resource capacity for EWP sector development and growth	Strategic	Slow development and growth of EWP industry and trade	Moderate	Develop fund mobilization strategy and enhance ownership of EWP Framework to key stakeholders
4	Ensure	Limited	Strategic	Shortage of quality	High	Develop fund

	adequate and sustainable supply of quality raw materials for EWP sector	financial capacity to carry out the intended activities		raw materials for EWP industry		mobilization strategy and enhance ownership of EWP Framework to key stakeholders
		Poor design of awareness programmes	Operational	Limited knowledge of small tree growers on the use of quality seeds	Low	Adopt the participatory approach in the design of the awareness programmes and develop the standardized training manual
		Unwillingness of seed producers to formalise their businesses	Strategic	Limited contribution of EWP sector to the economy	High	Involve private sector organisations (PSOs) in the formalisation programmes  Design fiscal incentives to make business informality more costly than formalization
		Unethical practices of private sector to adhere to the quality standards	Operational	Limited competitiveness of Tanzania EWP industry in the domestic and export market	High	Strengthen institutional capability to enforce quality assurance and control standards  Strengthen the private sector capacity on self-regulation
		Poor design of research methodology to track demand-supply gap of raw materials	Operational	Inaccurate data on demand-supply gap and hence unsustainability of EWP industry	Low	Strengthen the review process
		Unethical practices of partners in the public-private arrangements	Operational	Limited engagement in public-private partnerships and hence marginal contribution of EWP sector to the economy	High	Strengthen institutional capability to enforce public-private partnership laws and regulations  Strengthen the private sector capacity on self-regulation
5	<b>Integrate Cross Cutting Issues in Engineered Wood Products</b>	Limited financial capacity to carry out HIV/AIDS, gender mainstreamin	Strategic	Limited national capacity to protect its workforce in the EWP sector  Marginal economic contribution of the	Moderate	Develop fund mobilization strategy and enhance ownership of EWP Framework to key stakeholders



Development Agenda	g and good governance programmes		EWP sector to the wider population and the country at large		
	Unwillingness of behavioral changes by the communities in the EWP sector	Operational	Shortage of productive workforce and increased stigma among the communities engaged in the EWP sector	Low	Adopt community-based interventions in addressing HIV/AIDS spread and stigma in the EWP sector
	Cultural barriers towards women participation in the EWP sector and HIV/AIDS awareness campaigns	Operational	Limited inclusion of wider population in the EWP activities  Increased HIV/AIDS spread among the vulnerable groups in the EWP sector	High	Adopt community-based interventions in promoting gender diversity and, addressing HIV/AIDS spread and stigma in the EWP sector

### 3.9. Estimated Budget for Framework Implementation

This section considers the financial resource that is required to implement each of the EWP Framework objectives' priority actions and how these resources would be mobilized/obtained. Attempts have been made to provide budget estimate of each priority action for a ten year period 2020 to 2030 as shown in Appendix 1. The total estimated budget is TZS 58.32 bn and the priority actions that form the basis of the overall budget include:-

- a) Promoting the production of planting materials
- b) Developing quality assurance and control standards and procedures for ensuring the quality of seeds
- c) Enhancing accessibility of quality extension services among tree growers and commercial plantations
- d) Regularly monitoring and evaluating demand-supply gap of raw materials for EWP industries
- e) Enhancing coordination between Central Government, private sector and LGAs in forest management
- f) Enhancing financial capability of small tree growers and processors
- g) Promoting Public-Private Partnership and Private-Private Partnership arrangements in forest plantations
- h) Conducting business environment surveys for EWP Industrial growth
- i) Enhancing technological capacity of the Tanzania EWP industry
- j) Enhancing the quality of EWPs
- k) Promoting the formalisation of engineered wood SMEs and trade
- l) Promoting land accessibility for engineered wood investments

- m) Enhancing EWP sector resilience to social and economic shocks
- n) Promoting collaboration and communication with EWP stakeholders
- o) Enhancing managerial, technical and financial skills for engineered wood industrial and trade development
- p) Enhancing the financial capacity of the EWP institutions
- q) Enhancing the engineered wood sector capacity to reduce HIV/AIDs spread in the sector
- r) Attracting women to participate in the EWP value chain
- s) Promoting ethical business practices in the engineered wood sector

### 3.9.1. Sources of Finance Both National and International

Engineered Wood Products Development Framework(EWP) is a government initiative determined to make full use of the forestry sector resources in promoting national industrialization. In this regard, it is anticipated that the Framework Implementation Budget will be secured from at least five main sources:

