PANDA MITI KIBIASHARA

PARTICIPATORY PLANTATION FORESTRY PROGRAMME

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PFP 2 BASELINE DATA COLLECTION

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

Embassy of Finland
Dar es Salaam

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PFP 2 baseline data collection

Description of methodology for:

1. **Survey on smallholders' woodlots**
2. **Survey on SMEs within the forestry value chain**

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6 November 2020

United Republic of Tanzania
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ABBREVIATIONS

BOPs	Best operating practices
EUR	Euro
HRBA	Human rights-based approach
ODK	Open Data Kit
OSH	Occupational safety and health
PFP	Participatory Plantation Forestry Programme
PPE	Personal protective equipment
RBMF	Results-based management framework
SMEs	Small and medium enterprises
TFS	Tanzania Forest Services Agency
TGA	Tree growers' association
TRA	Tanzania Revenue Authority
TTGAU	Tanzania Tree Growers' Association Union
VEO	Village Executive Officer

1. INTRODUCTION

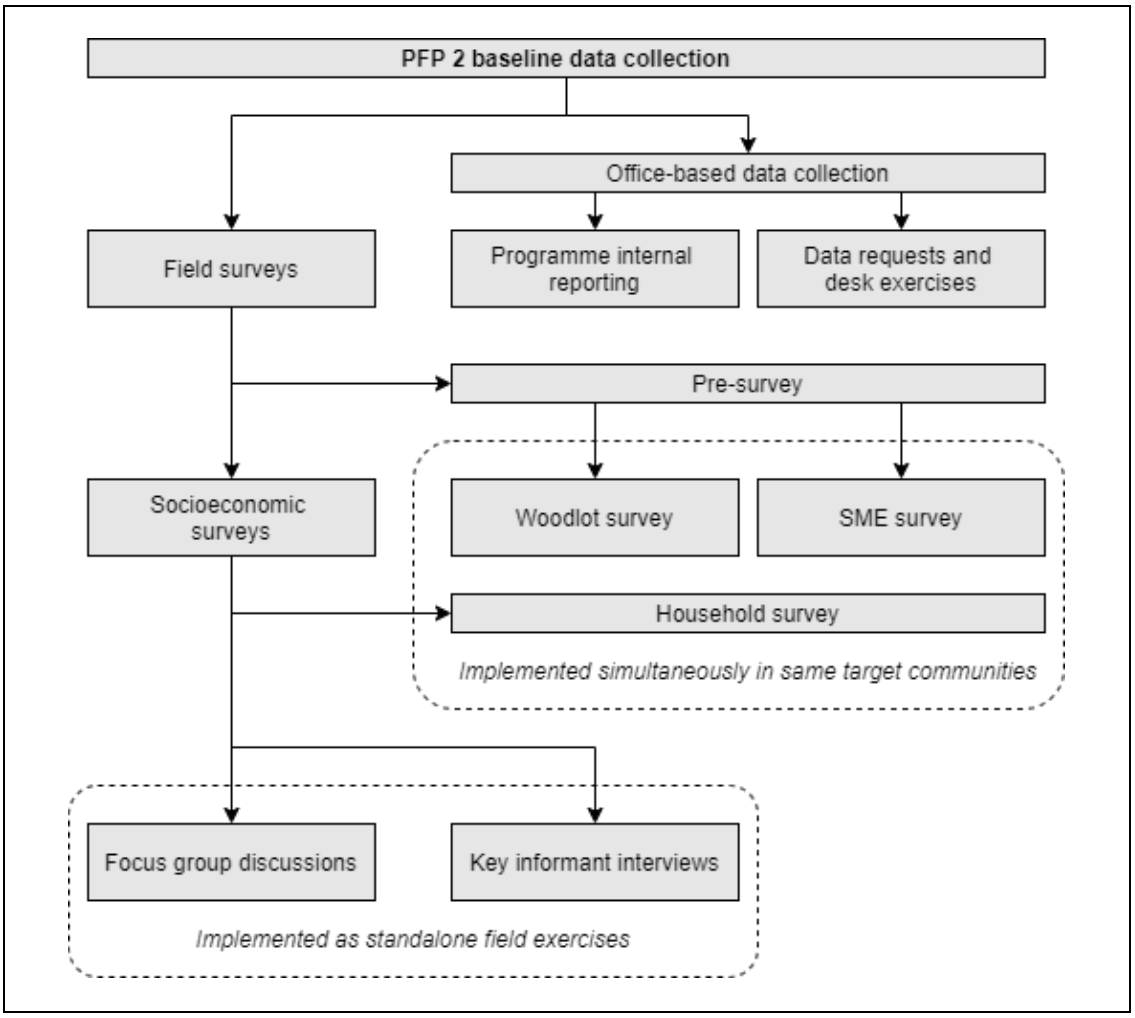
1.1 PFP 2 baseline data collection

The minimum needs for baseline data of the Participatory Plantation Forestry Programme Phase 2 (PFP 2) are set by the indicators included in the programme's results-based management framework (RBMF). Further baseline data is required for the programme to make well-informed decisions concerning its operations.

A major set of additional data is required for the programme to conduct a human rights-based approach (HRBA) situation assessment.

Figure 1 presents a breakdown of the baseline data collection design. Three thematic areas require field surveys: community socioeconomics, smallholders' woodlots, and small and medium sized enterprises (SMEs) within the forestry value chain. In addition to field surveys, baseline data is collected through programme internal reporting as well as through data requests and desk exercises.

Figure 1 PFP 2 baseline data collection design



1.2 Purpose and scope of this document

This document provides a technical description for two thematic field surveys applied in the baseline data collection. The descriptions included herein cover the following:

1) **Survey on smallholders' woodlots**
2) **Survey on SMEs within the forestry value chain**

These surveys are also referred to as the woodlot survey and the SME survey, respectively.

Additionally, a **pre-survey** designed to conduct preparations and provide important preliminary information for the needs of these two surveys is described in this document.

The third thematic area requiring field surveys involves collection of socioeconomic data, which is furthermore broken down into three different exercises. The collection of the socioeconomic data is documented separately and not included herein.

1.3 Application of the described methodology

The woodlot survey and the SME survey are recommended to be carried out in same target communities simultaneously, together with the household survey that is included in the socioeconomic data collection. The main benefits of this approach are the minimised disturbance in target communities due to reduced total number of visits, and the improved efficiency of logistics and flexibility of human resources between the different surveys.

The baseline data collection for the PFP 2 has been designed to be a rolling exercise. The first round of baseline data collection in the field was conducted in Makete District since the programme operations will be focused there during the first year of the programme implementation (2020–2021). As the programme expands its main activities in the following years to other districts, further baseline data collection is to be carried out in those areas before starting the programme support delivery.

The methodology described in this document will also be relevant for capturing the endline data for verification of the programme achievements by the end of the PFP 2. Additionally, selected elements from the described surveys can be applied in internal mid-term evaluations or during standard monitoring processes of the programme throughout the PFP 2 lifespan.

2. PRELIMINARY SURVEY AND LOCAL PREPARATIONS

2.1 Rationale and approach

Both surveys described in this document require that: i) sufficient preliminary information is available for the needs of sampling, and ii) necessary practical arrangements have been made with community members to accommodate for the upcoming surveys. This calls in for a preparatory visit in the target communities, herein referred to as a pre-survey.

