

# **Community-Based Sustainable Forest Management for Water Resource Conservation in Manipur (COSFOM-KfW)**

## **Forestry Plantation Guideline**

Version: 08/2019

Manohar Shrestha  
Dr. Satvant Saini

## TABLE OF CONTENTS

<b>1. Introduction .....</b>	<b>1</b>
<b>2. Plantation Objectives .....</b>	<b>1</b>
<b>3. Plantation Area Availability.....</b>	<b>1</b>
<b>4. Participatory Community Plantation.....</b>	<b>2</b>
4.1 Participatory Planning and PLUP.....	3
4.2 Choice of Species.....	3
4.3 Addressing Constraints and Problems .....	3
<b>5. Plantation Work.....</b>	<b>4</b>
5.1 Site Clearance .....	5
5.2 Plantation Spacing.....	7
5.3 Pitting.....	8
5.3 Planting .....	9
<b>6. Riparian Buffer Plantation.....</b>	<b>10</b>
<b>7. Cultural Operations .....</b>	<b>11</b>
7.1 Weeding and Hoeing .....	11
7.2 Beating-up .....	11
7.3 Third Year Onwards.....	11
<b>8. Seedling Transportation .....</b>	<b>12</b>
8.1 Handling of the Seedlings .....	12

## List of Figures

Figure 1: COSFOM Plantation Terrain .....	2
Figure 2: Bush Clearance .....	5
Figure 3: Burning the Collected Bushes.....	5
Figure 4: Plantation related Tools .....	6
Figure 5: Plantation in waterlogged area making domes .....	6
Figure 6: Appropriate plant height for planting .....	7
Figure 7: Marking for Pit Spacing .....	8
Figure 8: No planting under an existing Tree .....	8
Figure 9: After planting the plant should be pulled for about 10 cm and then firmly press the soil .....	9
Figure 10: Ensure that roots are downward .....	9
Figure 11: Riparian Plantation Diagram .....	10
Figure 12: Mulching with dry leaf to certain thickness is important .....	11
Figure 13: Never lift the seedlings by holding shoots .....	12

## **List of Tables**

Table 1: Species Suitability by Altitude .....	4
Table 2: Number of Seedlings by Plantation Regimes .....	7

## **Annex**

Annex 1: Species Suitability by Altitude	
Annex 2: Number of Seedlings by Plantation Regimes	
Annex 3: Plantation Record (Day by Day)	
Annex 4: Final Report	

## 1. Introduction

Community based sustainable forest management for water resources conservation in Manipur (COSFOM) covers five micro-watersheds in two districts i.e. Kangpokpi and Ukhru districts covering sub-tropical agro-climatic zone. Forest areas are degraded, mostly with secondary forests especially in lower altitude with high exploitation for local consumption of forest products and land utilization. This has attributed to poor watershed conditions with low water retaining capacity resulting to landslides and flood in lowlands. Restoration and improvement of watershed conditions with community involvement is urgently needed to address it. Natural forests will restore, improve and manage along with the aided natural regeneration, mixed species plantation and riparian buffer plantations with the participation of local community.

This guideline is targeted to WRCG/WRCC members, farmers and PEA field staff to follow the forestry plantation activities of COSFOM. The guideline is prepared with the user friendly approach with illustrations. It will be further reviewed and amend in time to come with the experience gained, addressing the technical requirements. This is the third guidelines in a series of three, others are seed collection and nursery operation.

## 2. Plantation Objectives

It has been observed during field surveys that most of the forests are under high anthropogenic pressure, people depend on forests for fuelwood and timber mainly, and however, charcoal making is also predominant in some of the villages. As a result forests of the area are in degraded form, most of the trees are in coppice origin, have irregular or crooked stems, for some trees only short stumps were standing in the field. Due to opening of canopy cover several weed species and unutilized (less important) shrubs are spreading on the ground, with sign of illicit felling etc. Thus, there is a need of plantations, which provide productive green cover with improved soil and water conservation measures.

Plantation objectives of the COSFOM are

1. To restore, improve and protect the micro-watershed area closer allowing regeneration with aided plantation
2. Watershed improvement with soil and water conservation measures by vegetative covers improving the forest along with the plantation
3. Improvement and restoration of riparian buffer area by planting both side of the river
4. To enhance with productivity of forest products with mixed plantation of indigenous species with the species selection by WRCG members. No mono-culture plantation will be carried out.