- i. **Government Annual Budget:** This will mainly be used for financing remuneration of forestry staff workforce, research and development for commercialization (R&Dc), building the necessary infrastructure and carrying out training/skills development.
- ii. **Internally Generated Revenues:** It is anticipated some of the revenue will be internally generated by the forestry sector institutions. The amount generated is expected to be used mainly for capacity building which would include infrastructure development, R&Dc, skills development and awareness creation.
- iii. **Development Partners Support:** It is anticipated that development partners will continue playing a big role in making the forestry sector through EWP play a significant role in the country's industrialization "**Tanzania ya Viwanda**" initiative. We also expect development partners playing a big role in capacity building and in co-financing some of the EWP activities
- iv. **Private Sector Revenue:** It is expected that through conducive business environment and good infrastructure, the private sector both domestic and foreign are likely to invest in EWP activities thus making the EWP sector one of the major contributors to the economy in terms of employment and revenue generation. If well planned, EWPs can be the leading source of foreign exchange generation and at the minimum second only to gold revenue generation. The EWP Sector would better be known as "**Green Gold.**"
- v. **Public Private Partnership (PPP):** This is one of the fastest ways of generating revenue for promoting EWP activities. The approach has been used by many developing countries that were more or less at the same level of development as Tanzania such as Malaysia, South Korea, Vietnam, China, India and many other developing countries. It is an appropriate way of making the two hands (Public and Private) work together for the betterment of the country's economy.

## CHAPTER FOUR

### MONITORING, EVALUATION AND REPORTING

#### 4.0. The Premise

**Monitoring and Evaluation** is a process used to check the performance of a certain process that has been planned and has clear goals to achieve within a certain defined period of time and is able to identify the expected outcome and any correction needed in order to achieve the set goals/targets. The implementation of the various planned activities that appear in the EWP Framework will be monitored on a continuous basis. This will be done in order to identify well before hand some problems or constraints/barriers to provide remedial measures in order to keep the implementation process uninterrupted.

In this regard a manageable monitoring and evaluation system will be designed so that all Sector Ministries and institutions that participate in the implementation of EWP Framework can track progress of the whole framework. This suggests regular field visits to the plantation areas, processing industries, training centres, holding dialogues with the business community, development partners and other stakeholders. Each section of the Ministry and Institutions that have a direct role to play to the performance of the EWP Framework will inevitably be responsible for regular supervision of the implementation activities at all levels using the appropriate key performance indicators(KPIs). At the end of each quarter, there will be quarterly performance reports concluded by the annual evaluation report that is based on the agreed key performance indicators.

#### 4.1 Rationale and Structure

Monitoring and Evaluation (M&E) is a process that continuously takes stock the performance and achieved results with a goal of improving current and future management of outputs, outcomes and impacts. It is a continuous assessment process that ends at providing all stakeholders with detailed information on the progress or delay of the on-going assessed activities. It also describes/explains how the Framework will be attained through implementation of the framework and how the stakeholders will be impacted. M&E provides information on how interventions will be undertaken in order to achieve the desired Framework objectives, priority actions, targets and activities. In addition, M&E provides information on general evaluation of the performance and on how the progress will be reported.

The importance of M&E need not be underestimated; it is a powerful accountability mechanism and an opportunity to influence the design of development projects and Framework interventions. It provides feedback on whether the implementation of the Framework is achieving its objectives or not.

The Framework M&E system is developed and operated according to the existing national M&E Framework. The structure includes preparation of Framework implementation action plan under which the implementation of each activity; performance indicators; and monitoring plans and database are identified. Monitoring of the implementation of the National Engineered Wood Sector Development Framework will be the overall responsibility of the Ministry responsible for Natural Resources under the Directorate of Forestry and Beekeeping. In addition, the Minister responsible for natural resources shall establish the National EWP Development Framework Implementation Committee (NEDFIC), comprising ten (10) members, which will periodically audit the implementation performance of the Framework and it will be chaired by the Director of Forestry and Beekeeping. The Committee will comprise of five (5) members from the Ministry and the rest will be coming from the private sector and shall meet semi-annually.