Since the woodlot survey and the SME survey are done simultaneously in the same target communities, all the necessary preparatory activities should be done during a single visit.

The pre-survey can either be completed for all the target communities before the main data collection starts, or be carried out parallel with the main data collection, given that a head start is provided since the pre-survey team needs to move at least one day ahead of the main survey schedule.

The experience from these exercises in Makete District shows that the target community participation in the woodlot survey and the SME survey is improved if the time between the pre-survey and the two main surveys is short. For most of the data collection in Makete District, the pre-survey was done one day before the main surveys.

The pre-survey includes two main activities, which are: i) participatory mapping of smallholders' woodlots, and ii) identification of locally active SMEs. Both involve collection of preliminary data and conducting preparations for the two upcoming surveys, as presented in Table 1.

Table 1 Activities included in the preliminary survey

Relevant main survey	Pre-survey activity	Tasks / Objectives
Survey on smallholders' woodlots	Participatory mapping of smallholders' woodlots	Participating local smallholder tree growers, identify a minimum of 20 woodlots on a satellite image and record basic information from both the woodlots and their owners.
		Agree with the owners of the sampled woodlots to arrange for hosting of surveyors during the upcoming woodlot survey.
		Prepare background maps incorporating the mapped woodlots and a satellite image background to be applied in the smartphone-based data collection system (ODK) during the woodlot survey.
Survey on SMEs within the forestry value chain	Identification of locally active SMEs	Interview Village Chairperson, Village Executive Officer (VEO) and representatives of local SME scene (local influencers) to collect a list of locally active SMEs.
		Agree with the VEO, and with the local influencers, for the SME owners to be called to participate in a centralised meeting for interviews during the upcoming SME survey.

The minimum number of 20 mapped woodlots is applied because it is the target figure for the number of surveyed woodlots per village during the subsequent woodlot survey.

2.2 Participatory mapping of smallholders' woodlots

2.2.1 Objectives

The objectives are as presented in Table 1.

2.2.2 Participatory mapping procedures

Procedures for participatory satellite image-based mapping of woodlots were developed and piloted during Phase 1 of the PFP. The methodology draws from the participatory mapping and planning tools developed for village land use planning practice[1], published by PFP 1. The methodology adapted for the needs of this exercise is described below in outline.

[1] PFP (2018). Participatory mapping and planning tools developed for village land use planning practice. Available online: http://www.privateforestry.or.tz/en/resources/view/participatory-mapping-and-planning-tools-developed-for-village-land-use-pla

Prior to the visit to each target village, open-source-based satellite images of the village area are downloaded, prepared digitally into printable map sheets (A0), and printed out.

The target village needs to be contacted beforehand to request for available smallholder tree growers to join in the upcoming participatory mapping session. About 15 tree growers is the maximum number that can be efficiently participated in a half-day mapping session.

Upon arriving to the village, an introduction is given to the mapping session participants to familiarise them with the technology used in acquiring satellite images and the principles of identifying landscape features on satellite images.

Each woodlot owner identifies and draws the boundaries of their respective woodlots by drawing them into the satellite image printouts. Each woodlot is marked with an individual code on the map that links them with the owner (e.g. C3, where C is the letter code given to the owner and 3 stands for the third mapped woodlot of that owner).

A woodlot in this context refers to a distinguishable area dominated by one cohort of trees (single species planted/regenerated at the same time).

The following information is recorded from each woodlot owner:

i. Full name
ii. Gender
iii. Contact information
iv. TGA membership (yes/no)
v. Type of investor (see Table 2)
vi. Temporary code (e.g. C)

The following information is recorded from each mapped woodlot of each woodlot owner:

i. Species group (pine, eucalyptus, or wattle),
ii. Estimated year of establishment/regeneration
iii. Method of regeneration (planting vs. natural regeneration)
iv. Temporary code (e.g. C3)

The information listed above can either be recorded by pen and paper or by using smartphones with specifically prepared Open Data Kit (ODK) form. The latter option was applied during the baseline data collection in Makete District.

The process does not need to be exhaustive, i.e. for practical reasons the owners are not required to identify all their woodlots. The suggested maximum number of mapped woodlots per person in most cases is four, given that the minimum of 20 mapped woodlots is reached.

The participatory mapping process sets the framework for the sample of woodlots that can be covered by the field surveyors during the woodlot survey. It is hence important to pay attention to the representativeness of the mapped woodlots. The mapping team should try to include a distribution of different ages of woodlots from different owners and planting sites, as well as different tree species, as relevant. Fundamentally, the selection should reflect the distribution of the smallholder woodlot resource in the target community.

While conducting this exercise in Makete district it was found out that in most cases 25–45 woodlots per village can be efficiently mapped and digitized. The larger number has the advantage of providing the field teams conducting the woodlot survey more flexibility in the final sample selection.

Another benefit of the larger number of mapped woodlots is that more information is acquired for the programme smallholder woodlot database.

2.2.3 Typology of land investors

The mapped woodlots are categorised based on the type of the land investor into one of the following categories (Table 2):

Table 2 Typology of land investors

ID	Category
1	Resident villagers
2	Residents of nearby villages
3	Urban investors originating from the area
4	Other urban-based investors
5	Government institutions
6	Religious organisations
7	Other non-governmental organisations

2.2.4 Preparing participants for the upcoming woodlot survey

The participatory mapping team should agree with the participating woodlot owners that they will be available to show their woodlots for field surveyors during the upcoming woodlot survey. The experience shows that the more specific the communicated survey date is and the shorter the time between the participatory mapping and the woodlot survey, the better the expected woodlot owner turnout will be.

Practically, for most of the time all woodlot owners who mapped their woodlots will not appear for the woodlot survey anyway. A larger pool of mapped woodlots again will provide contingency herein.

2.2.5 Digitization of the collected information

The hand-drawn woodlot boundaries need to be digitized and saved as shapefiles. The additional information collected from the woodlots during the participatory mapping is saved as shapefile attribute data.

To assist navigation in the field during the woodlot survey, the prepared shapefiles are utilised in preparation of background maps (MBTiles format) that are used with the ODK data collection tools on surveyors' smartphones.

While digitizing is typically done with a laptop or a workstation, the data collection in Makete District piloted a solution in which the mapped woodlots were digitized using a smartphone. This was found to be an efficient solution in field conditions in which the data had to be processed fast and to be worked on simultaneously by multiple people, in order to be able to produce the background map to the woodlot surveyors for the following day.

2.3 Identification of locally active SMEs

2.3.1 Objectives

The objectives are as presented in Table 1.

2.3.2 Procedures for collecting a list of SMEs

A team of 1–2 people should interview key informants for acquiring a list of forestry value chain SMEs that are operating in the village. The interviewees include the following:

1) Village Chairperson
2) Village Executive Officer
3) Representatives of the local SME scene (local influencers)

Village Chairperson and VEO are often present during the participatory woodlot mapping, which presents an opportunity to consult them for the SME identification.

