



# PARTICIPATORY PLANTATION FORESTRY PROGRAMME

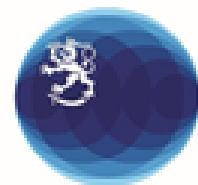
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QUARTERLY PROGRESS REPORT FOR THE PERIOD FROM 1  
JULY 2020 TO 30 SEPTEMBER 2020.

November 2020



United Republic of Tanzania  
**MINISTRY OF NATURAL RESOURCES  
AND TOURISM**  
Forestry and Beekeeping Division



Embassy of Finland  
Dar es Salaam



## Participatory Plantation Forestry Programme (PFP2)

Phase 2: 1 November 2019 to 31 October 2023

Quarterly Progress Report for the Period from 1 July 2020 to 30 September 2020

November 2020, Iringa, Tanzania



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# **Participatory Plantation Forestry Programme (PFP2)**

## **Quarterly Progress Report for the Period from 1 July 2020 to 30 September 2020**

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**Cover photo:** PFP2 wood industry extension staff being trained to level a Slidetec sawmill at the Forestry and Wood Industries Training Centre.

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## ABBREVIATIONS

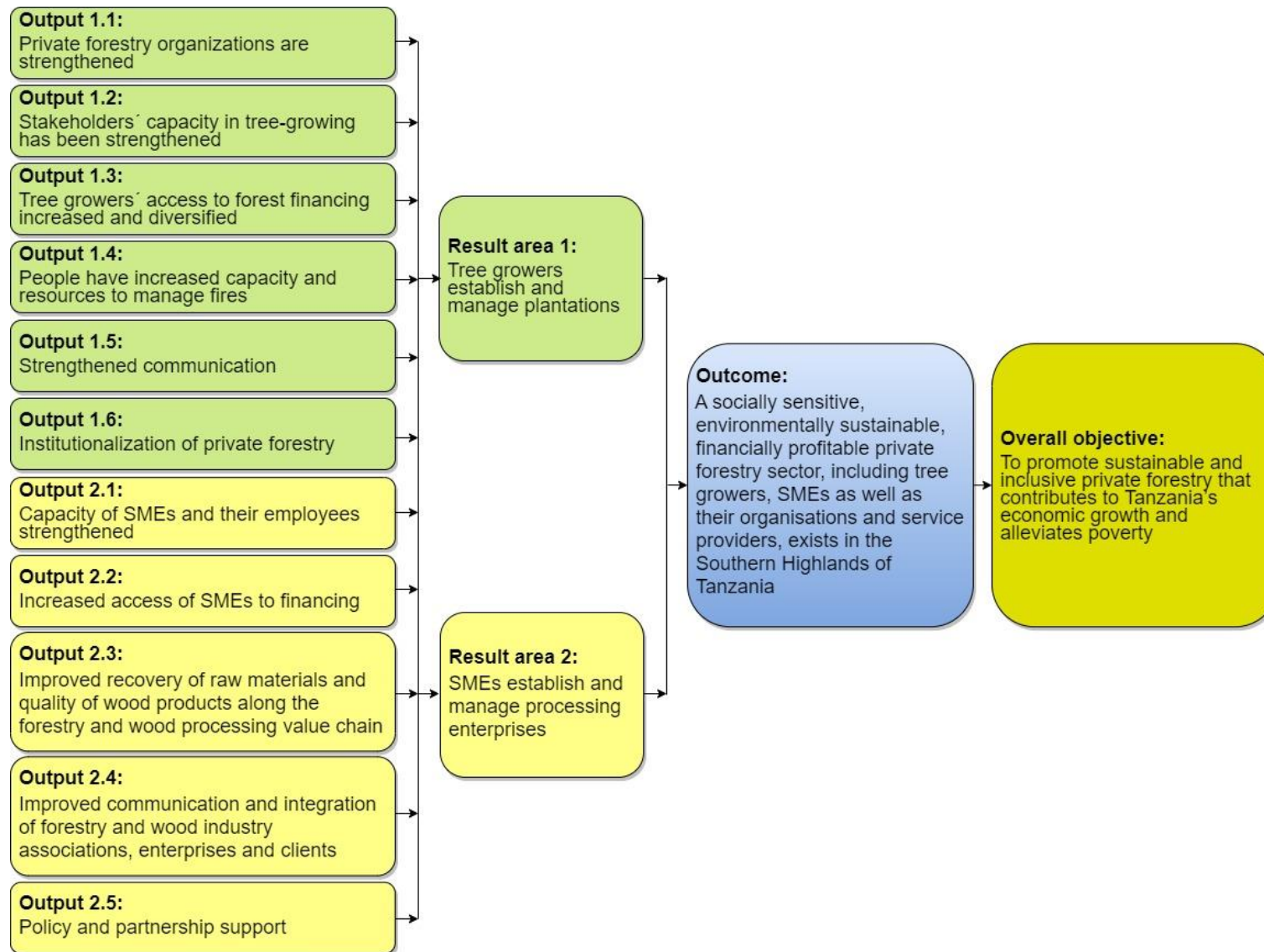
AF	African Forest
AWP	Annual Work Plan
CCRO	Certificate of Customary Right of Occupancy
Covid-19	Corona virus disease discovered in 2019
CTA	Chief Technical Advisor
DAI	Development Alternatives Incorporated
DC	District commissioner
DO	District officials
DTSP	Directorate of Tree Seed Production
ESEIA	European Sustainable Energy Innovation Alliance
EUR	Euro
FBD	Forest and Beekeeping Division
FDT	Forestry Development Trust
FITI	Forest Industries Training Institute
FORVAC	Forest and Value Chain Programme
FTI	Forestry Training Institute
FWITC	Forest and Wood Industries Training Centre
GoF	Government of Finland
GoT	Government of Tanzania
GRL	Green Resources Limited
HRBA	Human rights-based approach
IBEK	Improved basic earth kiln
ISS	International Summer School
KVTC	Kilombero Valley Teak Company
MaIS	Market informationsystem
MEUR	Million Euro
MFA	Ministry for Foreign Affairs of Finland
MIS	Programme Management Information System
MJUMITA	Social Network for Forest Management in Tanzania

MNRT	Ministry of Natural Resources and Tourism
MoE	Ministry of Education, Science and Technology
MoF	Ministry of Finance and Planning
MoU	Memorandum of Understanding
NFC	New Forests Company
NGO	Non-governmental organisation
NOFIA	Northern Forest Industries Associations
ODK	Open Data Kit
OSP	Out-growers Support Scheme
PD	Programme Document
PFCTT	Private Forestry and Carbon Trading in Tanzania
PFP	Private Forestry Programme
PFP2	Participatory Plantation Forestry Programme – Phase 2
PMT	Programme Management Team
PSC	Programme Steering Committee
QSG	Quality Support Group
RBMF	Results-based management framework
RC	Regional commissioner
RFO	Regional forest officer
SAFIA	Southern Highlands Forest Industries Association
SAGCOT	Southern Agricultural Growth Corridor of Tanzania
SCABPU	Sustainable Charcoal and Briquette Producers Union
SFM	Sustainable forest management
SHIVIMITA	Tanzania Forest Industries Federation
SIDO	Small Industries Development Organisation
SMART	Goal-setting tool: specific, measurable, attainable, relevant & time-bound
SME	Small and medium enterprises
SUA	Sokoine University of Agriculture
TAFORI	Tanzania Forest Research Institute
TANWAT	Tanganyika Wattle Company
TARURA	Tanzania Rural and Urban Road Agency
TC	Town council
TDV	Tanzania Development Vision
TaFF	Tanzania Forest Fund
TFS	Tanzania Forest Service Agency
TGA	Tree growers' association
TPSF	Tanzania Private Sector Foundation
TTGAU	Tanzania Tree Growers Association Union
TZS	Tanzanian shillings
UWASA	Sao Hill Sawmillers Association
VAT	Value-added tax
VET	Vocational education and training
VETA	Vocational Education and Training Authority
VLUP	Village land-use planning
VSLA	Village savings and loan association
WWF	Worldwide Fund for Nature

## PROGRAMME FACT SHEET

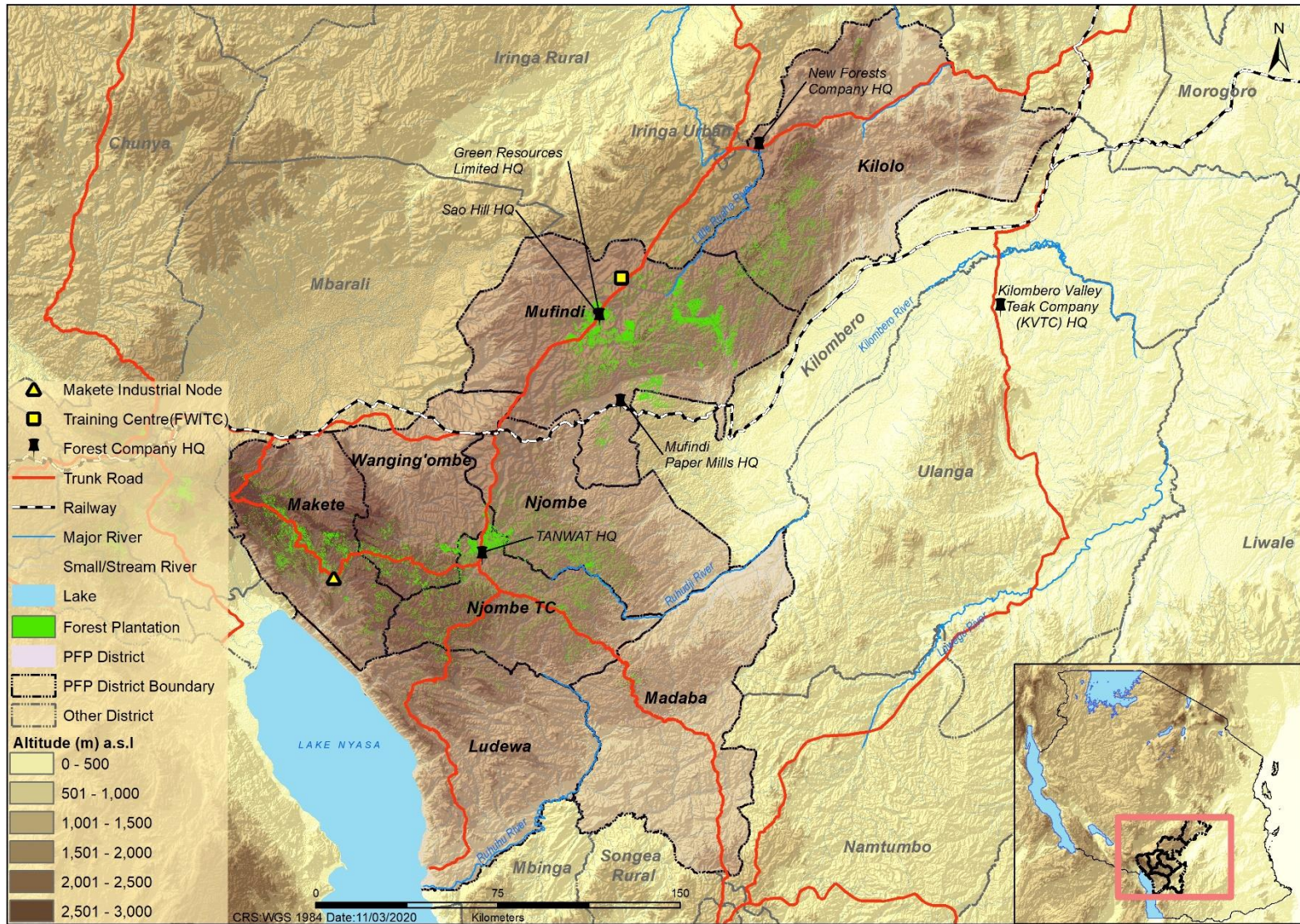
<b>Programme title:</b>	Participatory Plantation Forestry Programme Phase 2 (PPF2)	
<b>Sub-sectors:</b>	Forestry, private sector development	
<b>Expected impact:</b>	Sustainable and inclusive plantation forestry that contributes to Tanzania's economic growth and poverty alleviation	
<b>Programme outcome:</b>	A socially sensitive, environmentally sustainable, financially profitable private forestry sector, including tree growers and SMEs as well as their organisations and service providers, exists in the Southern Highlands of Tanzania	
<b>Geographical coverage:</b>	Nine districts in three regions of the Southern Highlands, Tanzania: Iringa (Mufindi, Mafinga and Kilolo), Njombe (Makete, Njombe Town Council, Njombe District Council, Ludewa, Wang'ing'ombe) and Ruvuma (Madaba)	
<b>Duration:</b>	Four years: From 1 November 2019 to 31 October 2023	
<b>Programme financing:</b>	Government of Finland 9.4 Million Euro (MEUR) Government of Tanzania 0.47 Million Euro (MEUR)	
<b>Competent authorities:</b>	<ul style="list-style-type: none"> <li>- Ministry of Natural Resources and Tourism, Tanzania</li> <li>- Ministry for Foreign Affairs of Finland</li> </ul>	
<b>Key stakeholders:</b>		
<b>1.</b>	<b>Rights holders</b>	<ul style="list-style-type: none"> <li>- Private tree growers</li> <li>- Vulnerable people</li> <li>- Urban-based tree growers</li> <li>- Small and medium entrepreneurs (SMEs)</li> <li>- Private forest companies</li> <li>- Nursery owners</li> </ul>
<b>2.</b>	<b>Duty bearers</b>	<ul style="list-style-type: none"> <li>- Forest and Beekeeping Division (FBD)/ Ministry of Natural Resources and Tourism (MNRT)</li> <li>- Tanzania Forest Service Agency (TFS)/MNRT</li> <li>- Local governments (regional and district authorities)</li> <li>- Training institutions (Forestry Training Institute (FTI), Forest Industries Training Institute (FITI), Vocational Education and Training Authority (VETA), FWITC)</li> </ul>
<b>3.</b>	<b>Private sector organisations</b>	<ul style="list-style-type: none"> <li>- Tree growers' associations (TGAs)</li> <li>- Tanzania Tree Growers Association (TTGAU)</li> <li>- Tanzania Forest Industries Federation-SHIVIMITA (Southern Highlands Forest Industries Association(SAFIA), Northern Forest Industries Associations (NOFIA) and Sao Hill Sawmillers Association(UWASA))</li> <li>- Africa Forestry (AF)</li> </ul>
<b>4.</b>	<b>Other stakeholders</b>	<ul style="list-style-type: none"> <li>- Forestry Development Trust (FDT)</li> <li>- Sokoine University of Agriculture (SUA)</li> <li>- Tanzania Forest Research Institute (TAFORI)</li> <li>- Worldwide Fund for Nature (WWF)</li> <li>- We Effect</li> <li>- Tanzania Private Sector Foundation (TPSF)</li> <li>- Southern Agricultural Growth Corridor of Tanzania (SAGCOT) and its partners</li> <li>- Private secondary-processing companies (e.g., building, carpentry)</li> <li>- Service providers</li> <li>- Tanzania Forest Fund (TaFF)</li> </ul>

## PFP2 RESULTS CHAIN





# PROGRAMME AREA



## EXECUTIVE SUMMARY

The Participatory Plantation Forestry Programme (PFP2) is a bilateral development aid programme established by the governments of Tanzania and Finland. It is the second phase of the Private Forestry Programme (PFP1) and is designed to run from 1 November 2019 to 31 October 2023.

The programme increases rural income by promoting the commercial management of smallholder plantations and wood-processing enterprises. It adds value along the entire forest-product value chain, from improving the selection, quality, and vigour of planting material to introducing innovative, high-value wood products. It is also introducing and institutionalising vocational training in plantation forestry and wood-processing.

PFP2 is set to operate in nine districts of three regions: Iringa (Mufindi, Mafinga Town Council and Kilolo), Njombe (Makete, Njombe Town Council, Njombe District Council, Ludewa, Wang'ing'ombe) and Ruvuma (Madaba). The programme facilitates the development of three potential forest industry clusters in Mafinga, Njombe and Makete, each of which is each led by a forest industry cluster coordinator (FICC).

This three-month quarterly report covers the first quarter (1 July 2020 to 31 September 2020) of the second Tanzanian financial year of the PFP2. The progress in this report follows the refined results-based management framework (RBMF) and the 2020/2021 Annual Work Plan (AWP) and Budget endorsed by the second project steering committee (PSC) on 14 July 2020.

As called for in the minutes of the second PSC meeting, the programme was tasked with prioritising key inception activities that had not been accomplished due to a change of plans caused mainly by the lack of clarity regarding the programme's exemption from value-added tax (VAT) and the outbreak of the corona virus disease (COVID-19) pandemic during this quarter.

The programme, together with the concerned authorities, continued to follow up on its VAT status through the Embassy of Finland in Dar es Salaam. The Ministry of Finance and planning (MoF) accepted that PFP2 should be VAT exempted but it had not issued a formal letter to this effect by the end of the quarter.

The overall budget of the programme for the reporting period was Euro 1,063,223, with Euro 516,098 allocated to procurement. The actual expenditure for the reporting period was Euro 511,250.

During the reporting period, the programme managed to perform various activities that helped it achieve the carried-over inception-phase targets and some implementation-phase targets.

Below is the progress made in achieving the carried-over inception-phase activities:

- **Programme document (PD) revision and approval:** Prior revising and securing approval of the PD, the programme has to finalise its baseline surveys. By the end of the reporting period, the programme had managed to finalise the concept note design for the baseline studies and start collecting data.
- **Familiarisation of programme management team and stakeholders:** All selected programme staff were mobilised and trained. PFP 2 staff met RC-Iringa to introduce the programme to the regional level and follow-up to meet with RC-Njombe is progressing. District and town council (TC)-level meetings were held to introduce the programme in Makete, Mufindi and Njombe districts and Mafinga and Njombe town councils. TTGAU, African Forest (AF), Rift Valley Energy, FWITC, TGAs, SMEs, TFS, SUA, RLabs, FDT, SIDO, SHIVIMITA and other collaborating partners were also met to discuss opportunities to collaborate and introduce the programme.
- **Development of MoUs with districts and partners:** The programme managed to establish a memorandum of understanding (MoU) with AF to collaborate on communication aspects. While the programme did initiate discussions with districts and other partners concerning MoUs, the process was slower than expected.