The monitoring will focus on dynamic and interactive process between the Ministry and its beneficiaries. It will seek to ensure the effective implementation of the Framework. Based on the aforesaid, monitoring will include online assessment of the outcomes and, the giving of regular and timely feedback to the implementers. The monitoring of the Framework will require commitment and mobilization of resources, discipline, accountability and transparency among the key implementers. Major focus will revolve around the following key areas: -

- a) Monitoring effectiveness and efficiency of the implementation on the scheduled activities
- b) Monitoring relevancy of different activities vis-a-vis the primary goal of the Framework
- c) Monitoring the outcomes and outputs of the Framework on various outlined activities
- d) Monitoring reactions of different implementers of the Framework
- e) Ensuring the 'value for money' principle is observed

## **4.2. Monitoring and Reviews**

This area provides the Monitoring Plan and, Reviews for the whole period of the Framework. It provides information on periodic reviews, and assessment, and the evaluation of effectiveness, efficiency, impact and sustainability of the expected outputs and outcomes of the Framework.

#### **4.2.1 Monitoring Plan**

The Strategy will be monitored through continuous and systematic data collection, analysis, use of indicators and frequent reporting. This will provide feedback to the responsible Ministry and stakeholders on on-going interventions, in order to assess progress and achievements made.

#### **4.2.2 Planned Reviews**

This will consist of review meetings, milestones and rapid appraisals. This will be done by the responsible Ministry and will help to improve management's decision making, encourage internal and external transparency and accountability.

#### **4.2.3 Performance Review meetings**

Performance review meetings to track the progress on the Framework implementation will be conducted by the responsible Ministry. Management meetings will be conducted weekly, attended by all members of the management team and chaired by the Permanent Secretary. Quarterly meetings will be conducted after every three months and will be attended by participants from the MNRT Management and chaired by the Permanent Secretary. Other meetings will be mid- and annual review meetings which will be conducted once a year and will be attended by the management team members and chaired by the Permanent Secretary.

#### **4.2.4 Planned Milestone Reviews**

These meetings will be used to identify completed events or activities or phases that will be developed during the planning process. These meetings will determine whether the planned activities are implemented towards achieving the annual targets and whether they are on track, off track or at risk. The findings of the review will facilitate adjustment of the priority actions, targets and activities towards achievement of the Framework objectives and results.

#### **4.2.5. Monitoring Tools**

The following are the monitoring tools that will be adopted to ensure the effective and efficient implementation of the Framework:-

- a) Constant observations on the activities implementation
- b) Verbal communication including interviews and meetings
- c) Scheduled briefing meetings to assess the progress and implementation
- d) Correspondence between the Ministry and key actors in the engineered wood sector
- e) Performance reports prepared by the Directorate of Forestry and Beekeeping, MNRT Planning Directorate and other actors

- f) Physical inspection of proposed activities at specific intervals

### **4.3. Monitoring Methodology**

The process of monitoring will be instituted immediately after starting implementation of the Framework. Three major methods that will be used by the Ministry are the following:-

#### **a) Annual Operational Plan**

Preparation of detailed annual operational plans of the Directorate of Forestry and Beekeeping showing quarterly EWP Framework priority actions, targets and activities and, reporting the extent to which the accomplishment of the operational plan has been reached

#### **b) Physical Observations and Interviews**

Conducting physical observations and interviews/discussions which involve the MNRT Planning Directorate, MNRT Forestry and Beekeeping Directorate and, various EWP stakeholders to get informed insights and clarifications. A field observation schedule will be prepared by the MNRT Forestry and Beekeeping Director in collaboration with the MNRT Planning Director before making the physical observations.

#### **c) Enquiries through Questionnaires**

Conducting enquiries with the assistance of a questionnaire administered annually to obtain the impressions of various EWP stakeholders to obtain early warning signs that may indicate potential problems during the implementation of the Framework

### **4.4. Evaluation**

Evaluation is defined as the process of comparing actual performance with expected performance and therefore reports the achievements, challenges and the way forward. There will be three types of evaluation on the implementation of the Engineered Wood Development Framework, namely annual evaluation, two- and half-year evaluation, and five-year evaluation using both internal and external evaluation team. Three months prior to the coming of the external evaluators, an internal evaluation will be conducted by a team appointed by the Permanent Secretary. The evaluation reports will be discussed at all levels at the biannual progress review workshops. The proposed recommendations will be implemented and included in the Rolled Annual Operational Plan of the Ministry.