The following information is to be recorded from each identified SME, as possible:

i. Owner's name and SME official name (if available)
ii. Owner's contact information
iii. Location (village and sub-village)
iv. SME activities as per the categorisation in Table 3 (select all that apply)

Table 3 Initial categorisation based on SME activities

ID	Category	Remarks
1	Sawmill (mobile)	
2	Sawmill (stationary)	
3	Pole production	Transmission poles, construction poles or fencing poles
4	Veneer production	
5	Wood secondary processing	E.g. carpentry
6	Forest management and/or harvesting	Standalone chain saw operators count herein
7	Wood transportation	Can be either log haulage or log/sawn timber road transportation
8	Timber yard	Timber market sites. Mere drying sites do not count herein.
9	Nursery	Must be commercially based and not only for private use
10	Bioenergy / Wood by-products	
11	Pine resin collection	
12	Supply of machinery and/or spare parts	Forestry-specific
13	Saw doctoring	

The categorisation included in Table 3 is based on the main categories of a more detailed typology, which is applied in the main SME survey (see section 4.4 and Table 10).

A template for collecting the information concerning locally active SMEs is included as Annex 2.

2.3.3 Arranging meeting for the upcoming SME survey

Owners/managers of the listed SMEs are called in for a meeting in the village centre (or other suitable location), during which they will be interviewed by the surveyors of the main SME survey. VEO and local influencers within the SME scene should be used as assistance, as possible, for inviting the participants. The prepared list of SMEs also enables direct communication with the SME owners. In case they did not participate in the meeting they can be contacted separately and possibly interviewed subsequently e.g. at the SME operating site.

2.3.4 Complementary information from district officials

District officials should be consulted for additional information that can complement the SME information collected in the villages. This includes any district records concerning forestry value chain SMEs operating in the district. The information collection from the district should ideally precede the information collection in the villages.

The relevant authorities include District Trade Officer, Tanzania Revenue Authority (TRA), Tanzania Forest Services Agency (TFS) and other district authorities related to the governance of land and natural resources.

3. SURVEY ON SMALLHOLDERS' WOODLOTS

3.1 Objectives and general survey approach

The objectives for surveying the smallholder woodlots are as follows:

i. Provide baseline data for woodlot-related programme indicators (Table 4); and

ii. Populate the programme smallholder woodlot database.

The baseline data is collected through sample plot measurements on a sample of smallholder woodlots in those communities (villages/TGAs) that have been targeted to receive PFP 2 support.

Sample selection utilises the participatory woodlot mapping results done during the preliminary survey.

The data collection tools include a specifically prepared survey form utilising smartphone-based application Open Data Kit (ODK). While the required data can also be collected by using pen and paper and a GPS unit, the former approach has been found to be efficient in smallholder woodlot surveys.

3.2 Relevant programme indicators

The following programme indicators (Table 4) require baseline data from woodlots owned by smallholder tree growers:

Table 4 Indicators requiring baseline data collection from woodlots

RBMF level	Indicator
Outcome	At least 50% of PFP 2 supported tree growers in tree growers' associations are managing their woodlots according to Best Operating Practices (BOPs)
Output 1.2	Increased area share of TGA woodlots showing improved silvicultural measures in programme villages
	Increased share of TGA tree growers practically adopting improved silvicultural practices in programme villages
	Proportion of tree growers in PFP phase 1 TGAs adopting BOPs for thinning and pruning
	Maturing TGA forest plantations on the right track in producing high value forest products (quality sawlogs, transmission poles etc.)

3.3 Sampling of woodlots

3.3.1 Stratification and the number of samples

Each community (village/TGA) is included in the survey as an individual stratum.

The target value for the number of sampled woodlots per community is 10–20. The final number is dependable of the preliminary data made available through participatory mapping, availability of woodlot owners to show their woodlots, local conditions such as topography, and the available surveyor capacity.

Each woodlot is by default represented by **one sample plot. If the woodlot size exceeds 2 ha, two or more sample plots should be applied.** In this case, an average value between the sample plots will be calculated for each measured variable (this process is done in the office during data analysis).

3.3.2 Selection of sample woodlots

Note: This methodology assumes that the participatory woodlot mapping is completed prior to the woodlot survey in each village.

The main pool of woodlots in which the sampling takes place is determined during the participatory woodlot mapping (see section 2.2). In most cases the field survey teams will only be able to cover part of the pre-mapped woodlots, leaving some room for a final sample selection. While part of the final selection is determined by factors outside the surveyor control

(such as availability of woodlot owners), whenever the teams have a chance to choose they should look for a diverse sample also representing as many woodlot owners as possible.

During the field work in Makete District, the woodlot owners sometimes showed additional woodlots that had not been included in the participatory mapping. In other cases, the woodlots surveyed in the field had poor correspondence with the pre-survey data acquired from the woodlot owners in the participatory mapping. The discovered ground truth will be the last determining factor in the selection of the sample woodlots.

3.3.3 Sample plot structure

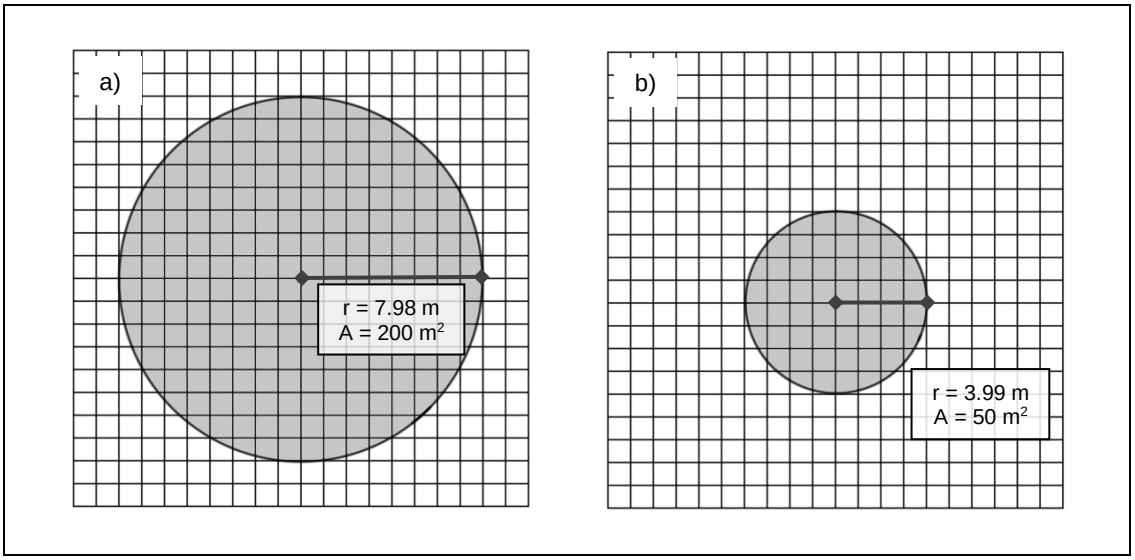
This survey applies temporary circular sample plots with two different radiuses, depending on the stocking of trees in the woodlot (Figure 2).

A circular sample plot with a radius of **7.98 metres** (area of 200 m^2) is applied on woodlots with stocking levels **below ~2,500 stems/ha**. These are typically: i) planted woodlots, and ii) naturally regenerated woodlots that have been managed down to economically viable stocking.