- **Establishment of annual service provision contracts:** Commitments were made with AF to have a service-provision contract covering PFP 2's communication needs. Also, plans were made to enter into a long-term service provision contract with the TTGAU.
- **Design of PFP 2's communication strategy:** The programme initiated discussions with AF on the possibility of its facilitating the development of the PFP2 communication strategy under a performance-based contract but that contract had not yet been approved by the end of the reporting period.
- **Development of a monitoring and evaluation plan for PFP2:** Since the PD has not been finalised or approved, the programme tentatively monitors the progress of the programme using short-term internal monitoring and evaluation (M&E) plans and following the 2020/2021 AWP and budget endorsed by the PSC on 14 July 2020.

During the reporting period, the programme also managed to progress in the implementation phase activities, as illustrated below.

Item	Progress description
<b>Result area 1: Tree growers establish and manage plantations</b>	
Output 1.1: Private forestry organisations are strengthened	The programme supported the TTGAU with an interim short-term service provision contract and signed a MoU with AF
	With regard to TGA formation, the programme conducted village council meetings and initiated participatory forest resource mapping and woodlot assessment
	To support woodlot management planning, BOPs for managing pine natural regenerants were developed
	FICCs for Njombe and Mafinga cluster were established and the programme was introduced in the respective clusters
Output 1.2: Stakeholders capacity in tree growing has been strengthened	To support PFP1 TGAs, the programme maintained communication with PFP1-supported TGAs through the TTGAU.
	To familiarise village people, TGA leaders, and facilitators with the programme, PFP2 conducted meetings and discussions during various field visits and a familiarisation trip.
	Concerning training tree growers, farmers, and wood processors, the programme initiated a procurement exercise for a mobile training unit and started discussions about training needs with key stakeholders
	Concerning FWITC accreditation and registration, follow-up on resolving the FWITC land tenure issue progressed
	With regard to vocational education and training (VET) curricula accreditation, VETA Tanzania was still waiting for funds to convene an approval board meeting.
Output 1.3: Tree growers' access to forest financing increased and diversified	The statuses of all the seed orchards were assessed and a meeting of key stakeholders was conducted
	No progress in linking tree growers with external sources of funds was made although the programme participated in an Forest Development Trust (FDT)-organised event on SMEs' access to finances that included SIDO and the general secretary of the Tanzania National Business Council (TNBC).
Output 1.4: People have increased resources and capacity to manage fire	To audit OSP support, the programme requested preliminary data from the Kilombero Valley Teak Company (KVTC), Tanzania Tree Growers Association Union (TTGAU) and New Forest Company (NFC). Unfortunately, the NFC and TTGAU had not submitted spatial data by the end of the reporting period.
	No progress was made during the reporting period
Output 1.5: Strengthened communication	The programme managed to disseminate the objectives and outcome of PFP2 to various stakeholders and hold discussions on opportunities for collaboration.
	With regard to establishing a platform for meeting regularly with stakeholders, PFP2 signed an MoU with AF that provides the basis for establishing a platform for holding regular meetings with stakeholders
	The programme advertised and selected a tenderer for the re-designing of its website
Output 1.6: Institutionalisation of Private Forestry	With respect to facilitating the issuance of certificates of customary right of occupancy (CCROs) to households, the programme managed to visit and discuss the issue with various stakeholders involved in issuance of CCROs.
	The programme discussed the landscape-level planning approach and the training and involvement of the regional level during village land use planning (VLUP) with the programme area district governments.
	The programme conducted a thorough assessment of stakeholders' participation in forestry industry development.

<b>Item</b>	<b>Progress description</b>
<b>Result area 2: SMEs establish and manage value-adding processing enterprises</b>	
Output 2.1: Capacity of SMEs and their employees strengthened	The programme facilitated the advertisement of the FWITC in the Southern Highlands by radio and collaborated with the FWITC as well as RLabs to organise the training of staff
	The programme made some progress contributing to the implementation of the FWITC's business plan
	The programme conducted a thorough assessment to understand the participation of women, youth and vulnerable groups as a way forward to encourage them to participate in forest sector development.
Output 2.2: Increase access of SMEs to finance	The programme initiated discussions with the Small Industries Development Organisation (SIDO) to look for solutions to SMEs' problems accessing finance
Output 2.3: Improved quality of products along the processing value chain	The project followed up on gazetting sawn timber grading standards, which is now in its final stage.
	In terms of product development and improved use of wood waste, the programme participated in a climate- friendly bio-energy solution workshop
Output 2.4: Improved communication and integration of forestry and wood industry associations, enterprises and clients	The programme participated in various e vents, including a climate-friendly bio-energy solution workshop and an SME development event organised by the FDT.
	The programme participated in a documentary on forest sector development organised by the Tanzania Forest Services agency (TFS) through the department of extension and publicity
	The programme initiated an assessment of value chain actors as a basis for establishing its Forestry Management information system (FMIS) and Marketing Information System (MaIS).
Output 2.5: Policy and partnership support.	The programme initiated discussions on the formation of dialogue and liaison platforms
	The programme initiated discussions on developing associations in the wood industry sector
	By the reporting time, most interventions on the human rights-based approach (HRBA) were in progress

## 1. BACKGROUND

The Private Forestry Programme (PFP1; now Participatory Plantation Forestry Programme, PFP2) started in January 2014. PFP1 was to run for four years but was extended by one year to December 2018 and then further extended to 30 April 2019, by which time the original budget had been spent. The first phase was followed by a two-month bridging phase that required additional funding, which was provided by the Forestry and Value Chains Development programme (FORVAC).

PFP2 is a four-year continuation of the five-year-and-four-month-long PFP1. It supports smallholder plantation forestry and wood-processing industries in the Southern Highlands of Tanzania. It started on 1 November 2019 and is expected to end on 31 October 2023.

Planning for PFP2 commenced with formulation and appraisal missions conducted during October 2017 and May 2018, respectively. The draft PD that resulted from these consultant inputs was published by the Ministry for Foreign Affairs of Finland (MFA) on 15 May 2019.

The agreement between the government of Finland (GoF) and the government of Tanzania (GoT) on cooperating on PFP2 was signed on 18 July 2019. GoT, through the Ministry of Finance and Planning (MoF) and the Ministry of Natural Resources and Tourism (MNRT), and the GoF, through the MFA and the embassy of Finland in Tanzania, guided the mobilisation of resources and the practical arrangements needed to start implementing the programme immediately, beginning on 1 November 2019.

The overall objective of PFP2 is the same as that of PFP1: “To promote sustainable and inclusive private forestry that contributes to Tanzania’s economic growth and alleviates poverty”. PFP2 aims to consolidate PFP1’s achievement by shifting from direct operations to facilitation, inclusiveness and the building of sustainability for a long-term impact.

To ensure that the plantation forestry sector in Tanzania is all-inclusive, PFP2 was formulated with a human rights-based approach (HRBA), which, in practice means, the realisation of human rights as one of PFP2’s results. Furthermore, the PFP2’s HRBA approach will emphasise inclusive, participatory and non-discriminatory processes which are transparent, and which enhance accountability. PFP2 strives to enhance the capacities of rights holders, duty bearers and, when relevant, other responsible actors. It has conducted a comprehensive human rights, gender, and vulnerability baseline assessment to facilitate the participation and inclusiveness of all programme stakeholders in implementation.

Studies conducted by both PFP1 and the FDT over the last five years have improved understanding of the sector. Key findings include the following.

- a. Collectively, smallholders grow the largest area of forest plantation (>150,000 ha) of any producer in Tanzania and have the most scope for expansion.
- b. Collectively, SMEs produce the most sawn wood of any producer in Tanzania.
- c. Both smallholders and SMEs contribute greatly to livelihoods in the Southern Highlands, yet they are underserved in training, extension, infrastructure, financial services, research and innovation support, and, in consequence, do not achieve their potential.
- d. Forest value chains are based on too few tree species and too many trees of unknown provenance. Both the FDT and PFP1 have made major contributions to tree improvement but these contributions are not sufficiently institutionalised.
- e. PFP1 identified six potential forest industry clusters. The three with the most medium-term development potential were Mafinga, Njombe and Makete. Forest industry clusters have many stakeholders, including smallholders and company and government growers; private transporters; non-government organisations (NGOs); and the ministries, departments and agencies of MoF, MNRT, Ministry of Education, Science and Technology (MoE), the president’s office, regional administrative and local governments (TAMISEMI) and VETA. However, since these stakeholders are not locally coordinated or optimised to work together, there are many inefficiencies in the sector, such as those listed below:

- Pine is planted when the market demands eucalyptus.
  - The district governments of Mufindi, Mafinga, Kilolo, Makete, Njombe TC, Njombe District Council, Ludewa, and Wang'ing'ombe are largely financed by taxing forestry, yet their reinvestment in commercial forestry extension is sub-optimal.
  - Ad hoc taxes that cause businesses to fail are imposed.
  - Government land is left idle when it could be used productively.
- f. The most cost-effective way to reduce poverty through production forestry and sawmilling in the Southern Highlands is to improve forest industry cluster coordination and enhance the performances of both smallholders and SMEs.
  - g. Makete District in Njombe Region has the greatest area of smallholder plantation forestry of any district, has some of the best growing conditions, and, until recently, has suffered from impoverishment due to its remoteness and lack of services. Rapid progress in rural electrification and road construction are, however, opening opportunities for rural industrialisation while at the same time improving market access.

PFP2 focuses on cluster coordination and on groups of smallholder plantation-rich villages because it believes it can greatly reduce poverty by improving plantation forestry and wood-processing in these areas. It engages with duty bearers and stakeholders to a) conduct baseline human rights situation analyses, b) map woodlots, c) enumerate woodlots and identify their owners, d) identify baseline studies and assess SMEs, and e) elucidate wood-product market systems and their accessibility to the poor. These studies then provide the basis for detailed participatory work planning and monitoring.

During this reporting period, most of the staff needed by PFP2 were recruited and trained, and baseline studies were advanced but not completed.




This report provides detailed information on the achievements and progress made during the first quarter of the 2020-2021 annual work plan (AWP) period. It covers the period from 1 July to 30 September 2020. The total MFA budget for the quarter period was Euro 1,063,223, Euro 516,098 of which was allocated to procurement. It follows the revised result-based management framework (RBMF), which was updated during the preparation of the 2020/2021 AWP and budget.

## 2. PROGRESS

This section describes in detail the activities performed during the July to September 2020 quarter. It provides details about the inception-phase activities carried forward to the implementation phase as well as about implementation-phase activities.

Where appropriate, the status of and progress made in each of the achieved activities are illustrated and rated as described in Table 2.1. It should however be noted that target setting can be completed only after baseline data is collected. It is expected that baseline data will be collected as described under Section 3.1 during the next quarter and that targets will be better represented in the second quarterly progress report (QPR).

**Table 2.1 Ratings used for the achievement statuses of activities performed during the July to September 2020 quarter**

Colour highlight	Description
	The activity was completed.
	The activity was partially completed or completed with minor deviations or is in progress.
	The activity was not conducted or not initiated or there were major deviations.

### 2.1 Result 1 Tree growers establish and manage plantations

#### 2.1.1 Output 1.1 Private Forestry Organisations are Strengthened

The programme signed a memorandum of understanding (MoU) with AF with the intention of following up with a contract and supported the TTGAU with an interim short-term service provision contract until an annual contract can be formulated and approved.

Progress on tree growers' association (TGA) formation was made by starting village council meetings about TGA formation and with village-level participatory forest-resource mapping and participatory woodlot assessment as part of the baseline studies and as an entry point to TGA formation and woodlot management planning.

It should be noted though that information provided during the exercise did not amount to a complete assessment of forest resources within the villages but rather a participatory mapping of forest resource ownership according to the knowledge and willingness to share of the assembled villagers.

Selected woodlots were later surveyed with their owners on the ground. This process involved some destructive sampling. Often it was found that the boundaries of preselected woodlots delineated on satellite imagery did not match the boundaries on the ground. Thus, these boundaries had to be physically visited in a process of ground-truthing using the global positioning system (GPS).

During this exercise, owners were informed about how they could grow bigger trees faster if they so desired. Such information discussion raised a lot of interest.

The statuses of Village land-use planning (VLUP) and village saving loan associations (VSLA) were listed for reference and do not relate to progress made during the reporting period.

#### ***Forestry cluster support to forest-rich villages in Makete***

During the reporting period the programme managed to verify and select potential forestry-rich villages in Makete District (Table 2.2). The participatory selection process involved consulting district officials in Makete to ensure the sustainability of programme interventions.

Progress was made on participatory forest-resource assessment during the baseline study. PFP2 managed to map a total of 257 woodlots covering an area of about 470 ha.

The programme started to develop a TGA establishment manual and to raise village-level awareness during the baseline survey.

### **Support in woodlot management planning**

Best operating practices (BOPs) for managing pine natural regeneration in Makete were prepared by a short-term national consultant prior to the reporting period (Annex 2). During the reporting period, other guidelines were studied, the BOPs were field tested, and a simplified two-page Swahili version suitable for farmers was produced.

### **Capacity-building to support TGA formation**

Recently recruited extension officers and workers were provided with a refresher course in TGA formation and establishment. The TTGAU prepared a draft TGA formation guideline and an international short-term consultant was approved by the competent authorities to enhance those guidelines.

By the end of the reporting period, the programme had initiated discussions at various levels, from the district to the village, to gather preliminary information for establishing TGAs. Table 2.2 provides a brief description of the status of TGA formation in the Makete forest industries cluster.

**Table 2.2 Makete TGA status as of 30 September 2020**

Village Name	Previously formed TGA	Previously formed VLUP	Previously formed VSLA group	Progress made between July and September 2020					
				Participatory forest-resource mapping	Participatory woodlot assessment	TGA discussions started	Village assembly meetings and preliminary group formation	Awareness-raising about the role of an executive committee	Election of a temporary executive committee
<b>Management Unit - 1</b>									
Ibaga	UWAMI	Yes	No	Started	Started	Yes			
Iindiwe	Upondo group	Yes	Yes <sup>1</sup>	Started	Started	Yes			
Malembuli	None	Yes	Yes	Started	Started	Yes			
Mang'oto	KIWAHIHAMA	No	No	Started	Started	Yes			
Usungilo	None	Yes	Yes <sup>2</sup>	Started	Started	Yes			
<b>Management Unit - 2</b>									
Ipepo	None			Started	Started	No			
Ihela	Yes	Yes	Yes	Started	Started	Yes			
Lupalilo	None	No	No	Started	Started	No			
Mago	Kiwamima	Yes	No	Started	Started	Yes			
Kisinga	None	No	No	Started	Started	Yes			
<b>Management Unit - 3</b>									
Nkenja	None	No	No	Started	Started	Yes			
Isapulano	None	No	No	Started	Started	Yes			
Luvulunge	None	No	No	Started	Started	No			
Ivilikinge	None	N/A	No	Started	Started	Yes			
Ivalalila	None	N/A	No	Started	Started	Yes			

<sup>1</sup>VSLA group formed by the TTGAU

<sup>2</sup>VSLA group formed by the TTGAU



Village Name	Previously formed TGA	Previously formed VLUP	Previously formed VSLA group	Progress made between July and September 2020					
				Participatory forest-resource mapping	Participatory woodlot assessment	TGA discussions started	Village assembly meetings and preliminary group formation	Awareness-raising about the role of an executive committee	Election of a temporary executive committee
<b>Management Unit - 1</b>									
Ludihani	None	N/A	No	Started	Started	Yes			
Ndulamo	None	N/A	No	Started	Started	Yes			
<b>Management Unit - 4</b>									
Bulongwa	None	No	No	Started	Started	Yes			
Mwakauta	None	No	No	Started	Started	Yes			
Iniho	None	No	No	Started	Started	Yes			
Kidope	None	No	No	Started	Started	No			
Lumage	None	No	No	Started	Started	Yes			
Ipelele	None	No	No	Started	Started	No			

#### ***Forestry cluster development in Njombe and Mafinga.***

The Mafinga forest industry cluster coordinator (FICC) held various strategic meetings with Iringa Regional Government, Mufindi District Council, Mafinga TC and Rift Valley Energy Ltd.

The first meeting was held between the Iringa RC and the PFP2 CTA, who was accompanied by the Mafinga/Mufindi Cluster Coordinator, the Monitoring and Evaluation (M&E) Expert and the National Finance and Procurement Expert (NFPE). The aim of the meeting was to familiarise regional government officials with PFP2 and introduce PFP2 at the regional level. The Iringa RC commended the work that was done during PFP1 and pledged his support for the implementation of PFP2.

Another meeting was held at Mufindi District Council with the district forest officer (DFO), district trade officer (DTO) and district community development officer (DCDO). The aim of the meeting was to get to know the district government officials, introduce the programme, and present the list of villages with which PFP2 intends to work. During the meeting it became evident that out of the 24 preselected villages, 23 are in Mufindi District Council. Both the DFO and the DTO acknowledged that there are adequate forest resources in these preselected villages and recommended a field visitation to confirm their suitability for inclusion.

Also, the FICC held a meeting with Mafinga TC Trade Officer (TTO) and DFO, both of whom confirmed that they had data on all SMEs operating in Mafinga TC. Most SMEs operating in Mafinga TC were willing and ready to offer any support that the programme would need to enable a smooth take-off.

A prospective partnership meeting was held in Mafinga with the Rift Valley Energy Company (RVE). RVE invests in energy in the Mufindi and Njombe areas. It established Mwenga Hydropower Plant with a total capacity of 4 megawatt and a windmill with 25 m-long blades with the capacity of generating 2.4 MW. RVE was willingly to collaborate in fundraising for the sake of distributing power to very remote areas within the project's focus to stimulate SMEs activities in the forestry sub-sector.

In the next quarter, the Mafinga/Mufindi FICC, in collaboration with the two district councils will focus on familiarising all preselected villages in Mafinga/Mufindi with PFP2, assessing the real situation on the ground, and mapping out stakeholders to involve in project implementation.

The Njombe FICC relocated to Njombe forestry industry cluster on 14 September 2020 to establish a cluster-based office in Njombe. The Njombe FICC held meetings with Njombe Town Council Executive Director and Njombe TC Forest Officers to introduce the programme.