## 3. Plantation Area Availability

Most of the forest areas have secondary and degraded forests. The community who resides in the vicinity of forests are commonly the primary users of the forests but no conservation and improvement measures are adopted. Traditional practices of Jhum cultivation found prevalent in the area, with short Jhum cycle (3-4 years), which only provide source of subsistence livelihood. COSFOM can provide options with land improvements to generate

income ensuring to traditional practices with improvement to be productive by adopting improved plantation techniques and multi-layered cropping. This COSFOM assistance to restore lands will be only applied if wished by the communities.

The potential lands available in the watershed area for plantations are as follows.

- Degraded forest/land patches near to habitation
- Scrub/open/barren forest land and /or community land
- Riparian buffer for plantations
- Farm-bund or agro-forestry model for developing multi-layered cropping
- Fallow land or non-productive land left after Jhum

There is no land acquisition of private land in COSFOM, however, if there are voluntary contributions, community and/or private lands, it can also be considered if required for technical intervention. Such land should be freely allocated without any influence to the land owner or community decision in case of community land.

However, project site have different altitudes ranging from 1300 m low-land to > 3000 m high altitude areas. Based on the altitude and aspect, selection of species will also vary from one site to other.

#### 4. Participatory Community Plantation

The plantation objective of COSFOM is to improve, restore and manage the forest sustainably enhancing the forest productivity and improvement of overall watershed management with water resource management. It is targeted that the village community i.e. WRCG will become self-sufficient in forest products and generate income.

Plantation requires a careful planning and its implementation. It is also expensive including seedling productions and manual planning in various terrains of the forests and open forest area. COSFOM envisages following plantations in the five watersheds of the project to implement through community participation and management.

- I. Mixed Species Afforestation
- II. Riparian Buffer Afforestation
- III. Aided Natural Regeneration
- IV. Jhum Conservation Buffer

While mixed species afforestation covers the area with degraded/scrub and open forest, riparian buffer afforestation is the strip of plantation along the river/stream with a designated width of plantation on both sides of the river/stream. Aided natural regeneration includes the prescriptions opening of canopy to allow favourable conditions to natural regeneration, coppice management, reduce the regeneration with other competitors. If the big patch of open area with no regeneration in the

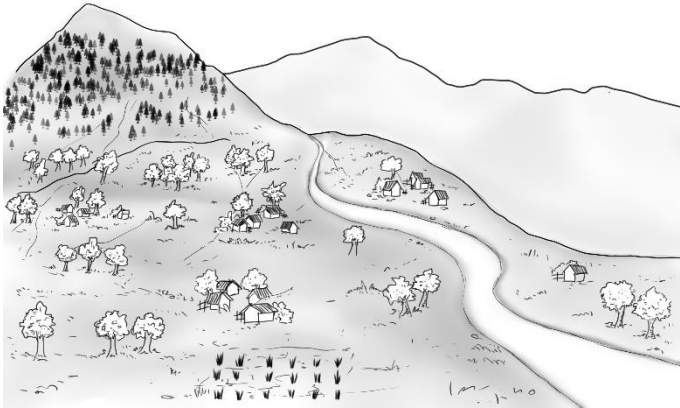


Figure 1: COSFOM Plantation Terrain

natural forest, it may need the plantation. Jhum conservation should be addressed with multi-cropping and multi-story crops depending upon the site and interest of the Jhum cultivators.

#### 4.1 Participatory Planning and PLUP

Decision of the WRCG is most important in the plantation planning.

- Forest related information should be collected applying various PRA tools and verifies the information accordingly for correct planning (Refer PRA Guidelines).
- PLUP is the main document for forest land use, identifying various forest areas to manage. This plan identifies the afforestation area and other sites as described above. The WRCC shall coordinate to prepare PLUP (Refer PLUP Guidelines). Areas are marked with the help of GIS tools and maps are also prepared.
- A sustainable Forest Management Plan will include detail plantation sites and planning to afforestation over the years. Targets and implementation year should be included in the plan.
- Once the planning has been completed, WRCC will work with the WRCG members on plantation schedule, labour estimates and assignments, seedling supply and others. Role of key informants and NGOs are important during the plantation work. Forest user Group will be formed for the forest where the group will be responsible to protect and manage the area.