A circular sample plot with a radius of **3.99 metres** (area of 50 m^2) is applied on overly stocked woodlots with **~2,500 stems/ha and above**. These are typically naturally regenerated woodlots that have not been properly respaced or thinned down. The smaller plot radius makes the field measurements practically more feasible in these areas.

Selection of the sample plot radius is done on location by the survey team based on their initial assessment of the stand density. On woodlots that have a stocking of 2,500 stems/ha **the average distance between trees is 2 metres.** This value can be used as guidance.

Figure 2 The default circular sample plot (a) and the circular sample plot applied in cases of high stocking of trees (b)



3.4 Navigation and sample plot placement

3.4.1 Navigating to the target woodlot

To support navigation in the field, background maps based on the participatory woodlot mapping are applied with ODK. The background maps are uploaded to surveyor phones prior to the field work. In ODK, the background maps can be activated while using the function “Start GeoShape”.

Practically, woodlot owners are needed for escorting the survey teams to the selected woodlots. This needs to be arranged in cooperation with the community prior to the field work.

3.4.2 Placing the sample plots

Each sample plot is **placed randomly within the target woodlot by the survey team**, with some limitations:

- The team must verify that the sample plot is representative of the woodlot and must hence not be placed on an anomaly such as a solitary opening or a rocky formation.

- The sample plot centre should not be placed closer than 20 metres to the woodlot boundary (narrow woodlots form an exception).
- No partial sample plots are taken, i.e. each sample plot should be completely within the boundaries of the sampled woodlot.
- In case the woodlot area is over 2 ha and hence multiple sample plots are measured from the same woodlot, the sample plots should not overlap.

Before carrying out sample plot measurements, always determine whether the large plot radius (7,98 m) or the small plot radius (3,99 m) should be applied (see 3.3.3).

3.4.3 List of variables

Variables recorded from each woodlot are listed in Table 5. One set of variables is based on survey team's general assessment concerning the whole woodlot area and another set of variables is based on sample plot measurements.

Table 5 Variables recorded from each surveyed woodlot

Scope	No.	Variable	Remarks
Assessment from the whole woodlot area	1	Woodlot boundaries	The boundaries are recorded in the field through GeoShape function of the ODK. The included background map has two additional support functions, it: i) helps in navigation between woodlots, and ii) shows a temporary woodlot ID.
	2	Temporary ID	Key in temporary woodlot ID as it appears in the ODK background map.
	3	Woodlot location	Select district and village.
	4	Tree genus	Select pine, eucalyptus, wattle, or cypress.
	5	Regeneration method	Select between planting and natural regeneration. Refers to the current main cohort of trees.
	6	Year of establishment / regeneration	Verified through destructive sampling of a sample tree. If destructive sampling is not possible, leave this field empty and key in the year of establishment as stated by the woodlot owner into the final remarks (in the end of the form).
	7	Weeding status	Assessed on a three-tier scale.
	8	Pruning status	Assessed on a four-tier scale.
	9	Pruning height	Average height of pruning. *For pruned woodlots only.*
	10	Fire breaks	Yes/No. Determine whether the woodlot is protected by fire breaks.
	11	Eligibility for transmission poles	Refer to TANESCO specification (October 2017). *Only assessed from eucalyptus stands with 5 years of age or above*.
	12	Woodlot photo	Take a photo of the woodlot.
Sample plot measurements	13	Sample plot radius	Select 7.98 m or 3.99 m.
	14	GPS coordinates of the sample plot centre	Use ODK function "Start GeoPoint".
	15	Number of live trees	Count in trees with green needles/leaves.
	16	Number of dead trees	Count in standing trees with no green needles/leaves.
	17	Mean diameter	Measured from the tree that is estimated to represent the mean diameter in the sample plot.
	18	Mean height	Measured from the tree that is estimated to represent the mean height in the sample plot.

A chance to provide additional remarks of the woodlot is included in the end of the survey form.

By default, woodlot owner information is not collected during the woodlot survey, because it is collected already beforehand in the participatory mapping during the pre-survey. However, the ODK form includes a chance to add owner information in case of a new woodlot owner.

3.5 Variables assessed from the whole woodlot

3.5.1 Woodlot boundaries

Apply ODK function “Start GeoShape”, located in the beginning of the woodlot survey form.

> **Note:** Prior to measurements, this function can be used as an assistance for navigation between the sampled woodlots.

Assuming that the participatory mapping has been done, the background map shows predetermined woodlot boundaries along with the name of the woodlot owner, a local name for the woodlot and a temporary woodlot ID.

To record boundaries in the field, the woodlot needs to be walked around with a local guide. Waypoints along the woodlot boundary are saved manually, based on the GPS location of the surveyor.

During baseline collection in Makete District, practically all woodlots included in the sample were measured for boundaries in the field. This was done to provide ground truthing for all boundaries and allow for comparison of spatial data between the participatory mapping and the woodlot survey. Whether all boundaries are recorded during baseline data collection in other districts remains to be determined.

3.5.2 Temporary ID

Key in the temporary woodlot ID as it is shown in the ODK background map.

Each woodlot identified during the participatory mapping has a temporary ID consisting of a letter and a number, such as C3 (see section 2.2.2). The temporary ID is marked in the ODK background map.

Some mismatches should be expected between the pre-survey data and the ground truthing, and one of the following cases might appear:

- The visited woodlot was not included in the participatory mapping.
- The participatorily mapped area covers two or more visited woodlots.
- It is unclear which participatorily mapped woodlot should be linked with the visited woodlot.

In these cases, **provide adequate remarks under the Temporary ID question and always include the name of the woodlot owner**.

The ID (or, the remarks) recorded by the surveyors herein act as a backup information in linking the pre-survey data with the woodlot survey data.

3.5.3 Woodlot location

Select the correct district and the village for the woodlot location based on a list.

3.5.4 Tree genus

The tree genera included in the survey are **pine**, **eucalyptus,** and **wattle**. It is recommended that **cypress** is included in the predefined selection options since cypress woodlots, despite being very few, were encountered and included in the final sample of Makete District.

In mixed stands, the main genus is selected, and the other(s) highlighted in the final remarks in the end of the form.

3.5.5 Regeneration method

Select between the following two options:

i. Planted woodlot

ii. Natural regeneration

This information is enquired from the woodlot owners. In addition, the field team should pay attention to the spatial distribution of trees (straight rows vs. uneven spacing; overall stand

density) as well as to presence of any signs of respacing (especially stumps). These typically testify further for either of the regeneration methods.

It should be emphasised that the question refers to the establishment method of the current main cohort of trees: the question may be sometimes misunderstood by the woodlot owners as the original establishment method for the first tree generation in the site.

3.5.6 Year of establishment or regeneration

The year of establishment or regeneration refers to the year in which the current main cohort of trees was established at the site. This may have occurred either by planting or by natural regeneration.

The year of establishment or regeneration provided herein **should always be verified with destructive sampling** of a selected sample tree.

The selected sample tree must represent the main cohort of trees in the woodlot.

Cutting of the tree must always be agreed with the woodlot owner. In most cases it is recommended to select a tree with lower technical stem quality and/or poor spatial spacing for destructive sampling since cutting of such tree is easier to justify.