The following issues were raised in these meetings:

- The Njombe TC Executive Director said that PFP2 was an important development partner in Njombe as PFP 1 had created income-generating activities but that there was a need for community awareness because people still harvested immature trees and some replace timber trees with avocado trees. According to Njombe Forest Office statistics, the number of tree nursery operators decreased from 80 to 60 in the last two years.
- Njombe TC has developed a master plan with an industrial park where wood-processing SMEs and big investors will have investment opportunities that will promote the expansion of wood industry activities. There is a need to conduct an inventory to gather statistics about SMEs and tree growers as well as merchantable volumes.
- Middlemen infringe upon tree growers' benefits by selling standing trees at very low prices.
- Forest fires hinder forest industry development in Njombe, so the Njombe TC Executive Director called for PFP2's support in addressing the challenge.

Also, the Njombe FICC had a meeting with Njombe District Council officials (acting DED, DNRO and DFO) who welcomed PFP2 but insisted on the following:

- Improving collaboration between Njombe District Council and PFP2.
- Meeting with the District Senior Management Team to create awareness about and ensure buy-in in the programme.
- Creating awareness among ward councillors (during the district's full council meetings) before actual PFP2 implementation to create a sense of ownership of the programme in Njombe DC.

On 15 September 2020, the Njombe FICC had a meeting with the TTGAU's manager to introduce the programme and identify areas for collaboration and PFP2 support. PFP2 will enter into an MoU with the TTGAU on implementing some strategic interventions such as seed orchard management, partnership, and capacity-building for the TTGAU.

#### ***Support to PFP1 TGAs***

The TTGAU maintained contact with TGAs formed during PFP1 and organised some support through the facilitators that were employed then. More formalised and systematic support needs to be provided to protect these investments. Such support will be the subject of a service-provision contract with the TTGAU.

#### ***Support to lead TGAs***

No progress in this aspect was made during this reporting period.

### **2.1.2 Output 1.2 Stakeholders' capacity in tree growing has been strengthened.**

#### ***Familiarising village people, TGA leaders and facilitators***

No progress was achieved apart from awareness-raising and ad hoc familiarisation made during the baseline studies.

#### ***Training of tree growers, farmers, and wood processors***

No training of tree growers, farmers and wood processors was conducted during this reporting period.

The programme made progress in procuring mobile training units that will move from village to village providing training on woodlot management, harvesting, extraction, and primary processing into sawn wood and charcoal.

In addition, forest industry and forestry attendant VET 1, 2 and 3 tutors were recruited and provided with refresher training. Village-level training will start after the field work for baseline studies is complete, and it will be strengthened when the mobile training units arrive and are commissioned, and the tutors are trained to use them.

***Field days and exchange visits***

No progress was made in this aspect during this reporting period.

***FWITC accreditation and registration***

FWITC accreditation and registration must be preceded by site acquisition.

The issue of site acquisition was followed up on repeatedly with the Permanent Secretary of the MNRT and the RC of Iringa. The Secretary requested the Ministry of Lands to re-evaluate the site, taking into consideration the investment made by the MNRT through PFP1. Upon getting a new valuation report, the Secretary plans to contact the Ministry of Finance and Planning (MoF) for further action.

***VETA 1-2-3 forestry and wood-processing curricula and training material development***

The programme followed up on accreditation of VET 1, 2 and 3 forestry and wood-processing attendant courses. Neither course had been accredited at the end of this reporting period in part because VETA lacked the funds it needed to conduct meetings to accredit the curricula.

The FTI and the FITI finalised the two curricula (one for forestry and one for wood industries) in February 2020 and planned to submit them to VETA Tanzania at its board meeting scheduled for March 2020. The COVID-19 pandemic scuppered plans for that meeting, however, and VETA Tanzania is still waiting for funds to convene the meeting.

***Compensation to tree growers***

No progress in this aspect was made during this reporting period.

***Assessment of employment opportunities***

The programme started a baseline survey in Makete District. The assessment of employment opportunities is among the deliverables of the study.

The baseline study was at the data-collection stage at the end of this reporting period.

***Internship programme to expand service provisions***

No progress in this aspect was made during this reporting period.

***TGA seed orchard management***

The following seed orchard activities were implemented during the quarter. Progress was illustrated below.

<b>Activity (1<sup>st</sup> Quarter 2020/2021)</b>	<b>Progress description</b>	<b>Ratings</b>
Finalising seed orchard manual	Short-term national and international consultancy contracted for improving the seed orchard manual	In progress
Planning future activities for seed orchards	Seed orchard stakeholders visited all the seed orchards to assess needs and identify the activities to be done	Completed
Promoting the development of seed orchards	A story body was developed for documenting all seed orchard interventions and outcomes in video and still pictures	In progress

Activity (1 <sup>st</sup> Quarter 2020/2021)	Progress description	Ratings
<p><b>Conclusion:</b> The programme continued to maintain all the programme-supported seed orchards and worked to establish a sustainable practical arrangement.</p>		

Seed orchard management was intensified by PFP2. Sites were visited and meetings were held with the DTSP and the TTGAU. These included a two-week seed orchard tour by the director of DTSP accompanied by the TTGAU and PFP2 to assess the latest status of the seed orchards prior to progress planning (Figure 2.1).

**Figure 2.1 Seed orchards visit by PFP2, DTSP and the TTGAU**



*PFP2, DTSP and TTGAU discussion at Ibumi seed orchard*



*Seed orchard stakeholders at Ifinga TGA-based seed orchard*

During the field visit to programme-supported seed orchards, stakeholders recommended that diseases be assessed. The TTGAU reported the issue to Tanzania Forest Research Institution (TAFORI), but TAFORI had not yet provided any feedback at the time this report was written. Stakeholders also emphasised that management activities, especially protection against fire hazards, were needed.

Overall, the following activities were initiated to maintain and manage all the programme-supported seed orchards:

- Finalisation of the seed orchard manual.
- Visits by PFP2, in collaboration with DTSP and the TTGAU, to all the programme-supported seed orchards to assess their needs and the management activities to be carried out.
- Preparation of seed orchard activities planned and budgeted up to October 2023.
- Designing of seed orchard signage
- Development of a story body for documenting the development of seed orchards.

- Conduction of one seed orchard stakeholders' meeting.
- Completion of baseline seed stand and seed orchard status assessment.
- Assessment of the statuses of seed orchard caretakers.

### 2.1.3 Output 1.3 Tree growers' access to forest financing increased and diversified.

In July 2020, the Forest Development Trust (FDT) invited the programme to participate in a stakeholders' workshop for SME development and access to markets and finance. The invited guests included the general secretary of the Tanzania National Business Council (TNBC) and the executive director of SIDO. Access to finance was one of many topics discussed. SIDO promised to work on this issue since the loans currently available are still small to support investment by SMEs in the forestry sector.

**Figure 2.2 Field visit for participants in the SME development and access to finance and markets event at Sao Hill, Mafinga.**



#### ***VSLA/VICOBA evaluation***

No progress in this aspect was made during this reporting period.

#### ***External forest finance***

No progress in this aspect was made during this reporting period.

#### ***Auditing the MFA's out-grower support programme***

MFA tasked the programme with auditing its out-grower support programme. The supported companies and organisations are KVTC, NFC and TTGAU. The programme has requested the named companies and organizations to submit information on supported owners and their woodlots, including their locations and boundaries woodlots (shapefiles). By end of the quarter, however, only the KVTC had managed to share complete information (both attributes and spatial specifications). The programme has continued to follow up with the TTGAU and NFC to ensure that they deliver reliable information.

### 2.1.4 Output 1.4 People have increased resources and capacity to manage fire.

#### ***Establish landscape level land use planning model.***

No progress in this aspect was made during this reporting period.

#### ***Extension services to prevent forest fires.***

No progress in this aspect was made during this reporting period.

## **2.1.5 Output 1.5 Strengthened communication**

### ***Disseminate objectives and outcomes of PFP2***

With reference to Section 3.2, the programme managed to familiarise various programme stakeholders with various programme aspects. This includes the MNRT Permanent Secretary, Iringa RC, DOs of Njombe, Mafinga and Mufindi, village government officials, SMEs, the TTGAU, TGAs and other collaborating institutions.

### ***Establish platform for regular meetings with stakeholders.***

The link between PFP2 and AF, which was formalised this quarter with an MoU, provides a platform for regular meetings with stakeholders.

### ***Maintaining the PFP website***

An invitation to tender to upgrade PFP2's website was launched. The AWP and Programme Implementation Manual (PIM) were uploaded. Work started on a video documentary of staff training and the baseline surveys and studies but was not made ready for uploading.

Also, the programme initiated the tracking of visitors to the website to learn about their locations and activities. During the reporting period, a total of 1,272 visitors from different 20 countries around the world visited the programme website.

### ***Establishment of forest and market information systems***

A baseline study for assessing smallholders' woodlots and the forestry market in Makete and southern highland respectively are ongoing. The studies will identify value chain actor and provides benchmark information on how the forestry market system operates.

## **2.1.6 Output 1.6 Institutionalisation of private forestry**

### ***Integration of PFP activities in district work plans***

No progress in this aspect was made during this reporting period.

### ***Facilitate the issuance of CCROs to households.***

The programme has managed to visit and hold discussions with various stakeholders issuing CCROs. The Feed the Future-Land Tenure Assistance (LTA) programme was visited in Iringa. LTA practices gender-sensitive land tenure and is a pioneer of Mobile Application to Secure Tenure (MAST) technology for CCROs. PFP 2 has learned good lessons and become aware of gaps from LTA. LTA offers MAST training and MAST software for free. PFP 2 can also benefit from the land rights awareness material available from LTA.

The programme also visited Support Mankind to Self-Support (SUMASESU), a community development organisation based in Makete. SUMASESU focuses on women and youths. SUMASESU has supported 131 CCROs in Makete. The supported CCROs were provided to three villages whose VLUPs were supported by PFP1. The supported CCROs were the result of both cost-sharing and contributions from villagers.

The programme also visited Makete Land and Natural Resource Department and discussed the introduction of MAST technology to make CCRO issuing more efficient. Under this arrangement, LTA would provide training and software, whilst PFP2 would provide hardware and support the overall introduction of MAST technology and its equitable deployment. A key concern, that the charging of CCRO issuance fees prevents poor households from getting certificates, was discussed.

### ***Define criteria for new VLUPs and facilitate preparation.***

No progress in this aspect was made during this reporting period.

### ***Study on vulnerability inclusiveness***

Prior to conducting a human rights-based approach (HRBA) and gender study, the programme's Socio-Economist Expert and Market Development System Specialist visited various stakeholders in Njombe, Makete and Wang'ingombeto find out more about stakeholders' participation in forestry industry development. The team had formative discussions with the Njombe Regional Office of the Tanzania Social Action Fund (TASAF), TGAs (Iboya, Matembwe and Masisiwe) the TTGAU, and Makete and Wang'ing'ombe community development officers about vulnerable groups and their inclusion in development activities. The insights from the discussion were used to develop the programme's definition of vulnerability as well as the proposal, tools, and sampling its HRBA study.

### ***Define investment profiles for plantation establishment.***

No progress in this aspect was made during this reporting period.

## **2.2 Result 2 SMEs establish and manage value-adding processing enterprises**

### **2.2.1 Output 2.1 Capacity of SMEs and their employees strengthened**

#### ***FWITC development and training provisions***

The FWITC collaborated with the programme in planning for and implementing training of programme staff. Also, it provided training on charcoal technologies for disadvantaged young people being supported through RLabs

To promote the development of FWITC, the TFS, under its Department of Extension and Publicity, offered the PFP2 an opportunity to participate in documenting the contribution of the forest sector to Tanzania's economic development.

#### ***Facilitate implementation of the FWITC's business plan***

The land tenure issue is still greatly limiting the FWITC's production potentiality although some of the activities in the business plan did progress.

During the reporting period, the FWITC received orders for furniture-making worth TZS 3,172,000 (equivalent to EUR 1,350).

The FWITC initiated nursery operations which aimed to restore seedling production and the seedling business. Orders for seedlings were received from various customers and the collection and preparation of planting materials progressed. The preparation of a nursery business plan had been initiated, and the centre advertised in various media.

In terms of bio-energy, training was conducted only for RLabs beneficiaries. Support for the Sustainable Charcoal and Briquette Producers Union (SCABPU) also progressed.

#### ***Demonstration of appropriate forestry and wood processing technologies***

No progress in this aspect was made during this reporting period.

#### ***Encourage participation of women, youth, and vulnerable groups***

To encourage the participation of women and youth in forestry value chains, the programme assessed SMEs and TGAs in Makete, Wang'ing'ombe, Njombe and Mafinga to get familiar with the degree and nature of the participation of women, youths and vulnerable groups in their activities.

Both TGAs and SMEs showed potential as employers of vulnerable groups such as young men and women. SMEs in Mafinga provide casual employment to a good number of young women. Through its projects, Iboya TGA has provided casual employment to about 20 young men from Iboya Village.

***Raising SME's awareness of company responsibilities.***

No progress in this aspect was made during this reporting period.

**2.2.2 Output 2.2 Increase access of SMEs to finance.**

***Support to SMEs in preparing business plans***

No progress in this aspect was made during this reporting period.

***Linking SMEs and financial institutions***

Overall, no progress was made by the programme apart from participating in a workshop organised by the FDT where the issue of access to finance was among the key agenda. SIDO promised to follow up on the issue of loans to SMEs in order to match the investment value for SMEs in the forest sector.

**2.2.3 Output 2.3 Improved quality of products along the processing value chain.**

***Development and deployment of log and sawn timber grading***

The sawn timber grading standards that were submitted to the TBS in 2018 were still awaiting publication at the end of this reporting period.

***Support to the wood industry sector for sustainable raw material procurement***

No progress in this aspect was made during this reporting period.

***Development of appropriate forest and wood processing technologies***

No progress in this aspect was made during this reporting period.

***Product development and improved use of wood waste***

The programme participated in a climate-friendly bio-energy solution workshop organised through the European Sustainable Energy Innovation Alliance (ESEIA) International Online Summer School. The workshop was conducted from 14 to 25 September 2020.

Following a visit made by bio-economy-specialising universities from Eastern Finland (Savonia University of Applied Sciences, University of Eastern Finland and Karelia University of Applied Sciences) to the Southern Highlands, arrangements were made for FORVAC, PFP2, MNRT and Mafinga wood energy SMEs to participate in an international summer school organised by ESEIA. The purpose was for Tanzanian participants to form academic links with important knowledge-holders, update their own knowledge and receive expert support in preparing proposals for advancing sustainable wood energy-product value chains.

During this web-based summer school, participants received a comprehensive overview of environmentally friendly bio-energy solutions (through lectures and company presentations) and applied their knowledge to preparing proposals for adapting European environmentally friendly technologies to the local context in Tanzania.

Three related concept notes were prepared as detailed in Annex 1 and listed below.

- Establishment of a Network of Centre of Excellences for Promoting a Circular Economy (CEPCE) in Southern Tanzania: Sustainable Charcoal, Briquette and Pellet Production.
- Improvement of the Efficiency of Charcoal Production and Utilisation of Side Streams in Tanzania.
- Increasing Pellet and Briquette Production by Using Industrial Side Streams in the Southern Highlands of Tanzania.



The three concepts were submitted to ESEIA, where they were combined with applications from other organisations to form one concept/project proposal. ESEIA accepted the proposal and gave it the go-ahead to proceed with seeking financing options. The joint project proposal is titled “Efficient Charcoal Production, Waste Management and a Circular Economy in Collaboration with Tanzania”. The proposed project is currently seeking EUR 700 million from the Green Deal call for Topic 11 proposals (accelerating the green transition and energy access partnership with Africa). PFP2 would receive EUR 100,000, or possibly more, to provide demonstration grounds at the FWITC to support learning about the efficient use of forest wastes.

Five partnerships were formed. The PFP’s concept falls under the “Green Transition and Energy Access Partnership,” which proposes a variety of measures, including a circular economy, sustainable value chains, smart urbanisation models and businesses, and safe and sustainable agri-food systems. The course organisers regularly receive and respond to related funding opportunities.

#### **2.2.4 Output 2.4 Improved communication and integration of forestry and wood industry associations, enterprises, and clients.**

##### ***Awareness-raising on the utilisation of forest and wood products***

In reference to Section 2.2.3 under the sub-section titled “Product Development and Improved Use of Wood Waste”, the programme initiated discussions and raised awareness on the utilisation of forest and wood products, specifically in the Southern Highlands.

Also, the programme participated in the preparation of a documentary on promoting forest sector development by presenting the contribution the sector makes to the Tanzanian economy. This project was organised by the TFS Department of Extension and Publicity. Through this platform, the programme managed to describe its intervention as well as opportunities that may contribute to the utilisation of forest and wood products.

All these platforms cover nation-wide promotions of and awareness-raising about the utilisation of forest and wood products.

##### ***Establish a strategy for forest information systems.***

No progress in this aspect was made during this reporting period.

##### ***Accomplish and synchronise FMIS and MaIS***

The programme is making progress in assessing the needs for these systems so that they will be sustainable and capable of solving challenges faced by tree growers, wood industry SMEs and other actors in the forest value chain.

Both forestry resource mapping and an exploration of how the forest market systems operate were in progress.

##### ***Dissemination of FMIS and MaIS***

No progress in this aspect was made during this reporting period.

##### ***PFP’s industrial node development***

No progress in this aspect was made during this reporting period.

#### **2.2.5 Output 2.5 Policy and partnership support**

##### ***Facilitation of dialogue and liaison platform***

No progress in this aspect was made during this reporting period.

***Association development in wood industry sector***

The programme initiated discussions with SHIVIMITA, SAFIA and UWASA on opportunities for collaboration in strengthening these wood industries associations.

Also, through the PFP's MoU with AF, cluster meetings will be implemented to serve as a platform through which SMEs can connect with the large companies forming AF.

***Facilitation and enforcement of HRBAs in PFP2 implementation***

As a cross-cutting activity, the programme trained all staff members in the HRBA. Most baseline studies related to the HRBA situation are in progress.

### 3. PROGRAMME MANAGEMENT

#### 3.1 Programme document revision and approval

Prior to the revision and approval of the PD, the programme had to prioritise and complete the baseline surveys and studies listed below. The baseline surveys were planned as a rolling exercise in the sense that studies will be completed in villages in Makete, where implementation is expected to follow immediately. At the same time, baseline data will continue to be collected as new villages in the Njombe and Mafinga forest industry clusters are made ready for implementation activities. The various surveys and their progress are listed in the table below and described in more detail on the following pages.