#### **4.4.1. Approaches to Evaluation**

The evaluation process will be based on the following issues:-

- a) Evaluating the budgetary allocation for the implementation of the Framework

**(Budget analysis)**

- b) Evaluating the efficiency and effectiveness in implementing the Framework **(Rationality in making decisions)**
- c) Evaluating the immediate and direct effects as a result of implementing the Framework activities **(Results analysis)**
- d) Assessing the benefits of implementing the Framework **( Impact analysis)**

**4.4.2. Performance Evaluation**

This is a periodic assessment to determine effectiveness and efficiency of performance of the Framework objectives. The evaluation process will focus on impact and outcomes to the EWP stakeholders. During the ten years of implementation of the National Framework, evaluations will be conducted in every two and a half years period. The evaluation will assess progress made towards achieving Framework objectives, targets and expected results. The evaluation will also identify challenges encountered and measures to be taken to address the challenges. The final evaluation will be conducted/done after completion of the ten-year period to determine whether the interventions and outputs have led to the outcomes envisaged.

**4.4.3. Performance and Reporting Plan**

The Performance and Reporting Plan will focus on reporting progress towards achievement of Framework objectives and targets or implementation of targets against expenditures. The Plan will focus on the impact to EWP stakeholders and communities at large. The reporting plan will detail on internal and external reporting.

The internal reporting will be prepared on quarterly, semi-annually and annual basis and will provide overview of the implementation status on cumulative basis against Framework objectives, targets and activities. The meetings will be conducted quarterly, semi-annually and annually and they will be attended by management team members. The recipient of the reports will be the Permanent secretary. External reporting will be done by the responsible Ministry and it will involve preparation of financial performance, annual, mid-term and outcome report. The meetings will be conducted quarterly, mid-term and final evaluation at the end of the implementation period. The reports will be submitted to external stakeholders such as Sector Ministries, Parliament and the public at large.

**4.4.4 Key Performance Indicators**

For effective implementation of EWP Framework, it is important to have clear and measurable goals in order to be able to develop effective key performance indicators

(KPIs) to monitor and evaluate the framework performance. The critical issue here is that of identifying effective Key Performance Indicators. In the case of EWP Industry Framework, possible Key Performance Indicators may be the following:-

**i. Number of Companies Engaged in the EWP Industry Framework by Product**

The more companies are engaged in the EWP Industry the more is the indication that the economic policies that are in place related to the engineered wood industry sector are favorable and attractive to the industry (Number of companies entering the sector, Number of local companies, Number of foreign companies, Market value of companies ).

**ii. Value of Engineered Wood Sector Products Produced**

The increasing share of EWP industry in the GDP provides a clear indication of the performance and growth of the industry (Share of Engineered Wood Products industry in the country's GDP in terms of value and percentage, growth in share of GDP, five year target of EWPs to be reached of the GDP target).

**iii. Employment Generated**

The increasing number of employment opportunities created annually is a clear sign that the EWP industry is growing (Number of people employed in the EWP industry, number of employment opportunities generated annually, employment by educational level and qualification).

**iv. Amount of Tax Paid**

Increasing Tax collection is a good sign of good performance (Amount of tax paid, average tax paid by company, growth in tax paid by the EWP industry sector).

**v. Export Value of Engineered Wood Products**

Growth in export value is a sign of growth of the EWP industry sector (Global market share, Value of exports, growth in export value and percentage of export value).

**4.4.5. Pre-requisites for Effective Implementation of the Engineered Wood Products (EWPs) Framework**

It is of great importance that both public and private sector stakeholders must be committed to the implementation of this Framework in the form of public-private partnership. Specifically, the following are the pre-requisites for the effective implementation of the National Engineered Wood Development Framework:-



- Pre-requisite 1:** Ensure Adequate Budget and Sources of finance for EWP Development Framework
- Pre-requisite 2:** Design a Strong and Efficient System for EWP Development Framework Implementation
- Pre-requisite 3:** Prioritize EWP Development Framework Products
- Pre-requisite 4:** Identify the Most Dynamic EWP SMEs
- Pre-requisite 5:** Make the Regulatory Burden Less Onerous to EWP Small and Medium Sized Enterprises
- Pre-requisite 6:** Support EWP Small Micro and Medium Enterprises Including Cooperatives.
- Pre-requisite 7:** Invest in Capital Equipment and Skills Development/Increase Productive Capacity in EWP Sub-Sector
- Pre-requisite 9:** Strengthen and Enhance EWP Financing Based on Performance Requirements
- Pre-requisite 10:** Promote and Strengthen Research and Development Capacity
- Pre-requisite 11:** Establish EWP Excellence Programme (EEP) for EWP Upgrading Efforts Including Product, Process and Value-chain Upgrading