The selected sample tree is cut down just above ground level with a bowsaw or a chainsaw. A disk is cut off from the bole of the tree and annual rings in the disk are counted for age. The year of establishment is always determined as *current year deducted by the counted age.*

Remarks:

- There may be discrepancies between the real year of establishment and the calculated year of establishment, e.g. due to timing of the survey and due to growing season occurring between two calendar years. Nevertheless, the age should be always determined based on the presented method to allow for best verified estimates.
- In case it is **not possible to cut down a sample tree, the field should be left empty in the survey form** and the year of establishment as stated by the woodlot owner should be keyed into the remarks in the end of the survey form.
- The cut tree can often double as a sample tree for determination of mean tree height.
- If the tree was cut within a sample plot area it should still be counted as a live tree in the sample plot results to not cause bias in the survey findings.
- If the sampled tree returns a clearly erroneous or controversial figure for age, either another tree should be cut, or the field should be left empty in the survey form.
- Counting of the annual rings and observations from the historical development of the diameter growth often provides a good basis for discussion with the woodlot owner concerning the silvicultural status of their woodlot.

3.5.7 Weeding status

The observed weeding status of the woodlot is categorised into one of the three categories presented in Table 6, based on the survey team's assessment. The assessment is done for woodlots of all ages (regardless of the relevance of weeding).

The observed weeding may include multiple weeding methods such as circle weeding, slash weeding or strip weeding. The assessment for the weeding status does not require differentiation between different types of weeding. Instead, just the overall quality of work is assessed as per the descriptions included in Table 6.

Table 6 Applied scores for the status of weeding

Score	Label	Description
0	No weeding done	There are no signs of weeding activities done in the woodlot, or the signs of weeding are minimal.
1	Partial or insufficiently done weeding	Some weeding activities have been done in the woodlot, but either the quality of work is not up to a good silvicultural standard or the weeding has been done only for a part of the woodlot.
2	Weeding done according to a good standard	Weeding activities in the woodlot have been done up to a good silvicultural standard, efficiently reducing the competition imposed by weeds to the tree stand. Circle/strip weeding must be complemented by additional slash weeding.

3.5.8 Pruning status

The observed pruning status of the woodlot is categorised into one of the four categories presented in Table 7, based on the survey team's assessment. The assessment is done for woodlots of all ages (regardless of the relevance of pruning).

In case many years have passed since last pruning, assessing the original quality of work is more difficult and stems must be inspected carefully.

Table 7 Applied scores for the quality of pruning

Score	Label	Description
0	Not done	No pruning has been done.
1	Poor	Significant stumps of branches are left to the pruned stems and/or notable damage has been done to the bark of the tree.
2	Mediocre	Features from both the good and the poor pruning quality categories are present in the woodlot.
3	Good	Branches cut clean along the surface of the stem or just above the branch collar and no damage has been done to the bark of the tree.

3.5.9 Pruning height

If pruning has been done in the woodlot, the survey team measures and reports **the average height of pruning (in metres)** measured from the ground level. The measurement is done using a measurement pole. High pruning can be verified using a hypsometer.

The result is entered in metres with 10 cm precision; hence the decimal dot needs to be applied. For example: 4.6 m.

3.5.10 Fire breaks

Yes/No. Determines whether the woodlot is: i) surrounded by fire breaks, or ii) is part of a group of woodlots surrounded by fire breaks. The fire breaks must be adequately managed so that their observed condition provides effective protection against fire.

3.5.11 Eligibility for transmission poles

This variable is only assessed from eucalyptus woodlots that are of 5 years of age or above.

The general eligibility of the woodlot's trees for transmission poles is categorised as follows:

1) Highly eligible
2) Moderately eligible
3) Poorly eligible

The technical quality of the standing eucalyptus trees is assessed against the technical quality criteria specified in the TANESCO guideline for wood poles[2]. The factors that can be considered from standing trees include stem dimensions, prevalence of knots (indicated by living and dead branches), decay, physical defects, sweep and crook. The survey team should always refer to the TANESCO guideline while doing the assessment.

[2] TANESCO, Specification 11, Wood poles and blocks. October 2017.

3.6 Sample plot measurements

3.6.1 General instructions

A survey team of a minimum of two people is required to measure the circular sample plots. One team member takes position in the centre of the sample plot and records information, while the other moves systematically clockwise or counterclockwise through the sample plot counting the trees within the sample plot boundaries.

Sample plot boundaries are determined by using a rope with an adequate length. The first counted tree should always be temporarily marked to avoid double counting.

3.6.2 Sample plot radius

Select the applied sample plot radius (7.98 m or 3.99 m). See section 3.3.3 for guidelines on how to determine the adequate sample plot radius.

3.6.3 GPS coordinates of the sample plot centre

Use the ODK function “Start GeoPoint” for recording the GPS coordinates in the centre point of the sample plot.

3.6.4 Number of live trees

Insert the number of live trees in the sample plot.

Trees are considered alive when they have any green needles/leaves.

3.6.5 Number of dead trees

Insert the number of dead trees in the sample plot.

Trees are considered dead when they have no remaining green needles/leaves. Fallen dead trees are not considered, i.e. the counted dead trees should still be standing.

3.6.6 Mean diameter

To determine the mean diameter in the sample plot, it is recommended that the survey team measures diameter from 3–5 average-sized trees and calculates the average result.

Only live trees are considered for the mean diameter.

3.6.7 Mean height

Mean height is measured from a tree that represents the mean height in the sample plot.

Measurement of tree height is done either by using a measurement pole such as a PVC pipe with markings (trees up to 5 m) or by using a hypsometer (trees above 5 m).

It is not always practically possible to measure the mean height from the sample plot trees for example due to poor visibility in overly dense stands. In this case a sample tree must be picked outside of the sample plot area. However, it must still be representative of the mean height.

It is worth noting that the tree cut down in destructive sampling (see 3.5.6) may provide an opportunity for precise height measurement.

Only live trees are considered for the mean height.

4. SURVEY ON SME:S WITHIN THE FORESTRY VALUE CHAIN

4.1 Objectives and general survey approach

The objectives of this survey are as follows:

i. Provide baseline data for the relevant programme indicators (Table 8 and Table 9);

ii. Identify SMEs operating within the local forestry value chain; and

iii. Collect basic information from the identified SMEs to support the programme decision-making.

The concept of SMEs[3] applied herein includes different types of primary and secondary wood processing enterprises, harvesting and haulage operators, timber yards, charcoal makers, tree seedling nurseries, and other businesses within the forestry value chain. They may be either officially registered or lacking an official registration. A detailed typology is included in Table 10.

Survey data is collected mainly through interviews with the entrepreneurs. In addition, SMEs with stationary operating site are visited as possible, with nurseries and stationary sawmills as the highest priority.

Sampling of the SMEs in each target community is based on the SME list collected during the preliminary visit. By default, all available SMEs on the list will be included in the survey.

The data collection tools include a specifically drafted questionnaire utilising smartphone-based application ODK.

4.2 Relevant programme indicators

Table 8 lists the programme indicators that concern SMEs within the forestry value chain in the programme operating area.