Activity (1 <sup>st</sup> Quarter 2020/2021)	Progress description	Ratings
Baseline survey planning and data collection design	Baseline survey design completed and piloted.	Completed
Human rights-based approach situational analysis	Questionnaire design for key informant interviews and focus group discussions developed and piloted. Data collection initiated.	In progress
Socio-economic studies	Household survey and poverty probability index scores questionnaire developed and piloted. Data collection initiated.	In progress
SME and woodlot survey design completed	Tools for SME and woodlot data collection designed and piloted. Data collection initiated.	In progress
Participatory plantation mapping initiated	Preliminary information on available forestry resources collected for woodlot survey sampling.	In progress
Market system studies	Assessment of value-chain actors and the forestry market in general initiated.	In progress
<p><b>Conclusion:</b></p> <p>The programme managed to complete the designing and planning of baseline studies and to initiate the data collection process. All tools for data collection were piloted and human resources were trained to collect data.</p>		

#### ***Baseline survey planning and data collection.***

Baseline surveys and studies were designed and mobilised soon after staff training was completed in early September. The purpose of this research was a) to provide an evidence base for PD revision, b) to collect information to guide programme implementation, and c) to collect baseline indicators for programme monitoring.

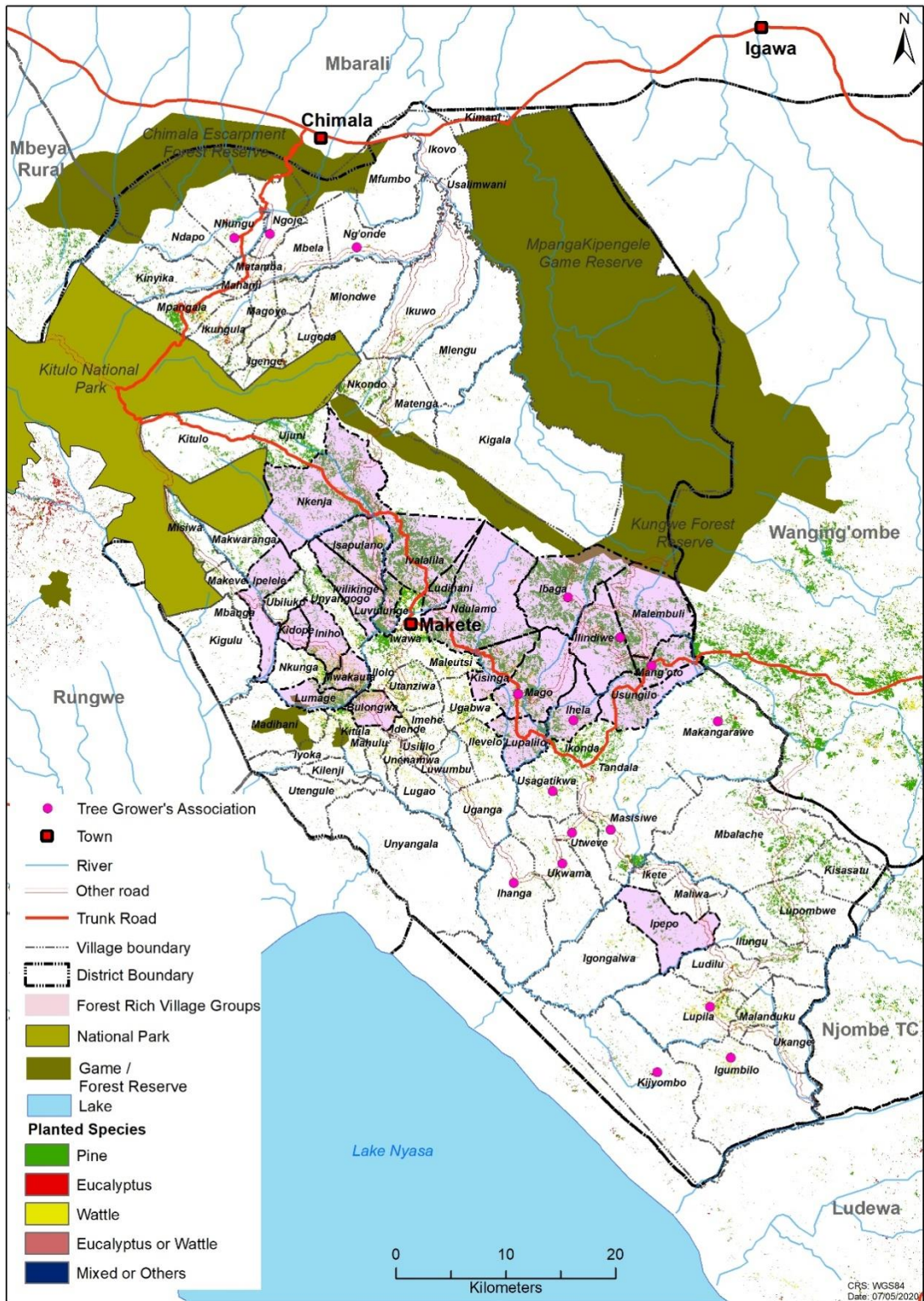
Field work commenced in Makete District, where it was expected it would take about one month, from late September to late October, to collect the necessary data. By the end of the reporting period about one-quarter of the data collection work had been completed.

The baseline surveys and studies included:

- a) HRBA situation analysis
- b) Socio-economic studies
- c) Participatory woodlot mapping
- d) Woodlot assessment
- e) SME assessment
- f) Market systems study

The baseline data collection is scheduled to be conducted in all 23 of the villages in Makete District that the programme selected (Figure 3.1).

Figure 3.1 Villages selected by the programme for the baseline survey



### Human rights-based approach situational analysis

To understand the social and economic situation in Makete and identify causes of poverty and vulnerability, the programme carried out 21 FGDs with male and female community members, young male and female community members, male and female members of vulnerable households and male and female heads of vulnerable households separately (Figure 3.2).

**Figure 3.2** Focus group discussions were held in various villages in Makete District as part of baseline studies.



*The national short-term consultants supporting and facilitating FGDs*



*Female FGD participants in Usungilo Village*



*Youth FGD in Mang'oto Ward*



*Male FGD participants in Mang'oto Ward*

Along with FGDs, the programme conducted 15 key informant interviews (KIIs) with village executive officers, 15 interviews with village chairpersons, two interviews with ward executive officers, one interview with a ward community development officer, six interviews with forestry SME workers, 12 interviews with district officials, six interviews with local NGOs, and one interview with a TGA. Some interviews were still being conducted at the end of September 2020.

The programme also collected household socio-economic information from 200 households in 10 villages during the reporting period. As of 30 September, the end of this reporting period, this exercise was still going on.

**Figure 3.3 Household survey**



Prior to the actual conduction of the FGDs, KIIs and household survey, data collection tools were developed and put into use. Furthermore, secondary data was also collected, and reporting had been initiated by 30 September 2020.

### **Participatory plantation mapping**

The participatory plantation mapping exercise conducted during baseline studies was a pioneering exercise. It collected preliminary information on households, SMEs and tree growers and their woodlots, information which supported follow-on studies.

Spatial woodlot data was collected using both high-resolution satellite images and mobile data collected using Open Data Kit (ODK) for recording tree growers' information and . A high-resolution satellite image of the whole village area was printed at a scale of 1:5,000 and tree growers mapped their woodlots on it (Figure 3.4). A temporary code was given to each woodlot which later was matched with information about each owner.

**Figure 3.4 Tree growers identifying their woodlots on a high-resolution satellite image**



The mapped woodlots were digitised using ODK and smart phones and later, using the collected woodlot information, a map was developed showing the satellite image in the background and the mapped woodlot boundaries with names of the woodlot owners, their temporary woodlot codes and local woodlot names to help the woodlot survey team locate them in the field (Figure 3.5).

**Figure 3.5 Spatial data processing**



By the reporting time, a total of 257 woodlots covering an area of about 470 ha had been mapped. Since mapping the boundaries of natural regeneration woodlots was challenging, especially when it came to identifying individual woodlots (Figure 3.6), ground-truthing is highly recommended.

**Figure 3.6 Natural regeneration seen on a satellite image**



### **Woodlot assessment**

The programme aims for the woodlot assessment to provide baseline data for woodlot-related RBMF indicators, many of which concern the silvicultural statuses of smallholders' woodlots and the quality of the management activities they apply. For this reason, a field inventory type of approach was deemed appropriate. The assessment also provides an opportunity to start creating a smallholder woodlot database and thereby increasing the programme's knowledge of the special features of smallholder forestry in Makete District.

During the reporting period, a survey plan was prepared for the woodlot assessment, programme staff members were trained to conduct that assessment, and field work was started. The work was guided in the field by programme experts, while the field teams consisted of programme extension officers and workers.

The survey plan included measuring sample plots from about 400 woodlots in the 23 villages in Makete District selected for later inclusion in programme interventions. In each woodlot, a set of general forestry variables was measured (Figure 3.7). In addition, assessments were made concerning the observed level of silvicultural activities such as weeding and pruning.

**Figure 3.7 Fieldwork for woodlot assessment: Calculation of annual rings for stand age (left) and measurement of tree height (right)**



By the end of the reporting period, the assessment was well underway. Six out of the 23 villages had been completed and a total of 121 woodlots measured. The early findings suggested overstocking was a general problem in Makete, mostly due to the insufficient re-spacing of naturally regenerated pine stands. The lack of other management activities, including weeding and fire break preparation, was also recorded. Pruning, in contrast, was found to be conducted widely; however, most pruning was only up to a few metres' height. Growing conditions in the surveyed woodlots were found to be generally good, and scores for average site indexes were high.

### **SME assessment**

As a part of the programme's baseline data collection, a separate exercise was designed to target SMEs within the forestry value chain. Its objectives were to collect necessary baseline data from SMEs as well as to map local forestry value-chain actors and to come to an understanding of their operational realities.

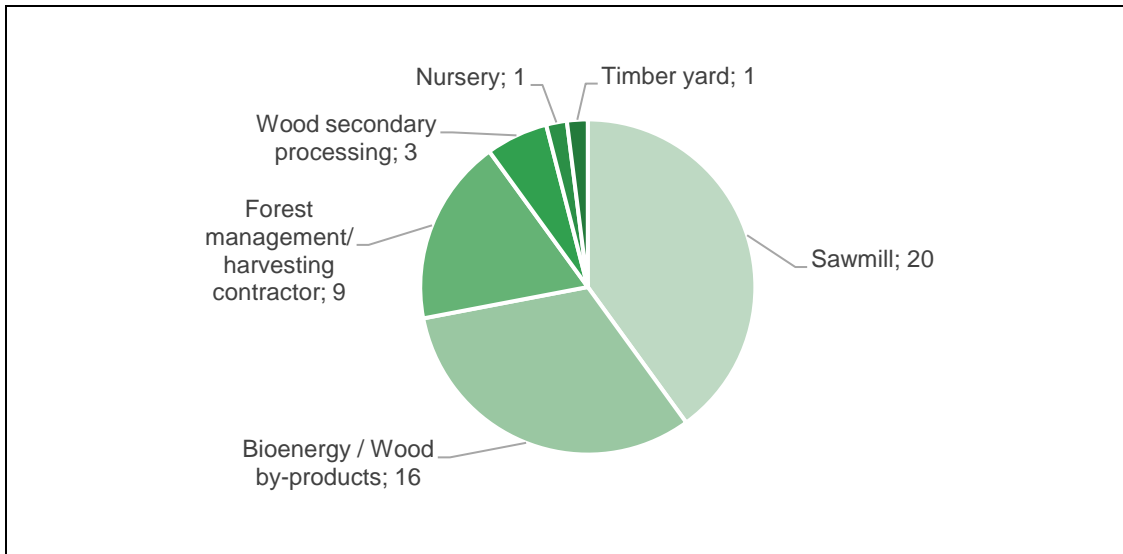
A survey plan for SME assessment was prepared during the reporting period, and the exercise was designed to be implemented in conjunction the woodlot assessment. Some staff members of the programme specialised in conducting interviews with SME owners, which served as the main method for data collection. In addition, field visits were made to the operating sites of some SMEs.

Data collection included the administration of a questionnaire concerning the types of SME operations in practice and their level of technology, SME administration and funds, employees, and social security.

By the end of the reporting period, a total of 40 SMEs with forestry-related activities had been interviewed in six villages. The main activities of these SMEs were sawmilling (20 SMEs), charcoal-making (16 SMEs) and forest harvesting (9 SMEs), as shown in Figure 3.8. Four of the SMEs with forest harvesting operations also operated sawmills, while the rest focused solely on harvesting. In addition, three carpentry workshops, one nursery and one timber yard were included in the survey. Only nine SMEs were officially registered, and most of these registrations had been done only at the district level.



**Figure 3.8 Activities of the SMEs surveyed as of 30 September**



The early results showed a low level of capital investment (TZS 3 million on average) in SMEs and a lack of external funding sources. Moreover, the early results indicated that about 40% of the SMEs reported losses instead of profits; this finding, however, requires further inspection.

There were virtually no formalised social security systems within the 40 interviewed SMEs and only three SMEs reported having received any occupational safety and health-related training. Twenty-five SMEs reported that no incapacitating accidents had taken place within the past 12 months, but the remaining 15 SMEs reported that a total of 45 accidents had occurred in the same period.

The level of applied technology was low: the only observed technology for sawmilling was a ding dong (amec) sawmill and the only observed technology for charcoal-making was the traditional pit kiln (Figure 3.9).

**Figure 3.9 Ding dong (amec) sawmill and traditional pit kiln**



It should be emphasised that the results presented herein will undergo changes once the complete dataset is incorporated, but they already provide a hint of the final findings expected.

### **Market systems study**

A forest resource market systems study was planned and carried out to develop insights into how the market in Makete cluster operates. It intended to examine existing markets and determine how market actors relate to each other, identify the barriers to market access and the root causes of the failure of markets to enable poor people to benefit; and to devise incentives and opportunities for market actors, especially the poor, to participate effectively in forestry value chains. In addition, it aimed at analysing how forestry operations at the woodlot level as well as

wood- and non-wood-processing practices and the resulting products contribute to existing market functions.

The outcome of the study will provide inputs to PFP 2's revision of its PD and subsequent AWP. It will suggest areas with potential for investment, and, in doing so, attract trade and investment in the Makete cluster, thereby increasing business activities. It will also provide a basis for dialogue among market actors to address market failures as well as produce an information system on various markets for actors to be aware of and benefit from. Eventually, it will support the development of a market system that enables poor and marginalised people in Makete and beyond to advance. However, by the end of the reporting period, this study was still in progress. A complete report will be finalised during the second quarter of the first fiscal year.

The designs of the market assessment tools were completed this quarter, but the actual piloting and data collection are scheduled to be implemented only in the next quarter.

### 3.2 Familiarisation of programme management team and stakeholders

The programme capacitated its staff and other key stakeholders in various aspects related to PFP2. Below is an illustration of the achievement statuses of the key activities performed.

Activity (1 <sup>st</sup> Quarter 2020/2021)	Progress description	Ratings
Staff mobilisation	Staff for PFP2 reported on 1 July 2020	Completed
Staff training	All PFP2 staff trained	Completed
<b>Conclusion:</b> Overall, the programme managed to achieve all its activity targets concerning staff mobilisation and training as planned.		

#### **Staff mobilisation**

Most of the Tanzanian staff members of PFP2 were selected in December 2019, but the programme was only able to start contracting from July 2020 because of the VAT issue and the COVID-19 pandemic.

















These issues set programme implementation back by six months.

Luckily, however, all the candidates selected were still available to start in July 2020 (Table 3.1) and contracting proceeded smoothly. Formal staff training took place at the FWITC during July and August as discussed in Annex 3 of the approved AWP<sup>3</sup>.


**Table 3.1 PFP2 staffing on 30 September 2020**





Name	Title/Position	Biography
<b>International Technical Assistance</b>		
1	Michael Hawkes	Chief Technical Advisor (CTA) M.Sc. in forestry and its relation to land use
2	Juha Kiuru	Forest Products and Processing Expert (FPPE) M.Sc. in technology
<b>National Technical Assistance</b>		
3	Joyce Msigwa	Socio-Economist (SE) M.A. in demography

<sup>3</sup> Programme Annual Work Plan and Budget for 2020/2021: <http://www.privateforestry.or.tz/en/resources/view/pfp-2-awp-2020-2021-july-2020-endorsed-by-psc-on-14-july-2020>

Name		Title/Position	Biography	
4	Pius Dominick	National Financial and Procurement Expert (NFPE)	MBA	
5	Eliya Elias Mtupile	Market Systems Development Specialist (MSDS)	M.Sc. in natural resources assessment & management	
6	Andrew Ferdinands	Land-Use Planning Expert (LUPE)	M.Sc. in geospatial technologies	
7	Hosea E. Kiyogoma	Forest Industry Cluster Coordinator (FICC – Makete)	MBA in corporate management	
8	Andrew Mwakisu	Forest Industry Cluster Coordinator (FICC – Njombe)	M.Sc. in forestry	
9	Nyachia R. Warucha	Forest Industry Cluster Coordinator (FICC – Mafinga)	MBA in strategic management	
<b>Operational staff</b>				
10	Davis J. Chidodo	Monitoring and Evaluation Expert (MEE)	M.Sc. in land use planning and management	
11	Raheli J. Swai	Nursery Manager (NM)/ Acting FWITC Manager	B.Sc. in forestry	
12	Fahima C Tindamanyire	Bio-Energy Tutor (BET)	B.Sc. in chemical and process engineering	
13	Anastazia S. Kasase	Forestry Extension Officer (FEO) - Seed Orchard	Diploma in forestry	
14	Judith Mdoti	Wood Industry Extension Officer (WIEO)	B.Sc. in forestry	
15	Mahendeka Jeremiah	Forestry Extension Officer (FEO)	B.Sc. in forestry	
16	Nickson Marandu	Wood Industry Extension Officer (WIEO)	B.Sc. in forestry	
17	Anjela Thomas	Forestry Extension Officer (FEO)	B.Sc. in forestry	
18	Teresia BashiriMchome	Forestry Extension Officer (FEO)	B.Sc. in forestry	
19	Caren Riite	Wood Industry Extension Officer (WIEO)	Diploma in forest industries technology	

Name		Title/Position	Biography	
20	Lidya J Fredrick	Wood Industry Extension Officer (WIEO)	Diploma in forest industries technology	
21	George J. Munish	Wood Industry Extension Officer (WIEO)	Diploma in forest industries technology	
22	Herman S. Mmelo	Forestry Extension Worker (FEW)	VET	
23	Edina Wilson	Forestry Extension Worker (FEW)	VET	
24	Zabron J. Mgeta	Forestry Extension Worker (FEW)	VET	
25	Augustino F. Mng'ong'o	Forestry Extension Worker (FEW)	VET	
26	Hashim Sanya	Wood Industry Extension Worker (WIEW)	VET	
27	Sesilia M Mgani	Wood Industry Extension Worker (WIEW)	VET	
28	Azizi Adam	Wood Industry Extension Worker (WIEW)	VET	
29	Yeriko M Lwila	Wood Industry Extension Worker (WIEW)	VET	
30	Philipo Simon Sanga	Wood Industry Extension Worker (WIEW)	VET	
31	Lulu F. Pandila	Wood Industry Extension Worker (WIEW)	VET	
32	Freeman D. Massawe	Forestry and Wood Industry Tutor VET I – III tutor (WIT)	Diploma in forest industries technology	
33	Walter B. Mushi	Forestry and Wood Industry Tutor VET I – III tutor (WIT)	Diploma in forest industries technology	
34	Chamba B. Pamba	Forestry and Wood Industry Tutor VET I – III tutor (WIT)	Diploma in forestry	
35	George Chalamila	FWITC workshop manager	Certificate in mechanical wood industry	

Name		Title/Position	Biography	
36	NuruMswaki	FWITC joinery workshop manager	VETA in carpentry	
<b>Administrative staff</b>				
37	TunuMwalami	Accountant/Cashier - Iringa	Bachelor's in accounts and finance	
38	Judith Michael	Office assistant – Iringa		
39	Happy S. Mtenzi	Office assistant – FWITC		
40	Dilys Musila	Office assistant –Makete	B.A. in procurement and supply management	
41	Leo J. Kiliwa	Driver	Certificate of driving school NIT	
42	Habibu G. Mahanga	Driver	Certificate of driving school NIT	
43	MussaMhina	Driver	Certificate of driving school NIT	
44	Simon H. Mbala	Driver	Certificate of driving school NIT	
45	Joseph S. Mahali	Driver	Certificate of driving school NIT	
46	Essau M. Masonda	Driver	Certificate of driving school NIT	
47	Mfaume H. Kambi	Driver	Certificate of driving school NIT	
48	Florian Mielwa	Driver	Certificate of driving school NIT	

Name		Title/Position	Biography	
49	Richard Msitu	Driver	Certificate of driving school NIT	
50	Abdala Abdala	Driver	Certificate of driving school NIT	
51	Thomas Tovagonze	Driver	Certificate of driving school NIT	
<b>Service-provider</b>				
52	Leonard Chisokole	Database and IT support	B.Sc. in informatics	

Also, short-term national and international consultants were deployed to assist in the planning and execution of the baseline survey studies. All the consultancies were communicated to the competent authorities and approved.

### **Staff training**

As a lesson learnt from PFP1 and to ensure appropriate working methods and proper behaviour and attitudes among PFP2 staff and programme stakeholders, the programme organised a nine week-long staff training. The training started on 8 July 2020 and ran until early September 2020.

It should be noted that the programme administrative section ran an orientation course and course in practical arrangements for staff on 1 July 2020 to ensure that staff would receive all the technical, financial, and administrative support they needed.

Below is an illustration of the progress made in PFP2 staff training.

Activity (1 <sup>st</sup> Quarter 2020/2021)	Progress description	Ratings
District officials participate in training	Logistical difficulties due to the outbreak of COVID-19 limited the involvement of DOs in staff training	Did not happen
Administrative training completed	Staff capacitated in administrative issues	Achieved
Forestry training completed	All forestry extension officers and workers capacitated in forestry-related issues	Achieved
Wood industry training completed	All forestry extension officers and workers capacitated in wood industry and processing-related issues	Achieved
<b>Conclusion:</b>		
Overall, staff training was successful and productive. The programme managed to facilitate training in all PFP2-related aspects and looks forward to a smooth implementation of second-phase activities even though district officials were not able to participate due to limitations imposed by the outbreak of COVID-19.		

The programme had intended to invite district officials to the programme area to participate in the training in order to strengthen their capacity and to establish team-oriented behaviours and attitudes with programme staff. Unfortunately, making arrangements and carrying out the logistics for their participation proved impossible due to the consequences of COVID-19.

The planning process initiated during November and December 2019 was not executed first due to the lack of clarity about the programme's VAT exemption and later due to the outbreak of the COVID-19 pandemic. The programme collaborated with the FWITC to develop a training plan.

During the planning and training, the programme followed HRBA principles to ensure that PFP2 would be a human rights-progressive programme. About 30 courses grouped under the following six main topics were included<sup>4</sup>.

1. PFP administration issues and HRBA as required by the MFA and the MNRT
2. Forest extension
3. Forestry topics
4. Bio-energy
5. Business topics
6. Wood industry topics

Later, forestry and wood industry groups were trained in their specific courses (Table 3.2).

**Table 3.2 Distinction between forestry and wood industry courses**

Courses specific to the forestry group		Courses specific to the wood industry group	
1	Plantation establishment	1	Management of micro, small and medium sawmills
2	Village land-use planning	2	Recordkeeping in sawmill operations
3	Participatory resource mapping	3	Set up and operation of mobile circular sawmills
4	Forest management	4	Set up and operation of mobile band sawmills
5	Protection against fire	5	Cutting patterns for saw logs with a high recovery of raw materials
6	Harvesting and logging operations	6	Maintenance of saw blades

Both practical and theoretical training was conducted. Also, field visits were conducted to familiarise stakeholders with SMEs and tree growers in the programme area. Figure 3.10 shows photographs of the staff training organised by the programme.

**Figure 3.10 Programme training**



*Staff training on the HRBA to ensure PFP2 is implemented as a human rights-progressive programme*

<sup>4</sup>Refer to Annex 3 of AWP 2020/2021 for the staff training: <http://www.privateforestry.or.tz/en/resources/view/pfp-2-awp-2020-2021-july-2020-endorsed-by-psc-on-14-july-2020>



*Staff training on health and safety during programme operations and on a daily basis*



*Staff training on administrative issues*



*Staff training on charcoal production and bio-energy-related issues*



*Staff training in participatory mapping and the concept of VLUP*





*Forestry extension group trained in forestry-related issues*



*Wood industry extension group trained in wood industry-related issues*

The evaluation assessment and trainers and programme staff yielded the following feedback and recommendations:

- Not enough time was allocated for practical training in the various courses. Trainees recommended that more time be allocated to the practical dimensions of health and safety in relation to forestry and wood industry-related issues.
- Improvement in communication was recommended, especially in requesting trainers for training.
- More training is still needed for the preparation of simple and standardised woodlot management and business plans.
- Because of the `practicability of PFP2, it was proposed that the training issues be offered to all interested individuals rather than specifying that certain courses were only for either the forestry or the wood industry group.
- Training for the practical implementation of HRBA needs to be intensified.

To address these recommendations, the programme will conduct a participatory planning session to assess and frame the training needs and prepare another training schedule that will meet the expressed needs without affecting progress in programme implementation.

### **3.3 Familiarisation of programme stakeholders**

After formalised training, senior staff met and discussed the programme with various programme stakeholders, including MW Ltd., Mkaa Endelevu, Green Resources Ltd., Sao Hills Industries, Lion Energy, TANWAT, Mufindi Poles, Tanganyika Plywood, Rift Valley Energy, Kisweswe Metal Fabrication Workshop, Iringa Regional Government, Njombe Regional Government, Makete District Government, Wangingombe District Government, Njombe TC, Njombe DC, Mafinga TC, Mufindi DC, FDT, DAI Land Tenure Assistance, RLabs, TTGAU, TFS, DTSP and TARURA (Table 3.3).

**Table 3.3 Summary of key discussions with respect to stakeholders met**

<b>Stakeholder met</b>	<b>Key discussion</b>
MW Ltd.	Factory developments, participation in an international summer school, Afri-furniture proposal
Mkaa Endeleve	Factory developments, participation in an international summer school, establishing a biochar supply chain through TGAs in Makete, FSC certification
Green Resource Ltd.	Introduced senior programme staff to GRL
Sao Hill Industries	Introduced senior programme staff to Sao Hills Industries
Lion Energy	Introduced senior programme staff to Lion Energy
TANWAT	Introduced senior programme staff to TANWAT and had an in-depth discussion about wood product markets
Mufindi Poles	Introduced senior programme staff to Mufindi Poles
Tanganyika Plywood	Introduced senior programme staff to Tanganyika Plywood. Discussed concept of the concept of a forest industry cluster Discussed opportunities for apple growing in Makete
Rift Valley Energy	Discussed opportunities for sustainable rural energy, including rift valley hydro and wind power reticulation, and opportunities for rural industrialisation
Kisweswe Metal Fabrication Workshop	Discussed metal charcoal kiln fabrication
Iringa Regional Government	Introduced senior programme staff to the RC. Discussed the Mafinga Forest Industry Cluster and the future for the FWITC
Njombe Regional Government	Through RFO, the programme introduced PFP2 and initiated the process for securing an appointment with the RC of Njombe for the institutionalisation of the programme.
Makete District Government	Many meetings
Wangingombe District Government	Introduced senior programme staff and PFP2 and brought Wangingombe into the programme
Njombe TC	Introduced the PFP2 FICC for the Njombe cluster and identified areas and opportunities for collaboration
Njombe DC	Introduced the PFP2 FICC for the Njombe cluster and identified areas and opportunities for collaboration
Mafinga TC	Introduced the PFP2 FICC for the Mafinga/Mufindi cluster and identified areas and opportunities for collaboration
Mufindi DC	Introduced the PFP2 FICC for the Mafinga/Mufindi cluster and identified areas and opportunities for collaboration
FDT	Introduced the AWP
DAI Land Tenure Assistance	In-depth discussions about collaboration on land tenure and CCRO issues
RLabs	Several in-depth discussions regarding collaboration in Afri-furniture proposal. PFP2 training for RLabs beneficiaries and RLabs training in participatory approaches for PFP2 staff
TTGAU	Many discussions about programme planning, collaboration and contracting.
TFS	Tree improvement
DTSP	Tree improvement
TARURA	Rural roads in Makete

### 3.4 Development of MoUs with districts and partners

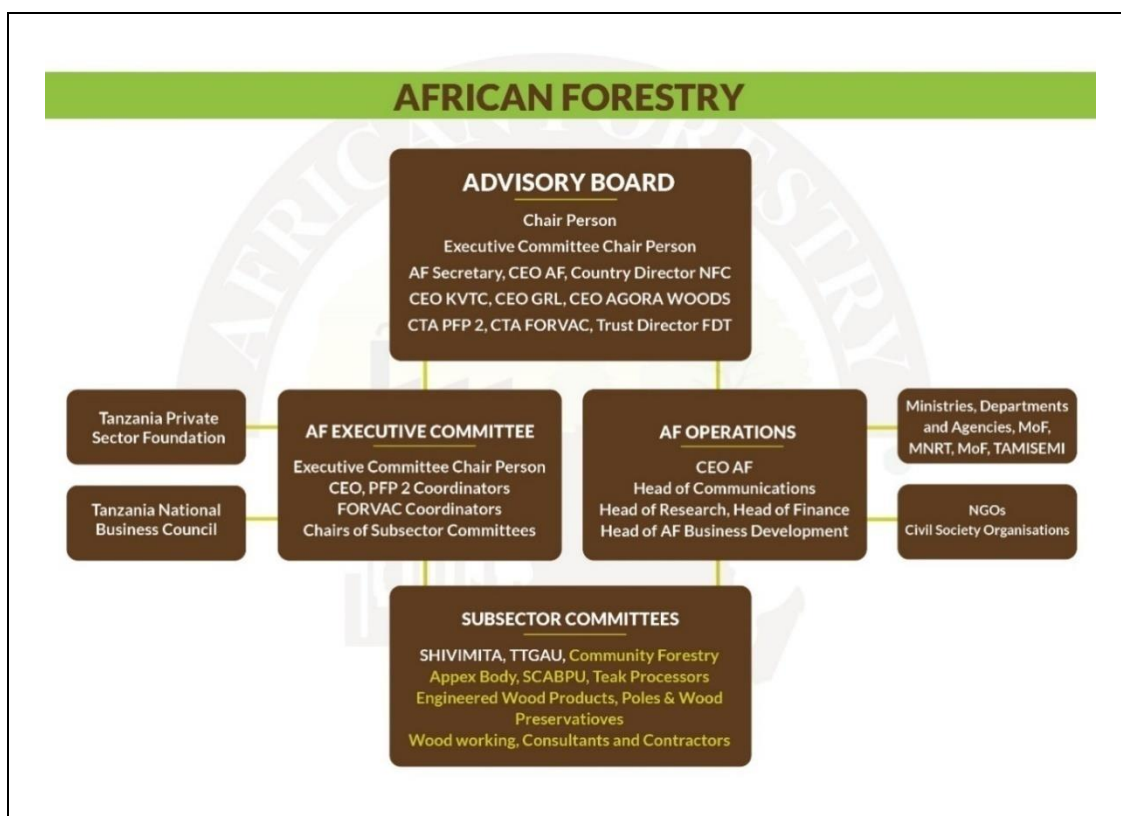
Despite numerous engagements with Makete District and various other partners, progress on finalising MoUs with partners was slower than expected.

A choice was made to engage almost all technical PFP2 staff directly in training during July and August of 2020 and to conduct baseline surveys and studies during September and October 2020. While this choice had several advantages, it also resulted in a possible disadvantage in that detailed participatory work planning and MoU formalisation had to be postponed.

The programme met regularly with Makete DC in particular, and the Makete DFO and CDO participated actively in the baseline studies, but while this interaction built good relations and a shared understanding, it did not result in a MoU.

The only MoU that the programme achieved was with AF. It covered a communications service provision component as well as a description of how programme staff can be integrated into the AF structure. This relationship was approved by the competent authorities and the AF's board of directors. Briefly, the MoU calls for the CTA to be a member of the board of directors, which meets every three months. The three PFP2 cluster coordinators will join the AF executive committee, which meets every three months with sub-committees, including the PFP2-facilitated SCABPU (Figure 3.11). The PFP2-supported TTGAU has so far declined to participate.

**Figure 3.11 African Forestry Organogram**



### 3.5 Establishment of annual service provision contracts

Verbal commitments were made to follow up on the MoU with AF with a service provision contract covering PFP 2's communication needs.

Plans were also made to draft a long-term service provision contract with the TTGAU for that organisation to contribute to strengthening the network of TGAs. Terms of reference for a short-term international service provider to support the establishment of this contract were approved by the competent authorities and the consultant will be mobilised in November.

### 3.6 Design of PFP2's communication strategy

Under its MoU with PFP2, AF is set to provide support for developing PFP 2's communication strategy as soon as the revised PD has been finalised and approved.

Already, however, progress has been made in collecting photo and video coverage of both staff training events and the baseline studies.

### 3.7 Development of monitoring and evaluation plan for PFP2

The revised PD and particularly the RBMF are finalised and approved, they will provide a framework for the M&E plan.

Baseline values for the indicators were collected during the baseline studies and these will be included in the next quarterly progress report, which will cover the period from October to December 2020.

### **3.8 The second PSC meeting**

The programme managed to organise and conduct its second PSC meeting on 14 July 2020. Participation was through both Microsoft Teams and physical attendance at the Mount Royal Villa Hotel Conference Hall.

The day before the second PSC meeting, the programme management team, together with the competent authorities, conducted a pre-PSC meeting on 13 July 2020. The pre-PSC meeting aimed to have participants agree upon and approval the agenda to be discussed in the PSC meeting as well as to familiarise the new counsellor of the Embassy of Finland in Tanzania with the programme. Overall, no major changes in practical arrangements were made by the participants in the second PSC meeting.

In terms of the resolutions of the second PSC meeting, members recommended that the programme prioritise activities that were supposed to be completed during the inception period, as listed below:

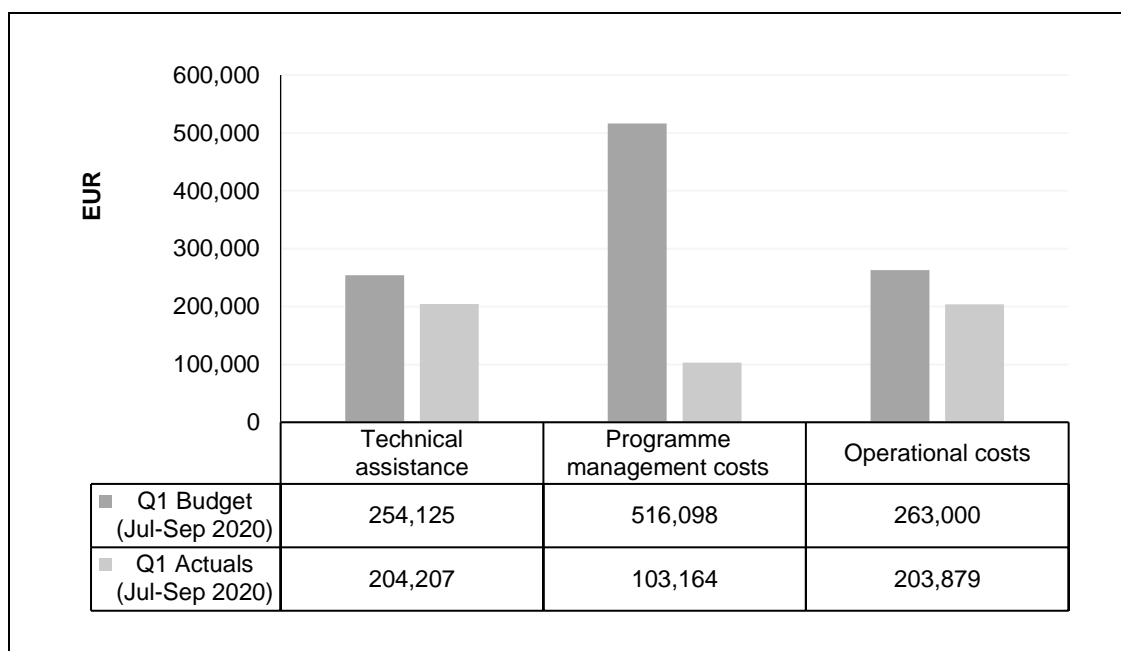
1. PD revision and approval.
2. Familiarisation of programme management team and implementation partners.
3. Development of MoUs with districts and partners.
4. Establishment of annual service provision contracts.
5. Development of a communication strategy for PFP2.
6. Development of an M&E plan for PFP2.