Table 8 Indicators requiring baseline data collection from SMEs within the forestry value chain

RBMF level	Indicator
Outcome	30% of SMEs in PFP 2 areas adopt innovative processing technologies and practices reducing waste and improving profitability
Output 2.1	Proportion of PFP 2 supported SMEs employing women and vulnerable people
	Number of SMEs participating in PFP 2 employing their workforce in decent jobs including equal pay for equal work, equal pay for men and women for same work, and legally required social security payments
Output 2.2	Number of PFP supported SMEs having functional management systems with a pertinent business plan to access loans for investments and operations
	Number of SMEs financed by impact investment funds, private banks or investment institutions like SIDO Tanzania
Output 2.3	Percentage of logs sorted for different use and deliveries to primary wood processing like sawmills, panel factories and pulp & paper
	Percentage of recovery rate in PFP 2 supported SMEs
	Number of SMEs having long-term timber procurement contracts with private tree growers or TFS
	Percentage and volumes of graded sawn timber produced and sold in the market

A programme indicator specific for local tree seedling nurseries is included in Table 9.

[3] In the context of Tanzania SMEs are defined as micro, small and medium size enterprises in non-farm activities which include manufacturing, mining, commerce, and services. A micro enterprise is defined as a firm with fewer than five employees whereas a small firm is a firm with 5 to 49 employees, a medium enterprise is a firm with 50 to 99 employees. https://www.ukessays.com/essays/economics/current-status-of-sme-sector-in-tanzania-economics-essay.php

Table 9 Indicator requiring baseline data collection from local nurseries

RBMF level	Indicator
Output 1.2	Share of nurseries in PFP-supported villages that are using (i) improved seed and (ii) improved practices

While the data collection in this SME survey is planned to address these indicators as per objective (i), it also includes a wide range of additional information to accommodate for objectives (ii) and (iii).

4.3 Sampling of SMEs

Note: This methodology assumes that a list of locally active SMEs within the forestry value chain is collected prior to the SME survey in each village.

Local forestry value chain SMEs are listed during the preliminary survey in the target village and their owners/managers are requested to participate in the data collection meeting, as described in section 2.3. The participants of the meeting will be interviewed for survey data, forming the sample group of the SME survey. The target is to include as many SMEs as practically possible in each village.

4.4 SME typology applied in the survey

The forestry value chain SMEs included in the survey are categorised based on their activities.

Table 10 includes the typology applied with the SMEs in this survey. Local businesses with activities falling under one or more of the categories presented herein are hence considered as forestry value chain SMEs in the context of this survey.

This question enables multiple selection to accommodate SMEs with multiple different forestry-related activities.

The initial categorisation (Table 3) applied in the SME list collected during the preliminary survey in target villages is also based on the main categories of the typology presented in Table 10.

Table 10 SME typology applied in the survey

ID	SME activity types
1	Sawmill *(see Table 16 for detailed description of subcategories)*
1.1	➢ Dingdong (Amec) sawmill
1.2	➢ Mobile bandsaw
1.3	➢ Advanced mobile circular sawmill
1.4	➢ Stationary bandsaw
1.5	➢ Advanced stationary circular sawmill
1.6	➢ Multi-rip saw
2	Pole production
2.1	➢ Transmission poles
2.2	➢ Construction or fencing poles
3	Veneer production
4	Wood secondary processing
4.1	➢ Carpentry and furniture
4.2	➢ Plywood/blockboard
4.3	➢ Wood joinery
4.4	➢ MDF/particle board
4.5	➢ Pallets and wood packaging
4.6	➢ Sawn wood treatment
4.7	➢ Other wood-based products
5	Forest management/harvesting contractor
6	Wood transportation
6.1	➢ Haulage operator (stump to roadside)
6.2	➢ Log transporter (roadside to processing)
6.3	➢ Transportation of processed products
7	Timber yard
7.1	➢ Privately owned
7.2	➢ Government-owned
7.3	➢ TGA-owned
8	Nursery
8.1	➢ Polytube
8.2	➢ Containerised
9	Bioenergy / Wood by-products
9.1	➢ Firewood
9.2	➢ Lump charcoal
9.3	➢ Charcoal briquettes
9.4	➢ Biochar
10	Pine resin collection
11	Supply of machinery and/or spare parts
12	Saw doctoring

4.5 Survey procedures common for all SMEs

4.5.1 List of common variables

A standard list of variables is recorded from all SMEs included in this survey, while other variables are specific for certain types of SMEs only.

The list for the variables common for all SMEs is included in Table 11.

Table 11 Variables recorded from each surveyed SME

No.	Variable	Remarks
1	Name of the enterprise	Official name of the SME *(mainly for officially registered SMEs)*
2	Owner details	Name, gender, contact information
3	Location	Select district and village
4	SME activities	As per the typology included in Table 10. Multiple selection, involving subcategories
5	No. of employees	Disaggregate by gender and permanent/daily labour
6	No. of vulnerable and disabled employees	Categories reported separately
7	Registration status	Select the most advanced level of registration
8	Bank account	Yes/No. Personal bank account of the owner does not qualify herein
9	Business plan	Yes/No
10	Capital investment	Capital investment in machinery or infrastructure
11	Sources of funding	Mark the sources of external finance
12	Annual operational costs	Estimate the annual total operational costs
13	Annual revenue	Estimate the annual total revenue
14	Market access	Good, mediocre, or poor. Based on the assessment by the SME owner/manager. Can be left empty if not relevant
15	Social security system for employees	Select adequate option from a list
16	Workplace accidents	The number of serious accidents (injury/death) during the past year
17	OSH training	Yes/No. Ask whether the SME owner/manager has received any occupational safety and health training
18	Main challenges	Open-ended question. List briefly the main challenges of the SME in developing their business, as stated by the owner
19	GPS coordinates for field location	Record GPS coordinates for the SME field location *(stationary SMEs only)*

A chance to provide additional remarks of the SME is included in the end of the survey form.

In addition to the common variables listed in Table 11, type-specific variables are required from the SMEs with following activities:

- Sawmills (all types)
- Forest management/harvesting operators
- Nurseries
- Bioenergy / Wood by-product producers

The variables specific for these SME types are covered further below, from section 4.6 onwards.

4.5.2 Name of the enterprise

The official name of the enterprise, if any, is keyed in herein. In case the SME has not been registered and has no official name, this section is left empty.

This section was generally not applied in the data collection in the highly unofficial SME scene of Makete District. It is however recommended to include it in districts like Mafinga and Njombe, which are expected to have a notable group of registered SMEs with official names.

4.5.3 Owner details

Name, gender, and phone number of the SME owner/manager are recorded herein.

4.5.4 Location

States the district and the village/town in which the SME is based. Both are selected from pre-determined lists.

4.5.5 SME activities

Relevant SME activities are selected from the list presented in Table 10. Multiple selection for both the main categories and the subcategories is enabled to accommodate for SMEs with more than one type of activity.

4.5.6 Number of employees

The number of SME employees in each of the four categories in entered, as follows:

1. Permanent employees: Female
2. Permanent employees: Male
3. Daily labour: Female
4. Daily labour: Male

Numbers for the daily labour may have large seasonal variation. An average daily figure as estimated by the SME owner should be applied.

4.5.7 Number of vulnerable employees and employees with disability

The number of i) vulnerable employees (e.g. orphans, employees with HIV/AIDS), and ii) employees with disability[4] working at the SME are entered.

The figures stated herein are not additional to the total numbers stated in the previous question (4.5.6), but merely apply a different classification of employees.