#### 4. RESOURCES AND BUDGET

The overall budget of the programme for the reporting period was EUR 1,063,223 and the actual expenditure was EUR 511,250.

Figure 4.1 compares the programme's first-quarter budget against actual expenditures. The programme spent 48% of the planned budget.

**Figure 4.1 Brief summary of Q1 expenditures vs. budget**



Theoretically, the spending rate per quarter should be 25% but, PFP2 spent only 16% of the AWP 2020-2021 (Table 4.1). This overall programme under-expenditure (but over-expenditure on specific budget line items) was due to the following reasons:

1. Under the technical assistance budget line, the IFPPE was not engaged during the quarter due to international travel limitations posed by the outbreak of COVID-19. This also contributes to unrealised administrative cost like housing related to above issue.
2. Under the operational management cost budget line, the programme's actual realised procurement was Euro 103,164, one-fifth of the planned budget of EUR 516,098. It should be noted that procurement of the FWITC mobile training unit items is still in progress and that the remaining procurement will be presented in the next quarter.
3. Staff mobilisations costs, staff training, and the baseline studies were all charged under Output 1.1, so there was an over-expenditure, with the budgeted Euro 20,000 soaring to Euro 105,377.
4. It should be noted that all of the operational staff were charged against their respective outputs. Thus, costs related to FWITC staff were charged under Output 1.2. For Output 1.6, the intended FWITC training courses were not conducted.
5. Sawmilling, joinery, bio-energy and support staff were charged against the budget line under Output 2.1. Output 2.2 support of SMEs with business plans and linking to financial institutions was not carried out and follow-up on timber grading standards costs was charged against Output 2.3.
6. For outputs, 2.4 and 2.5, trade fairs and development of MaIS in conjunction with other stakeholders were not carried out. Activities relating to the adoption of log and timber grading, dissemination campaigns on quality issues and dialogue were not carried out during the first quarter either.

Table 4.1 PFP2 AWP 2020-2021 budget analysis from 1 July 2020 to 30 September 2020

Budget item	AWP 2020-2021	Q1 Budget (Jul-Sep 2020)	Q1 Actuals (Jul-Sep 2020)	Q1 budget usage (%)
<b>GRAND TOTAL</b>	<b>3,185,598</b>	<b>1,063,223</b>	<b>511,250</b>	<b>48.08%</b>
<b>TECHNICAL ASSISTANCE</b>	<b>1,016,500</b>	<b>254,125</b>	<b>204,207</b>	<b>80.36%</b>
<i>International TA</i>	301,500	75,375	60,524	80.30%
<i>National TA</i>	325,000	81,250	71,965	88.57%
<i>Administrative costs</i>	390,000	97,500	71,718	73.56%
<b>Programme management costs (operational) including remaining inception phase activities</b>	<b>816,098</b>	<b>516,098</b>	<b>103,164</b>	<b>19.99%</b>
<b>Operational costs</b>	<b>1,253,000</b>	<b>263,000</b>	<b>203,879</b>	<b>77.52%</b>
<b>Result 1</b>	<b>763,000</b>	<b>161,000</b>	<b>167,519</b>	<b>104.05%</b>
Output 1.1 Private forestry organizations are strengthened	130,000	20,000	105,377	526.89%
Output 1.2 Stakeholders capacity in tree growing has been strengthened	270,000	40,000	50,681	126.70%
Output 1.3 Tree growers' access to forest finance increased and diversified	34,000	5,000	0	0.00%
Output 1.4 Increased resources and capacity to manage fire	30,000	4,000	0	0.00%
Output 1.5 Strengthened communication	59,000	12,000	11,460	95.50%
Output 1.6 Institutionalisation of private forestry	240,000	80,000	0	0.00%
<b>Result 2</b>	<b>490,000</b>	<b>102,000</b>	<b>36,360</b>	<b>35.65%</b>
Output 2.1 Capacity of SMEs and their employees strengthened	150,000	20,000	33,856	169.28%
Output 2.2 Increased access of SMEs to financing	40,000	5,000	2,078	41.56%
Output 2.3 Improved quality of products along the processing value chain	200,000	60,000	21	0.04%
Output 2.4 Improved communication between SMEs and wood processors	40,000	7,000	405	5.79%
Output 2.5 Policy and partnership support	60,000	10,000	0	0.00%
<b>Joint M&amp;E missions and reviews</b>		<b>0</b>	<b>0</b>	<b>0.00%</b>
<b>Out-grower scheme</b>	<b>100,000</b>	<b>30,000</b>	<b>0</b>	<b>0.00%</b>
<b>External audit</b>		<b>0</b>	<b>0</b>	<b>0.00%</b>
<b>International technical assistance briefing</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.00%</b>
<b>Contingency</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0.00%</b>

## 5. RISKS AND OPPORTUNITIES UPDATE

### 5.1 Risk assessment and mitigation of risk

#### 5.1.1 Programme document-identified risks

Analysis of the key risks related to the implementation of the programme and the proposed mitigation strategies remained as presented in the 2020/2021 AWP endorsed by the second PSC meeting conducted on 14 July 2020.

#### 5.1.2 Emerging risks

The first quarter of PFP2 took place during the peak of campaigning for the general election, a fact which affected planned meetings with government officials and led to the postponement of some schedules with villagers. However, no major changes in planned activities were made.

The outbreak of COVID-19 also slowed down the implementation of programme operations and prevented the engagement of the international FPPE this quarter because of related travel limitations.

Uncertainty regarding the applicability of VAT regulations has been a major challenge, one which affected both the recruitment of national staff and procurement.

In his letter Ref. No. TRA/HQ/DTSE/TC&E.26 of 2 October 2020 to NIRAS Tanzania, Richard M. Kayombo, Director of Taxpayer Services and Education of Tanzania Revenue Authority, explained how VAT was to be applied to management services. He stated, "Since your income from these transactions of performing HR service to the forestry program which is conducted under bilateral program between Government of Finland and Government of Tanzania under Ministry of Natural Resources and Tourism is only service fee, your VAT liability should be computed based on service fees received and not from other funds for salaries and statutory payments."

The above, however, is only a partial solution because the programme should have been granted VAT exemption from the outset. During the reporting period, the Embassy of Finland exchanged letters with the MoF. Basically, the MoF has accepted that PFP2 should be VAT-exempt but has not yet issued a formal letter to this effect.

By the end of the reporting period, the programme had paid TZS 21,691,251 (Euro 8,506) in VAT charges and was still deferring important procurements because its VAT exemption status had not been formalised.

Trends in these three emerging risks will be monitored and considered in the revised PD. Further analysis of these emerging risks is described in Table 5.1.

**Table 5.1 Risk matrix for the emerging risks**

Risk factor	Likelihood	Impact of risk	Justification	Risk response
Slowdown of programme's operations at the district and village level due to the national general election	Low	Low	National Electoral Commission (NEC) guided all election supervisors to prepare and communicate the campaign and election schedule at all levels.	The programme operations schedule was communicated to district and village governments to agree on a timeline for implementation.

Risk factor	Likelihood	Impact of risk	Justification	Risk response
Possible outbreak of COVID-19 pandemic	Low	Low	Scientifically not proven, but, surprisingly, COVID-19 occurrence appeared to be low. The government declared that there were no COVID-19 cases in the country.	The programme intensified health and safety measures against COVID-19 and prepared a guideline based on the updates and guidelines provided by the Ministry of Health in Tanzania and World Health Organisation (WHO).
The programme not being VAT exempted	Low	Medium	Director of Taxpayer Services and Education of Tanzania Revenue Authority clarified that the programme was VAT exempted. The lack of clarity about VAT limited the procurement and recruitment processes.	Mostly outside the influence of PFP2. The programme will follow up on it together with the competent authorities. Mitigative measures will be elaborated in the next quarter.

## 5.2 Opportunities

### 5.2.1 Opportunity to market pine thinning material and develop a bio-char value chain

The programme has initiated discussion with Mkaa Endelevu to invest in charcoal production from pine thinning material and waste from sawing, both which are currently left unutilised in woodlots. A pre-feasibility study is being carried out to understand whether this initiative is viable. It includes discussion with the businesses that are the most likely to take the initiative forward. In this initiative, if businesses in Makate invest in charcoal production, Mkaa Endelevu will buy from them. If successful, the initial deal will be for the traders in Makete to supply Mkaa Endelevu with up to 140-200 metric tonnes of charcoal produced from pine per month. However, it is likely that there will be an initial piloting phase prior to delivering the full capacity to Mkaa Endelevu to allow time for traders and Mkaa Endelevu to understand the business.



## 6. MAIN ACTIVITIES PLANNED FOR THE NEXT QUARTER

The programme will be formally introduced to Iringa and Njombe regional governments. Strong links will be formed with Makete, Njombe and Mufindi district governments through regular engagement and inclusion in meetings and field work.

TGA formation and strengthening guidelines will be prepared. Long-term performance-based contracts will be negotiated with the TTGAU and AF.

Baseline surveys and studies will be completed, documented, and presented to Makete DC. They will be used to revise the PD and guide implementation.

Extension staff's weaknesses in meeting the needs of smallholders and SMEs will be addressed:

- 1) More time will be allocated for orienting staff to practical aspects of HRBA in relation to PFP2 implementation.
- 2) More time will be allocated for practical training in health and safety in relation to forestry and wood industry
- 3) More attention will be given to identifying the real needs of small-scale tree growers and SMEs and enabling staff to provide relevant beneficiary-oriented support.
- 4) Extension staff will be enabled to provide support in woodlot management and business planning that is appropriate for the beneficiaries.

After specific orientation, extension staff will be guided by experts in the field in Makete to carry forward TGA formation through village assembly meetings.

Cluster coordinators, together with district officials, will visit preselected villages in Njombe and Mafinga to determine their suitability and willingness for inclusion in the programme.

Simple best operating practices for managing *P. patula* natural regeneration in Makete will be distributed and village level demonstration plots will be prepared.

Seed orchards will be protected and managed, and guidelines on seed orchard management will be prepared. Seed orchard management will be documented to provide a basis for seed certification. Plans for seed orchard management up to 2023 will be prepared in order to provide a basis for negotiating MoUs with the DTSP and TTGAU for their future management and commercialisation.

Leapfrog projects will be contracted, and they will start on phase 1 of the proposed Afri-furniture project, with market ethnography studies in Nairobi and Dar es Salaam.

Work will continue with universities of Eastern Finland to secure funding for wood-energy project proposals.

Work will continue on prefeasibility studies for Mkaa Endelevu to contract the TTGAU to provide large quantities of char from SMEs in Makete. These studies will involve working with local charcoal SMEs to get accurate production and cost data for three kiln types. The goal is to develop an energy market for large quantities of low-value pine thinning material which needs to be removed from Makete plantations.

## Annex 1      Concept notes submitted during International Summer School

### **2 A: Establishment of Network of Centre of Excellences for Promoting Circular Economy (CEPCE) in Southern Tanzania: Sustainable charcoal, briquette and pellet production**

#### **1. Background**

##### **1.1 Introduction**

The forestry sector has indeed changed significantly since the nineties when Tanzanian Wood Industry Corporation (TWICO) was the main operator in the wood processing sub-sector. After TWICO closed down its production facilities, forest industry and particularly sawmilling was affected. The economic recession that happened during the same time caused the forestry training systems to suffer even more, hence affecting enrolment in forestry and wood technology colleges. Students intakes declined in both at the Forestry Training Institute (FTI) and Forestry Industries Training Institute (FITI), in which the institutes were almost closed in the middle 1990s. To fill the gap, small and medium privately owned sawmills, also known as Small and Medium Enterprises (SMEs) were introduced. In the Southern Highlands, it was important to have such facilities due in the main part, to serve harvesting activities in the large government owned, Saohil Forest Plantation (SHFP), established in the 1970s. The sawmills therefore concentrated in areas around Mufindi District to respond to the processing needs of SHFP. Towards the end of the 1990s and the beginning of the 2000s, tree planting activities started to grow where large private companies and smallholders surrounding the SHFP were also involved. This led to even more interest to invest into sawmilling. However, the sawmillers were not adequately equipped with proper technologies to deliver quality timber at reasonable recovery rates, the situation that has existed to date. Most of the sawmillers are operating at low recovery rates, 25-40%. The remaining 60-75% is wasted.

For this reason and many others, the Plantation Private Forestry Programme (PFP) during its phase one (2014-2018), established the Forestry Wood and Industries Training Centre (FWITC) in Mufindi District, at the heart of forest plantation operations in the Southern Highlands. The aim was to support knowledge transfer and to conduct training and information sharing systems in forestry as well as forest industries and wood technologies development. By the end of PFP1, training Need Assessments (TNAs) were carried, skill gaps and training needs were identified, and was ready for planning of forestry training courses. Also, a pre-feasibility study was carried out to assess whether a training centre should be established in Southern Highlands. It became clear that there was need for such a Centre to operate in the southern highlands. A site with reasonable infrastructure and buildings was found and leased from Mafinga, and given the name, FWICT. This is a 7.5 acres property, and it contains some training facilities, stores, and an area for production activities. Unfortunately, due to several limitations including financial resources and time, the centre did not fully realise its goals. Nevertheless, the centre has remained under FWITC.

Currently the main interest for the centre is to address limited skills/knowledge and technological gaps in the forestry sector to produce high quality forestry wood and non-wood products; and to support value chain actors and communities to benefit from the forestry resources. There is special interest in the FWITC business plan to produce sustainable bioenergy supply including sustainable charcoal, wood pellets and briquettes.

##### **1.2 Extent of the Problem and Project Concept**

It is estimated that around **460,000 hectares** of forest are lost annually due to deforestation in Tanzania. Approximately **150,433 hectares** of those are lost due to charcoaling and firewood, from non-sustainably managed natural forests. Equally, a very small proportion of the Tanzanian population (less than 10%) is connected to the national grid. This has led to overdependence in wood energy, which is currently estimated at **85% of the total energy** source used in households and for other purposes. In **2012, over 2.3 million tons of charcoal** were consumed. At the same time, the Tanzanian population, currently estimated at 60 million, and which is growing at an average of 2.9% per annum, the consumption is expected to double in 2030 if measures are not taken. The Tanzanian forest policy discourages illegal harvesting in

natural forest for purposes such as making charcoal, however, without clear alternatives its implementation is very much limited. Similarly, forestry planting activities are increasing rapidly to meet the growing demand for wood and feed the ever-increasing population. It is estimated that over 300,000 hectares of plantation forestry, both private and government owned, exist in the Southern Highlands of Tanzania. However, the technology in use limits both farmers and SMEs to reap more benefits from the forestry activities.

As stated earlier, 65-75% of wood is wasted in the form of offcuts, bark, sawdust, wood chips and paper mill residues. Approximately 500,000 metric tonnes of wood is wasted around Mafinga area on an annual basis. These are usually left to decay in stockpiles next to the sawmill; causing health, environmental and economic problems. When left for a long time, the heaps of wastes can catch fire and destroy properties or cause pollution. Under anaerobic conditions, the wastes decompose to produce Greenhouse gases including methane and nitrous oxides which cause climate change. Additionally, there is a knowledge gap, both in the production of renewable energy and other products from the wastes. The proposed centre of excellence will act as a catalyst to utilize these wastes to produce useful products including sustainable charcoal, pellets and briquettes, and feed the local and regional markets. The centre will innovate affordable technologies to utilize wood wastes in environmentally friendly manner. It will conduct collaborative research and training programmes to develop and implement new technologies and products and replicate in other parts of the southern highlands, Tanzania and East Africa.

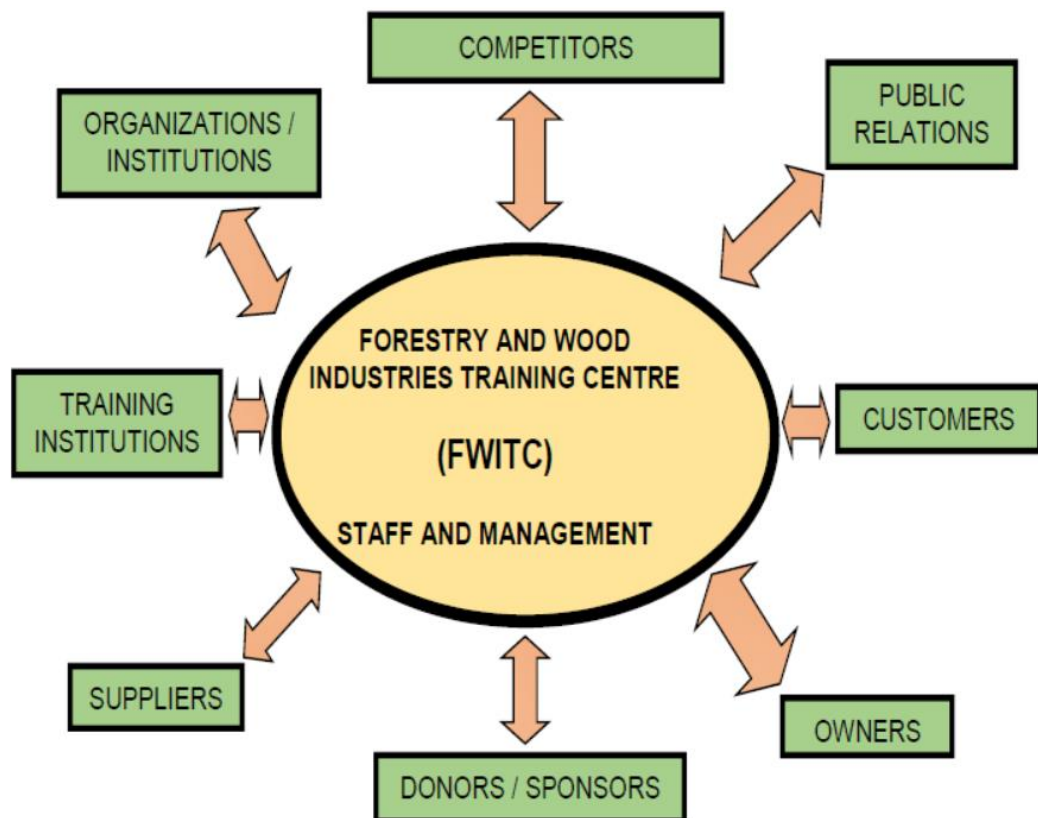


Fig 1: The functions of the proposed Centre of Excellence at FWITC

**2. Goals**

- To establish a centre that will be used for imparting knowledge on using forest by-products to produce bioenergy solutions in the Southern Highland of Tanzania
- To carry out collaborative research and innovation with other centres, universities and institutions to develop new bioenergy products by localizing borrowed technologies from Europe/Finland

- To enable small forest industry owners to innovate and test new technologies from forest wood by-products and replicate across the country
- To deliver tailor made short- and long-term training programmes to encourage community and stakeholders to learn and adopt sustainably produced wood bioenergy products and technologies

### **3. Tasks**

#### **3.1 Establishment of the Centre of excellence at Forestry Wood and Industries Training Centre (FWITC)**

- Registration under National Council for Technical Education (NACTE)
- Raise awareness about services being offered by the centre through media and stakeholder meetings

#### **3.2 Installation modern technologies for demonstration purposes**

- Identification of relevant technologies to be used for sustainable briquette, pellet and charcoal production
- Procurement, transportation, installation of technologies and staff training
- Deployment of the plant operators

#### **3.3 Developing and conducting training programmes**

- Development of course contents/curriculum to be used for training
- Identification/selection of students
- Deployment of tutors/teachers at the centre
- Execution of the course contents

#### **3.4 Research and Introduction of Innovative Ideas**

- Collaboration with research institutions and universities from Tanzania and abroad to promote modern technologies on the use of wood wastes
- Exchange visits between the centre and charcoal/pellet producers based in Finland
- Forge collaboration with relevant institutions in Tanzania including Small Industries Development Organization (SIDO), Vocational Education and Training Authority (VETA), National Council for Technical Training Education (NACTE), Forest Training Institute and Sokoine University of Agriculture (SUA) and other research institutes for scale-up of the technologies

#### **3.5 Showcasing best practices to communities in the southern highlands, Tanzania and East Africa**

- Identify forums and develop list of stakeholders to be involved in the exhibitions/tradefairs
- Participation in tradefairs in Tanzania and East Africa to showcase the technology for adoption

### **4. Organization**

#### **4.1 Forestry and Wood Industries Training Centre (FWITC)**

- Administratively, FWITC's will be divided into four business and financial departments, that is 1) Training services, 2) Technical advisory services, 3) Business operations, 4) Supporting services, 5) pole treatment, and 6) tree nursery
- The centre will offer tailor made short courses to respond to needs. These will include production techniques and use of newly introduced technologies
- FWITC will be directed by the General Manager, who will be responsible for all departments and operations and who will report to the Board of FWITC.

#### 4.2 Private Forestry Programme (PFP2)

- During its lifetime, PFP2 will provide technical backstopping and day to day leadership to the centre
- Sits in the board of directors as a secretary

#### 4.3 Ministry Natural Resources and Tourism (MNRT)

- MNRT sits on the board of directors as the chairperson
- It provides oversight supervision, staffing and capacity development of the centre staff and resource mobilization
- Ensures the centre remain aligned with government policies and provides strategic engagement of other government ministries, institutions and stakeholders

#### 4.4 Sustainable charcoal and briquette producer's union (SCABPU) -Tanzania

- SCABPU seat on the board of directors as a permanent member
- It provides technical advice based on the requirements its members
- Brings its members to the centre for capacity development
- Provides insights on the new training needs for the people in the sector

## 2 B: Improvement of efficiency of charcoal production and utilization of side streams in Tanzania.

### 1. Background

Wood based charcoal is the most used fuel for cooking in Tanzania - 85% of the population use wood in form of charcoal or firewood for cooking on a daily basis (MNRT, 2019). The consumption of charcoal in Tanzania is estimated to be over 2.3 million tons per year. The consumption is predicted to double by



Fig 2 Traditional Earth Mound Kiln in Southern Highlands, Tanzania. Still the most common way to produce charcoal.



Fig 3 Charcoal making in Tanzanian miombo woodlands.

2030 (MEM, 2014). Part of the charcoal is produced sustainably e.g. by companies like MkaaEndelevu (Kiswahili for *sustainable charcoal*), or by smallholder farmers using plantation wood. However, to the most part charcoal is still produced unsustainably from natural tree species in the vast Tanzania miombo woodlands by small scale charcoal makers using traditional earth mound kilns, regrettably contributing to the high deforestation rates, approximately 370,000 ha per year (MNRT, 2015).

Although burning wattle regeneration from farmers own tree farms into charcoal has become a common practise in Southern Highlands due to the booming charcoal market, the kilns have not developed - same traditional earth mound kilns (Fig 1, 2) are used in forest plantations and natural forest. Earth mound kilns are unstable and prone to allow air in, which leads to production of more ash than charcoal. Hence, recovery rates are low, typically below 20%. Also, production time is long - one batch takes between 7 and 10 days to reach full carbonization, depending on the weight and moisture content of the wood used.

Tanzania Forest Conservation Group (TFCG) has worked with charcoal makers in natural forests to develop sustainable production from forestry point of view, and also worked on the low recovery rates by improving the wood sizing and wood layout in earth mound kilns and designed an Improved Basic Earth

Kiln (IBEK, Fig. 3). The IBEK has, according to TFCG, reached recovery rates of about 20% - still low, but improvement to the widely used earth kilns.



Fig 4 Improved Basic Earth Kiln (IBEK) coming up, Kilosa, Tanzania (photo by MJUMITA).

Only few industrial actors work in the charcoal industry, contributing to a very small fraction of the market demand. MkaaEndelevu is one of the most innovative producers of sustainable alternatives. They produce briquettes using sawmilling waste as raw material with modern technology (further described below). They have also explored production of wood-based extracts and are momentarily producing wood vinegar and tar.

In spite of this example, reality is that due to the high market demand combined with the low investment capacity in the field, less investment intensive solutions are required before charcoal production can be industrialized, like MkaaEndelevu has done as a national forerunner.

Forestry and Wood Industries Training Centre (FWITC) which was set up by PFP, a Finnish funded forestry project (further described below) in Mafinga, Tanzania, have seen this need, and developed cost-efficient, scalable solutions for local sawmills and small scale farmers. Solutions have been tested in the training centre and models have been built for further development and teaching purposes. However, none of these solutions are yet in use in large scale:



*Underground Brick Kilns (Fig. 4)*

Production time for a batch: 8 hours  
 Recovery rate of up to 50% in briquettes and 40% in charcoal  
 Can be built in or in close proximity to constant raw material source, e.g. a sawmill  
 Price: 5 million Tanzanian shillings per kiln  
 Production volume: 80 kg per batch



*Stationary Half Orange Brick Kiln (Fig. 5, 6)*

can be adopted locally due to the raw material needed for construction (bricks and clay soil)  
 Production time: 5 to 7 days  
 Recovery rate: 30 to 40 percent  
 Price: 400,000 Tanzanian shillings (may vary due to low cost or zero cost of materials in villages)  
 Production volume: 200 kg per batch (can be built in different sizes)

*Movable Metal Kiln (Fig. 7)*



Mobile solution, hence can be used also in forest sites  
Can be built in different volumes as per need  
Recovery rate 30 to 40 %  
Producing 10 to 15 bags of charcoal (appr. 30 kg each)  
Consumes 1 ton of dry wood (depends on arrangement)  
1 ton MMK kiln price is: 2,500,000 tsh  
1 ton MMK kiln burning time: 5 days

*MkaaEndelevu solution*

MkaaEndelevu charcoal briquetting process produces briquettes through pyrolyzation of sawdust, which results in biochar. The biochar is mixed with organic additives, extruded, pressed into briquettes, dried and packaged for distribution - one of the most efficient processes in wood fuel production currently used in Tanzania. The conversion rate is 1 ton of sawdust to 350-400 kgs of briquettes, a leap from the average levels local production can reach.



Fig 8 Mkaa Endelevu pyrolyzer (most advanced technology in Tz). Recovery rate: 30-40%. Production capacity: 20 tons of biochar per day

The process partly runs with energy from biogas captured from charring. The furnace is first heated to 400 °C with LP gas, whereafter the 45 min dwell time methane is produced from burning the feeding materials (e.g. sawdust). Methane is captured, cleaned, and recycled back into the system. 20 % of the sawdust fed is turned into biogas which is recycled back for heating the furnace.

50% of the sawdust used for charring produces wood tar and wood vinegar. Wood vinegar with high concentration of acetic acid has a potential market related to agriculture and organic farming, where it can be used as an ingredient in pesticides and fertilizers. Wood tar has locally been known for sealing boats and also in chemicals for cosmetics.

In order to increase production MkaaEndelevu has also developed usage of other side products from sawmilling: offcuts and other larger sized wood waste. This material is carbonized in specially designed kilns made of clay bricks and clay binder, whereafter produced lump charcoal is crushed and then mixed with biochar made from sawdust and pressed into briquettes. Using these additional raw material flows has increased MkaaEndelevu's production volumes to 10 tons of packed briquettes daily.

## **2. Goals**

- ***Improve the recovery rates in charcoal production both in smallholders forest plantations in Iringa and in natural forests near Handeni.***

The main goal in this project is to develop technology that is scalable in the Tanzanian reality where charcoal makers typically have low investment capacity, where electricity is not available in the production sites and capacity to adopt hi-tech solutions is low due to low literacy rates among the producers and absence of maintenance services.

We are targeting to develop the 'next step' from the prevailing production method: earth mound kilns. With simple improvements to the prevailing methods, it is possible to improve the recovery rates. If the solution was scalable, even a slight improvement in recovery would have a significant impact in charcoal makers income and the amount of wood needed to fulfil the charcoal demand.

- **Assess feasibility and pilot side streams from charcoal production - further develop the existing technologies both in MkaaEndelevu's larger scale facility and in small holder charcoal production.**

At the moment in Tanzania, MkaaEndelevu, a private company also part of the consortium in this proposal, is the only producer of wood based liquid extracts like tar and wood vinegar. Bio extracts have a wide range of uses in industry, agriculture and food processing. Hence, the second target of the project is to assess and further develop the extracts' production as side streams from operations in MkaaEndelevu and also from traditional charcoal making and to assess the markets and possible further product development for these extracts.

Momentarily no side streams are captured from charcoal production using natural wood, and there is no existing information on what kind of extracts could be obtained from the varied raw material used in the local charcoal production from natural miombo species. Extracts have a potential to become equally lucrative products for the producers, and hence contribute to improved livelihoods and self sufficiency of Tanzania as a whole.

- **Environment: reduce CO2 emission in the production, contribute to reducing deforestation from improved process**

Increased efficiency of charcoal production has direct impacts on climate change. When the charcoal production process is looked at as a whole from sustainable forestry to improved recovery rates by introducing efficient technology and optimized carbonizing processes, less trees are needed to feed the charcoal market demand, less forest disappears, and less CO2 is emitted during the carbonizing process.

- **Human health: Improve safety of the production process and usage of the end product in a sustainable way.**

Improved livelihoods of charcoal makers is in the core of the project through improved recovery rates, and hence, increased income and through developing the health aspects of the production process and quality of the end product.

### **3. Organizations**

Project is to be planned and implemented in a unique collaboration between organizations working on charcoal production including private sector partner, local training institution, and Finnish Universities with an extensive collection of analytical techniques and latest expertise related to charcoal, extract collection and further refining towards products. In addition, two Finnish funded bilateral forestry programmes provide a setting and pilot sites for this project.

#### **A. Forestry and Wood Industries Training Centre (FWITC) & Private Forestry Programme (PFP)**

Private Forestry Programme – Panda MitiKibiashara (PFP) is a bilateral Programme between the Governments of Tanzania and Finland working to improve the plantation forestry sector in Tanzania. The Forestry and Wood Industries Training Centre (FWITC) was established by PFP in 2016 to answer the need for comprehensive and appropriate practical forestry and wood technology short courses close to the heart of the forest industry in the Southern Highlands. The center is equipped with key sawmilling, forestry equipment, charcoal and briquetting equipment and tools for training purposes.

Results from a sawmill feasibility study showed that recovery rates in the sawmills were as low as 25 %, and hence, a need to add value to the produced waste was identified. Charcoal and briquettes are potential products for value addition, and FWITC started to develop solutions for local sawmills and small-scale farmers.

#### **B. Forest and Value Chains Development Programme (FORVAC)**

FORVAC is a Finnish funded bilateral programme working on improving the value chains from natural forest in villages who engage in Community Based Forest Management (CBFM) in Tanzania. These



villages own natural miombo woodland, where species used for charcoal production are varied - not only one but several species, depending on the location. The charcoal produced in the miombo woodlands is high quality due to wood used for raw material being relatively hard.

Of the areas FORVAC is working in, especially Handeni District in Tanga Region is very much of interest when it comes to charcoal production. Due to close proximity to Dar es Salaam, Mombasa and Zanzibar, the charcoal market is booming, and sadly, as a result forests are quickly disappearing. Charcoal is being produced unsustainably and partly illegally in the general lands and partly also in the forest reserves.

FORVAC is supporting forest communities to legalize charcoal production from village land forest reserves to increase incomes in the communities, to add value to the forest through sustainable use, and to bring a sustainable competitor to the charcoal market in Tanga Region.

**C. Tractors Ltd (MkaaEndelevu)**

MkaaEndelevu is a private company and the leading producer of sustainable and organic charcoal and bio waste products in Tanzania. Utilizing pine sawdust, which is a sidestream from sawmilling industry in Mafinga town in the Southern Highlands, MkaaEndelevu manufactures charcoal briquettes, biochar for agricultural purposes, and wood vinegar to be used as pesticides, fertility of soil and mainly usable in agriculture activities and wood tar used as wood preservative and rubber industry.



**D. University of Eastern Finland (UEF)**

UEF, University of Eastern Finland is the most multidisciplinary university in Finland. Their high standard of interdisciplinary research and education respond to global challenges and build a sustainable future. Research is ranked among the best in the world in several fields.

University of Eastern Finland (prof. R. Lappalainen’s team) has a long-term expertise in the development and use of pyrolysis process for production of biochar (biobased charcoal) and distillates (extracts) from various biomasses, e.g. different wood species and wood industry sidestreams. Modern processing and analytical techniques are utilized to guide biorefining towards applications and products. The team has a wide network of contacts with industrial partners and institutes. In addition to scientific research, the team has several projects going-on related industrial applications of biochar and distillates. This allows relevant comparisons in processing from lab scale to industrial processes in different scales both as batch or continuous processes.

Reijo Lappalainen, Professor of biomaterials technology, has more than 20 years background and experience in biomaterials and processing techniques for biomass such as slow pyrolysis for biochar and biomass-based fine chemicals. He has several on-going research, industrial and commercialisation projects related to these topics. He has published about 220 scientific articles and more than 46 patents or patent applications. UEF has carried out a project with five African trees from Sierra Leone and studied the charcoal production and possibilities to utilize distillates based on the test runs and comprehensive analysis (Salami A, et.al., 2020).

Organizations in the consortium	Responsibility area in the project
MkaaEndelevu	Provides a setting for developing the extracting. Contributing to the market study and

	developing new products from the extracts.
PFP	Provides a setting for charcoal production and further development of solutions for small scale charcoal makers using plantation wood. PFP has staff who can give trainings and organize pilots. Also, FWITC through PFP has developed the prototypes of advanced solutions for charcoal making, which will be piloted in the first stage. FWITC facilities and workshop can be used for further development of the solutions.
FORVAC (or TFCG depending on the timing and type of funding applied)	Provides a setting where improved solutions for charcoal making from natural wood can be piloted. FORVAC has invested in forest management planning and harvest plans, in villages in Handeni - provides a starting point for the pilots. FORVAC has staff through outsourcing arrangements.
UEF	Long experience both in bioenergy solutions and extracts. UEF contributes their practical knowhow and research skills in developing the kilns, assessing possibilities in the extracts and further developing the related products.

## 2 C: Increasing Pellet and Briquette Production by Using Industrial Side Streams in the Southern Highlands of Tanzania

### 1.0 Background

#### 1.1 Introduction

Over the recent decades, the rising demand in wood for various purposes due to increasing population has raised concerns amongst practitioners and stakeholders in the forestry sector in Tanzania, where about 85% of the energy used come from forests. This is usually in the form of charcoal or firewood from unsustainably managed natural forests, and the demand keeps on increasing. This has led practitioners to start thinking of alternative sources of energy. The southern highlands of Tanzania has long history in timber production dating back to the 1970s when the largest government owned Saohil Forest Plantations (SHFP) was established. Currently there is over 300,000 hectares of plantation forestry owned by SHFP, private companies and smallholder farmers, and tree planting activities are continuing to expanding. The later has attracted investment in sawmilling around Mafinga township which is at the centre of tree planting activities. However, the majority of the sawmilling activities use very poor technology, and the recovery rate is as low as 25-40%. The remaining 65-75% is usually dumped in stockpiles and left to decay as wastes, consisting of off-cuts, backs, slabs and sawdusts. There are approximately 500,000 metric tons of wood wastes dumped annually, and around 50% of this is sawdust.

The wastes are causing a lot of environmental and health problems. This includes an ever-increasing problem of unmanaged burning that can spread and cause large wildfires, destroying forests and settlements, or wasteland that requires decades to disintegrate wood waste. As a result, production of bioenergy products from such wastes have started to receive particular attention and government support. A few companies in Mufindi District, are engaged in briquette making using this waste, mainly sawdust but they are indeed operating on pilot basis. Conversion of this waste into useful bio-energy remain a vital undertaking which would not only help to provide raw materials for alternative energy sources, but also create additional sources of incomes and jobs for the poor communities living in this area. It would also serve as clean cooking technology that improves the health and environmental conditions of communities traditionally reliant upon wood as a fuel source.

Wood pellets/briquettes produced from such wastes are well known for their high calorific value, which means they can be used as substitutes for charcoal from natural forests. As opposed to regular firewood, which tends to produce more ash due to the presence of bark, wood pellets/briquettes are often very low in moisture content and ash content, and as such, they burn hot and cleanly. Although briquettes/pellets can be more expensive than some other forms of wood fuel such as firewood, they are usually cheaper than oil, natural gas or electricity.