4.5.8 Registration status

Different levels for SME registration are listed below in Table 12, ranking from lowest to highest. The highest level that applies should be selected.

Table 12 Categories for SME registration status

ID	Registration status
1	Not registered
2	Registered at district level (e.g. CBOs with business activities)
3	SME has a Tax Identification Number (TIN) only
4	SME is registered under Business Registration Licencing Authority (BRLA)
5	SME has a Business Licence

4.5.9 Bank account

Yes/No. Refers to a bank account registered to the SME. A personal bank account of the owner does not qualify herein.

4.5.10 Business plan

Yes/No. Indicates whether the SME has any written business plan or not.

4.5.11 Capital investment

The estimated total capital investment in the machinery or infrastructure of the SME, in TZS.

Estimate by the SME owner is the main source of information; however, the interviewers should assess the stated figure against the stated/observed level of activities and technology in the SME and ask further questions if necessary.

[4] The UN Convention on the Rights of Persons with Disabilities (UNCRPD) recognises that 'disability is an evolving concept' (UNCRPD, 2006, p. 1). 'Persons with disabilities include those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others' (UNCRPD, 2006, p. 4).

4.5.12 Sources of funding

The question concerns specifically the sources of external funding. Funding emerging from the SME owner's household does not apply herein.

The selection options are presented in Table 13. Multiple selection is enabled.

Table 13 External sources of funding

ID	Funding source
1	No external funding received
2	VICOBA, VSLA, SACCOS etc.
3	Impact investment fund
4	Major commercial bank
5	SIDO
6	EFTA
7	Other (specify)

To qualify for categories other than no. 1, the SME must have either received funding from one of the listed sources during the last 2 years, or, secured upcoming funding from at least one of the listed sources.

4.5.13 Annual operational costs

The estimated total annual operating costs (on average) of the SME, in TZS.

The figure is based on an estimate by the SME owner; however, it may be necessary for the interviewer to ask further questions to assist the owner in assessing the total annual operational costs correctly.

4.5.14 Annual revenue

Insert the estimated total annual revenue (on average) of the SME, in TZS.

The figure is based on an estimate by the SME owner; however, it may be necessary for the interviewer to ask further questions to assist the owner in assessing the total annual revenue correctly.

4.5.15 Market access

Estimated on a three-tier scale by the SME owner: good, mediocre, or poor.

In case the question is not relevant for the SME given its set of activities, the question can be left empty.

4.5.16 Social security system for employees

The interviewer should enquire whether the SME applies any social security system for employees ensuring access to health care and to guarantee income security in cases of old age, sickness, invalidity, work injury, and/or maternity. The selection options are presented in Table 14.

Table 14 Social security systems

ID	Social security system
1	No social security system provided
2	NSSF
3	PSSSF
4	Other arrangement (specify)

4.5.17 Workplace accidents

The question refers to the number of accidents during the past 12 months that have caused an injury resulting into **temporary or permanent incapacity to work or death of an employee**.

4.5.18 Occupational safety and health (OSH) training

Yes/No. The interviewer should enquire whether the SME owner/manager, or his/her representative, has received any formal OSH training.

4.5.19 Main challenges

Open-ended question. The interviewer should ask the SME owner what their main challenges are for developing the business of the SME. The stated challenges should be provided as a brief list.

4.5.20 GPS coordinates for field location

This variable requires a field visit to be conducted to the SME operating site. The field visits should be agreed on with the SME owners during the interviews and conducted during the same day, if possible. The highest priorities for field visits are **stationary sawmills** and **nurseries**, followed by **timber yards** and carpentry **workshops**.

It should be noted that for recording the GPS coordinates after the interview, the filled-in survey form should be saved but preferably not marked as finalised, to avoid unintended premature submission of the form.

Record GPS coordinates of the SME operating site by using the ODK function “Save GeoPoint”.

4.6 Survey procedures specific for sawmills

4.6.1 List of variables specific for sawmills

Additional variables listed in Table 15 are recorded specifically from sawmills.

Table 15 Additional variables recorded from sawmills

No.	Variable	Remarks
1	Sawmill technology	Select adequate technology/technologies from a list
2	Innovative practices	Enquire about new practices that have improved the sawmill operations. Open-ended question
3	Usage of PPE	Mark whether any personal protective equipment (PPE) is being used
4	Timber procurement contracts	Select the correct option from a list, based on whether the SME has any type of timber procurement contract
5	Percentage and volumes of graded sawn timber produced	Assessment by the SME owner/manager

4.6.2 Sawmill technology

The interviewer should select the adequate sawmill technology applied by the SME as per the options listed in Table 16. Multiple selection is enabled to accommodate for SMEs with more than one type of sawmill.

Unlike other sawmill-specific questions, the sawmill technology selection is prompted separately early on, appearing among the general SME questions.

Table 16 Sawmill technologies

Type	ID	Technology	Description
Mobile sawmills	1.1	Dingdong (Amec) sawmill	Rudimentary mobile circular blade sawmill powered by an external engine. The standard technology applied widely in the Southern Highlands.
	1.2	Mobile bandsaw	Mobile bandsaw with horizontal blade. E.g. Wood-Mizer, Saw Specialists
	1.3	Advanced mobile circular sawmill	Mobile circular blade sawmill that applies advanced features, allowing for good quality of sawn timber. E.g. mobile models of KARA, LAIMET, Slidetec
Stationary sawmills	1.4	Stationary bandsaw	Stationary bandsaw with one or multiple horizontal and/or vertical blades.
	1.5	Advanced stationary circular sawmill	Permanently established circular blade sawmill that applies advanced features. E.g. stationary models of KARA, LAIMET, Slidetec
	1.6	Multi-rip saw	Stationary sawmill with multiple adjacent blades. E.g. Shengong, HewSaw

It should be noted that additionally a GPS point is required from all stationary sawmills (see 4.5.20).

4.6.3 Innovative practices

Open-ended question. The interviewer should enquire the sawmill owner concerning any new and better practices adopted during the last two years that have helped to improve the operations of the sawmill.

4.6.4 Usage of PPE

The interviewer should mark whether any personal protective equipment (PPE) is being used by employees. If yes, the kind of PPE used should be specified.

PPE may include, but is not limited to, the following: hearing protection, eye protection, helmet, protective trousers, protective boots, reflective vest, gloves, mask.

4.6.5 Timber procurement contracts

The interviewer should select the right option from the list presented in Table 17, based on whether the SME has a timber procurement contract either with private growers or with TFS.

Table 17 Timber procurement contract categories

ID	Timber procurement contracts
1	No timber procurement contract
2	Contract up to 3 months
3	Contract up to 6 months
4	Contract up to 1 year
5	Contract up to 3 years
6	Contract for longer than 3 years

4.6.6 Percentage and volumes of graded sawn timber produced

Based on an assessment by the SME owner/manager, the following information is entered:

i. Percentage of graded sawn timber out of all timber produced by the sawmill

ii. Total volume of graded sawn timber produced per annum (in cubic metres)

In order to qualify as graded, the sawn timber must be either graded according to national grading standards or it must match exclusive customer-specific quality specifications.