## **1.2 Extent of the Problem and Project Concept**

The project intends to make use of wood wastes such as offcuts, bark, sawdust and paper mill residues, which otherwise are left as industrial side streams in the status quo - causing enormous health, environmental as well as economic problems. The proposed project will collect wood biomass, particularly sawdust, from sawmill dumping sites which are currently being treated as waste, and convert it to stabilized wood pellets and briquettes. These wastes are currently left in stockpiles to decay anaerobically and emit GreenHouse Gases such as methane, nitrous oxide and carbon oxide. In the present situation, there is very little use of the wood wastes produced by sawmillers in the southern highlands of Tanzania, and particularly areas surrounding Mafinga township. When there is some form of use, the technology is very poor and thus communities cannot benefit from economies of scale of converting such biomass into useful products. Additionally, there is a knowledge gap, both in terms of production techniques, technology and use of such renewable energy products.

The proposed pellet/briquettes production project, thus, attempts to introduce new technology that converts low value wood wastes into stabilized, high calorific value renewable energy compared to traditional charcoal. The result is both economic and environmental benefits; and can extend to contributing to social benefits. The produced wood pellets/briquettes production process and end products are climate friendly solutions for cooking in households, restaurants and schools as they address deforestation and negative climate impacts. The proposed project is thus timely, in terms of need (due to increasing demand in fuel) and supply (ongoing tree planting activities). There are over 280,000 people living in the Mufindi area and the population keeps on increasing. The market extends to the entire Iringa region and its surrounding regions of Njombe and Mbeya - approximately 5 million people, and extend to Dodoma, Morogoro and Dar es Salaam regions with even bigger population sizes. The low recovery rate of wood in sawmills and minimal use of the wastes, means that there is a great reserve of vastly underused and underrated resources of raw materials.

## **2.0 Goals**

Increase pellet and briquette production from wood wastes and substitute it with unsustainable charcoal and fossil fuels to promote sustainable and inclusive economic growth of communities in the southern highlands of Tanzania.

Convert the wood wastes into clean renewable energy in ways that promote environmental protection and economic productivity

Provide training to communities in producing and using bioenergy for adoption of the new technology, for production and scalability of alternative energy sources

## **3.0 Tasks**

The proposed project is production of briquettes and pellets using new technology from Europe, Finland in particular, and cascading this technology to the local Tanzanian community, in the Southern Highlands and beyond. The project proponents will solely rely on wood wastes and use the technology that utilizes such biomass from waste wood. The project will be implemented for three years. The project activity will involve construction of a 10,000 metric ton per annum capacity pellet/briquette plant. The plant will be installed at Forest and Wood Industries Training Centre (FWITIC), in Mafinga area. This is a 7.5 acres property, currently used by PFP but will eventually become a property of the Ministry of Natural Resources and Tourism (MNRT). The tasks include procurement and installation of the technology for demonstration purposes and training to communities; research and innovation activities; as well as marketing of the final products and technologies. Although the production of stabilized briquettes and pellets and its displacement of fossil fuels avoids significant amounts of GreenHouse Gases (GHGs) emissions (including Nitrous Oxide and Methane), the latter will not be considered in the project scope. This, however, means that the proposed project activity promotes climate friendly bioenergy solutions.

The following tasks will be performed

### 3.1 Pellet production process

The technical process of pellet production is summarized in table 1 one below

Activity	Description
Sun-drying	Once the raw materials are transported to the processing plant, they will be sun-dried and stored. Any large particles will be removed. A moisture content below 15% will be maintained.
Chipping	After sun-drying the raw materials, the first step in pellet making will be to pass them through a fine chipper. This exercise will aim to make chips 20-40 mm in size
Machine drying	The content of water in the chips must be about 8-10% before the pelletizing process begins. Raw material with water content higher than 15 % is difficult to pelletize. The extent to which a material needs to be dried before pelletizing makes a big difference to the energy required in the manufacture of wood pellets.
Grinding	The raw material is to be broken down or ground in a hammer mill. The required maximum particle size of 6-7 mm will be obtained to ensure the production of a uniform/homogeneous product. The resulting wood flour is then separated in a cyclone, or alternatively by a filter.
Sieving	Sieving machines and magnetic separators will precede grinding in order to remove various impurities such as stones or metal particles. After passing the raw material to particle size of 2-4mm, the resulting wood flour is then separated in a cyclone, or alternatively by a filter.
Pressing	The moisture content of the raw materials will be maintained 1-2% before the materials are pressed, and then heated to over 70C temperature. The heating ensures that the lignin in the wood is released and this assists the binding of particles in the final product. The softened lignin and wood dust will then be transported to the pellet press.
Pelletizing	<p>This will be done using a die block. The materials will be led into the drum, where one or more rolling presses, will press the raw materials into pellets through cylindrical holes in the die blocks. The materials will then be led to a drum in which the rolling will press raw materials into pellets through cylindrical holes and die blocks. Then the blocks passing through cylindrical holes in the die blocks will be cut into suitable lengths.</p> <p>Die blocks can be changed, so that the diameter of the cylindrical holes can be altered, and in this way pellets of different lengths can be produced. The pressing process increases the temperature of the raw material even more. The required pressure from the die block depends on the type of raw material. In general, increasing the proportion of hard wood in the raw material increases the pressure required. If the pressure being applied is too low the holes in the die block may block, interrupting the pelletizing process</p>
Cooling	After pressing, the still warm and elastic pellets will be transported to a cooling device, to be cooled to above room temperature to increase durability. This process decreases formation of dust during transportation and handling. Counter-current cooling is normally used to give a gradual cooling of the pellets/briquettes which reduces the amount of heat stress the pellets are exposed to, the later may reduce the quality of the final product.
Dust Removal and storing	The pellets will be screened to remove dusts and fine particles which formed during the production of the pellets. The pellets/briquettes will then be stored in a dry building in order to avoid them from coming into contact with water which may cause the pellets to swell and lose their properties.

### **3.2 Production, Training and Marketing**

It is anticipated that about 10,000 metric tonnes of raw materials (sawdust) will be converted to pellets and briquettes annually. Since the raw materials are traditionally left piled up in open heaps which become wet at night and dry during the day, the moisture content is expected to vary. The average moisture content is expected to be 50% by the time the sawdust reaches the processing site. It will then be sun dried and stored properly to moisture content below 15% to reduce the amount of power while drying, increase recovery rate and fasten processing while maintaining the quality of the final product. A recovery rate of 47% from wet to dry sawdust is expected. A pelletizer/briquetter with capacity to produce 2 metric tons per hour will be procured and used. The processing plant will produce 4,000 metric tons of pellets/briquettes per annum. The produced materials will serve trifold purposes, that is, training/demonstration, marketing of the products and sold to enable FWITC to sustain these initiatives.

Training programmes will be run to promote pellet/briquette production and uses it in their households. The project will use experts in the field of pellet/briquette making as means to transfer technology to communities, as well as small and medium enterprises in the region. Additionally, it will conduct research on various affordable and locally available technologies that smallholder producers can adopt. This way, it is anticipated that the production of pellets/briquette will be scaled-up by small and large industries in the southern highlands.

Additionally, it will increase awareness on the benefits of using this energy and how to use the pellets/briquettes at home and in other settings such as in schools and restaurants. Pellets/briquette have multiple uses, they can replace charcoal in small scale households, and create opportunities to be used in schools and restaurants. Their higher calorific value enables to burn for longer time, which makes them more efficient for cooking, but can also be used for charging telephone phones. The final products packaged in different sizes and marketed to industries and individuals so as producers have a reliable market for their produce, and hence are incentivized to participate in the production process. The project will be showcased the products and technology in various exhibitions/trade fairs in the southern highlands and across the country.

### **4.0 Organization**

#### **4.1 Location of the project activity**

The proposed project activity will take place in the southern highlands of Tanzania, at FWITC, taking advantage of the 7.5 acres block owned jointly managed by the ministry of natural resources and PFP. The centre has started getting busy as SMEs constantly come in to attend training and demonstration on forest wood processing technologies to improve recovery – facilitated by PFP and other stakeholders. However, an improvement in the wood recovery is not being considered a threat for the proposed project due to availability of raw materials with increasing tree planting activities.

#### **4.2 Project implementing partners**

Forest and Wood Industries Training Centre (FWITC) is the main applicant, while Private Plantation Forestry Programme (PFP) and the Ministry of Natural Resources and Tourism will supervise the proposed activities. PFP is a bilateral development cooperation programme between the Governments of Tanzania and Finland. The Programme's purpose is the development of sustainable and high-quality tree growing and strengthening of private plantation forestry-based value chains. It intends to facilitate an enabling environment for expansion of sustainably managed private plantation forestry and its associated value chains. PFP established FWITC for the purpose of demonstration of new technologies and provision of training to both tree growers and small and medium timber processors. The centre is currently supporting sawmillers and communities to adopt improved timber processing technologies, and is located near Mafinga township, where majority of the sawmillers are based in.

### **Proposed Structure of the Project**

The proposed structure is as presented below

- **Ministry of Natural Resources**
  - Responsible for relationship with other government institutions and policy enforcement
  - The final beneficiary of the plant after the project closure - to continue serving the communities
  - Sets standards for the quality of pellets/ briquettes
  - Replication to other areas in the country
  
- **Chief technical advisor of PFP**
  - Provides overall technical guidance of the plant
  - Supports marketing of the technology and final products
  
- **FWITC Manager**
  - Day to day leadership of the centre/plant
  - Provides training to stakeholders
  - Ensures storage of raw materials and products in required standards
  - Identifies stakeholders to be trained
  
- **Pellet/briquetteplant operator**
  - Supports in day to day running of the plant

## 5.0 Socio Economic and Environmental Considerations

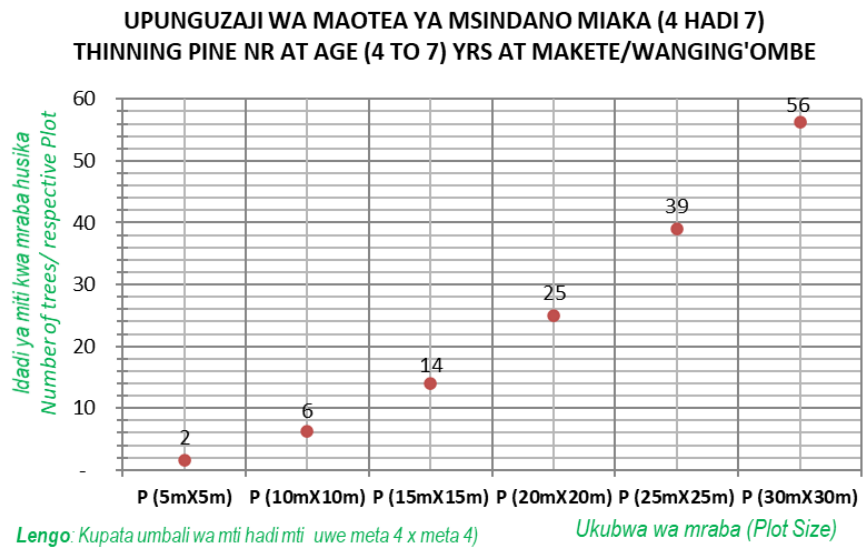
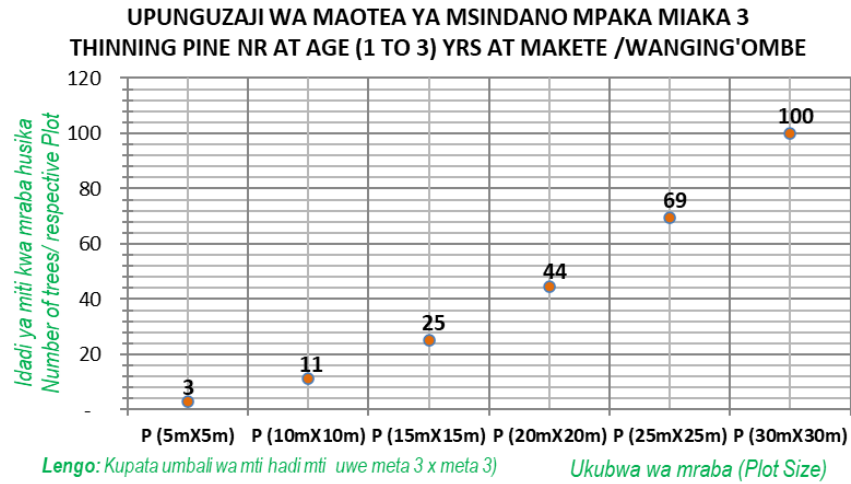
The proposed project is expected to draw the interests of many stakeholders. Furthermore, for sustainability purposes, stakeholder consultation is vital right at the onset of the project. Hence, PFP will use its internal staff to conduct stakeholder consultation. Depending on the outcomes of the consultation process the project will develop a plan of action to continue to engage the communities and other relevant stakeholder with particular interests in the project during the project's lifetime

The proposed project is most likely to cause some environmental side effects. During the inception phase of the project, an environmental assessment will be carried out by an external agency to assess anticipated impacts and propose mitigation measures. However, environmental impacts of the status quo are considered to be higher when compared to the project scenario.

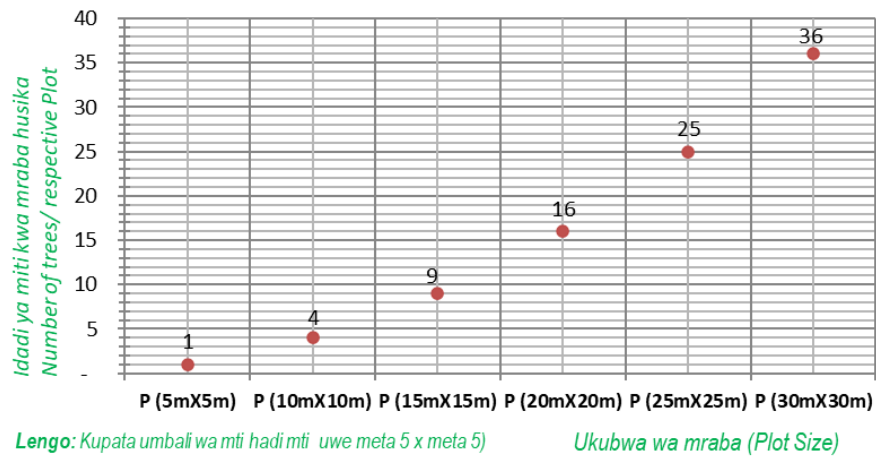
When in huge piles that are left for longer times, sawdust is extremely flammable and possesses greater risks of fires. When left in heaped piles, it starts decomposing anaerobically and produces heat which can result in catching fire. Removing these heaps therefore, reduces fire risks. Additionally, the removal of these piles frees up space for other land uses. Furthermore, the production of carbon neutral fuel in the project case has an advantage of reducing demand from fossil fuels and other non-renewable sources. This means that the proposed project contributes protection of natural forests by reducing pressure on those resources. For this reason, positive impacts of the proposed project outweigh negative ones and hence contributed immensely to climate friendly bioenergy solutions.

**Annex 2 A standardised Swahili version BOPs guideline for pine natural regeneration**

**MWONGOZO NA UTARATIBU WA UPUNGUZAJI WA MAOTEA YA MISINDANO  
WILAYA YA MAKETE NA WANGING'OMBE**

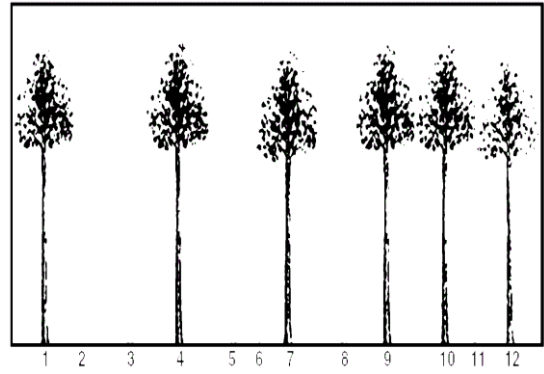
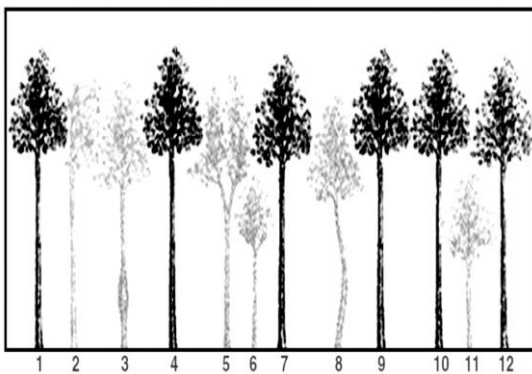


**UPUNGUZAJI WA MAOTEYA YA MSINDANO MIAKA (8 HADI 13)  
THINNING PINE NR AGE (8 TO 13) YRS AT MAKETE/WANGING'OMBE**



**SIFA ZA MITI YA KUPUNGUZWA/CHARACTERISTICS OF THE TREES TO BE THINNED**

- Miti yote yenye magonjwa au iliyo haribika vibaya
- All diseased or badly deformed trees.
- Miti yote iliyokufa au inayoelekea kufa
- All dead or dying trees.
- Miti dhaifu iliyotawala na yenye sifa zinazofanana kati ya miti iliyochaguliwa
- Poor dominants or co-dominants competing with selected trees.
- Miti yenye viongozo viwili au zaidi
- Trees with double or multiple leaders.
- Miti mingine inayoshindana na miti iliyochaguliwa kubakia.
- Any other trees competing with selected trees.
- Miti iliyovunjika kwa juu
- Trees with broken tops



***Kabla ya kupunguza miti/Before thinning. Baada ya kupunguza miti/After thinning.***



**TOOLS TO BE USED / VIFAA VYA KUTUMIA**

1. Axes (Shoka)
2. Bush Knife (Panga)
3. Chainsaw

**HEALTH AND SAFETY CONSIDERATION DURING THINNING OPERATION / MAMBO YA KUZINGATIA YA AFYA NA USALAMA WAKATI WA SHUGHULI ZA KUPUNGUZIA MITI**

- Vifaa vya muhimu vya kinga wakati wa kazi/Important protective equipment during work
  1. Viatu vya usalama (Safety boots).
  2. Kofia za usalama (Safety helmets)
  3. Jaketi akisi (Reflective vest)
  4. Glavu za mikono (Hand Gloves)
  5. Vifaa vya kinga vya masikio na macho (Ear and eye protective equipment)
  6. First Aid Box (Sanduku la huduma ya kwanza)



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**NIRAS**