4.7 Survey procedures specific for other selected SME types

4.7.1 List of variables specific for other selected SME types

Specific variables are enquired from other selected types of SMEs in addition to the sawmills. The list of these variables and the respective SME types is included in Table 18.

Table 18 List of variables specific for other selected SME types

SME type	No.	Variables	Remarks
Forest management/ harvesting contractor	1	Chain saw training	Enquire whether operators have received any technical chain saw training
	2	Usage of PPE	Mark whether any PPE is being used
	3	Percentage of logs sorted for different use	Assessed by the SME owner/manager
Nurseries	4	Application of improved seed	i) All seed; ii) Part of the seed; or iii) None of the seed is from improved origins
	5	Application of improved practices	Applied based on a separate check list
Bioenergy / Wood by-products	6	Applied technology	Select the adequate bioenergy/wood by-product processing technologies from a list
	7	Annual production rate	Estimated number of standard bags of charcoal produced per year

4.7.2 Chain saw training

Specific variable for forest management/harvesting contractors.

Yes/No. The interviewer should mark whether the chain saw operator(s) have received any technical training for the use of chain saw. Unofficial mentoring by colleagues does not count herein.

4.7.3 Usage of PPE

As described in section 4.6.4.

4.7.4 Percentage of logs sorted for different use

Specific variable for forest management/harvesting contractors.

The interviewer should ask the SME owner to assess the following: i) specify the end uses in which the harvested logs are delivered based on the categorisation in Table 19, and ii) assess the percentage of logs delivered to each end use.

Notice that the **total should add up to 100%.**

Table 19 Different uses for harvested logs

No.	Use of logs
1	Sawmilling
2	Veneer production
3	Panel factories
4	Pulp and paper
5	Bioenergy
6	Other: specify

4.7.5 Application of improved seed

Specific variable for nurseries.

Based on the usage of seed from improved sources, one of the following categories is selected:

1) All seed is from improved sources
2) Part of the seed is from improved sources
3) No seed is from improved sources

To qualify as improved, the seed applied by the nursery must have an official proof of the improved origin.

4.7.6 Application of improved practices

Specific variable for nurseries.

The practices applied by the nursery are assessed based on the list included in Table 20.

With each specific practice, the interviewer must select between the standard practice and the improved practice based on which one better describes the nursery operations. If neither of the options is suitable, the selection is to be left empty.

Table 20 List of standard and improved nursery practices

No.	Aspect	Standard practice	Improved practice
1	Nursery management	Nurseries are established and managed based on experience and local knowledge	Training of nursery staff on e.g. good management practices, record keeping, entrepreneurship, marketing etc.
2	Seed source	Seed are collected from mature stands or regenerants without considering phenotypical or genetical characteristics	Using improved seed with tested and proven superior characteristics.
3	Seed treatment	No seed treatment before sowing	Adequate seed soaking before sowing
4	Planting medium	Soil used as a medium for planting	Soilless medium which provides for environmental benefits, light weight and reduction to root damage
5	Fertilization	No fertilizer application	Root and foliar fertilization, e.g. NPK and polyfeed
6	Soil treatment	No treatment of soil, leading to infection and poor germination	Standard seed bed preparation including the following: • Treated sieved river sand and top forest soil in 50/50 ratio • Wire mash to prevent rodents • Gravels for good drainage • Shading to prevent direct sunlight
7	Transportation	Use of polythene tubes that cause environmental pollution and root damage during transportation	Use of reusable containers (trays) which allow for easier inventory, transportation and improved seedling survival
8	Root pruning	Roots pruned manually, causing damage and potential slow-down of seedling growth	Air pruning of roots, which effectively avoids the harsh effects of manual root pruning

It should be noted that additionally a GPS point is required from nurseries (see 4.5.20). The applied nursery practices can hence also be verified through field observations.

4.7.7 Applied bioenergy and wood-by product processing technology

Specific variable for bioenergy and wood by-product producers.

The interviewer should select the adequate processing technology from the options listed in Table 21. Multiple selection is enabled to accommodate for SMEs ussing more than one type of production technology.

I case none of the production technologies are relevant for the SME, the category no. 6 (“not applicable”) is selected.

Table 21 Bioenergy product manufacturing technologies

No.	Bioenergy technologies
1	Pit kilns
2	Movable metal kiln
3	Half orange brick kiln
4	Extruder
5	Hammermill
6	n/a

4.7.8 Annual production rate

Specific variable for bioenergy and wood by-product producers.

The SME owner should estimate the annual production of the SME. The annual production is marked as the number of standard bags of charcoal produced by the SME per year.

In case the variable is not relevant for the SME, the selection option can be left empty.

5. HUMAN RESOURCES

This section describes the human resources used during the baseline data collection in Makete District.

Programme internal staff were used as field surveyors for **the pre-survey**, **the woodlot survey**, **the SME survey**, and **the household survey** included in the socioeconomic data collection. Additionally, programme experts were involved in supporting these surveys and guiding the activities in the field.

The focus group discussions and the key informant interviews were carried out separately by a group of external specialists recruited for the purpose on a short-term basis, while being led by relevant programme experts.

Table 22 shows a summary of the programme internal human resources that were available for the four surveys in Makete District. The available staffing allowed for 26 persons to be deployed throughout most of the field work.

Table 22 Summary of the programme human resources available for the survey

Task	Position	No. of staff
Field surveyors	Extension Officers	7
	Extension Workers	10
	VET Tutors	3
Support and field guidance	Cluster Coordinators	3
	PFP Experts (LT & ST)	3
Total		26

The available staffing was distributed between the three surveys mainly as follows:

Field exercise	No. of survey teams
Collection of preliminary data	5
Survey on smallholders' woodlots	13
Survey on SMEs within the forestry value chain	3
Household survey (socioeconomic data collection)	5

The survey on smallholders' woodlots utilises two-people survey teams, halving the efficient number of surveyors as compared to the other two surveys.

Since the woodlot survey, the SME survey and the household survey were carried out simultaneously in the same target villages, it was possible to make small adjustments to the surveyor distributions between the different surveys when deemed useful.

Annex 1 Baseline data collected through desk exercises

Baseline data for the indicators listed in Table A1.2 will be collected through desk exercises conducted by the programme staff in office.

Table A1.1 Indicators requiring baseline data collection through desk exercises

RBMF level	Indicator
Outcome	Increased monthly CESS and VAT collection in the forest sector by AWP districts
Output 1.1	Number of officially registered TGAs with constitutions
	Number of TGAs paying their membership subscriptions to the TTGAU
	Participation of women, vulnerable people and different age classes in TTGAU/TGAs management bodies
	Inclusion and representativeness of women and vulnerable people reflected in TGAs' constitutions
Output 1.2	Number and sales volume of containerised tree seedling nurseries in Tanzania
Output 1.5	TGAs have regular meetings with local government and SMEs
	TTGAU has regular national level meetings with government and private sector
Output 1.6	Increased number of district forestry extension officers deployed and working in forestry value chain development

Annex 2 SME information template

SME name	Name of the owner	Contact information	Location	Sawmill (mobile)	Sawmill (stationary)	Pole production	Veneer production	Wood secondary processing	Forest management / harvesting	Wood transportation	Timber yard	Nursery	Bioenergy / wood by-products	Pine resin collection	Supply of machinery / spare parts	Saw doctoring

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