#### 4.2 Choice of Species

Selection of species for plantation has pronounced impact for its success, as it is easy for the species to sustain in the surrounding environment and habitat. However, while species for plantation will be identified site specific environmental and edaphic factors to be considered i.e. soil type, humidity, altitude and aspect, as south facing slopes have comparatively drier soil whereas north facing slopes are comparatively humid. Accordingly, species will be selected and finalized. However, based on the altitudinal gradient, some site specific species have been identified (Table 1). The plantation will be mixed with number of species but not more than five species. List of species should be selected by suitability not more than five species.

There will not be mono-culture plantation in the watershed area. Up to five species will be optimum to plant in various ratios. It is proposed to keep 75: 25 or 80:20 in ratio of two main choices. Some other one or two species can also be mixed in a limited number. Table 1 is the list of possible species for plantation where only couple of species appropriate to the site should be selected.

Each of the plantation should be designed with purpose, species selection, soil testing report, decision on site specific species selection to plant in the plantation area, species ratio and others.

Species selection should exercise with WRCG with criteria based on economic, social and ecological benefits. Rotation period with intermittent thinning and harvesting for selected trees will be forecasted. Forest Management plan will include detail prescriptions.

#### 4.3 Addressing Constraints and Problems

It is well known fact that tree and shrubs are comparatively less intensive use of land than agricultural crops, and time required for crops cultivation, forest tree crops will not give

immediate return to individuals in terms of monetary benefit. It needs to motivate the WRCG members to participate to plan and complete the plantation in their selected forest area on a timely manner given it to seasonal activity. They must plan of their availability coinciding with the agricultural cultivation and afforestation.

If there is land demand for grazing, make sure that the plantation will be covered by planting multi-purpose species and some shrub species to compensate their needs.

There is a common practice in some of the villages to keep Mithun (Bison) in the wild, so the WRCG have to instruct clearly to protect the plantation area by restricting such animals. This will apply to any other domestic animals as well. Fence (close to nature) should be constructed as necessary.

Forest fire is one of the main problems during dry season. WRCG should restrict the entry to plantation area during dry season applying strict rules as in the forest management plan. Materials such as matches, lighters and similar materials that will ignite the fire, camping and picnic burning the fire should be restricted.

*Table 1: Species Suitability by Altitude*

Species by Elevation		
High (1800m -3000m)	Medium (1300m-1800 m)	Low (Low land below 1300 m)
<i>Quercus serrata</i>	<i>Alnus nepalensis</i>	<i>Albizia spp.</i>
<i>Castanopsis spp.</i>	<i>Michelia champaka</i>	<i>Gmelina arborea</i>
<i>Schima wallichii</i>	<i>Morus</i>	<i>Alnus nepalensis</i>
<i>Phoebe hainesiana</i>	<i>Litsea spp.</i>	<i>Bischoffia javonica</i>
<i>Salix spp.</i>	<i>Phoebe hainesiana</i>	<i>Anthocephalus cadamba</i>
<i>Pinus khesia</i>	<i>Cinnamomum zeylanica</i>	<i>Artocarpus integrifolia</i>
Wild apple	<i>Bischoffia javonica</i>	<i>Terminalia myriocarpa</i>
	<i>Terminalia myriocarpa</i>	<i>Terminalia arjuna</i>
	<i>Acquillaria spp</i>	<i>Chukrasia tabularis</i>
	<i>Chukrasia tabularis</i>	<i>Phyllanthus embelica</i>

## 5. Plantation Work

After the site selection, total area to be planted and species selection, and other activities should be conducted. The cost estimate should be approved by CF & WC Society and fund should be available to WRCG for the timely actions.

Seedling supply nursery, either government or community nursery of WRCG, should also be selected by species. The pitting size should be 30cm x 30cm x 30cm. Such pit should be well identified so that it will not mix while planting as there may be couple of week gaps between the pitting and actual plating.

## 5.1 Site Clearance

Site clearance is important for plantation establishment. The site should be removed with invasive shrubs and other vegetations to reduce competitions. Site clearance does not cover only with the clearance of the vegetation but also to make the site appropriate for root penetration of the planted seedlings and water infiltration. The project area covers from gentle to steep slopes where the plantation establishments and forest closer will be undertaken. Due attention have to be taken for soil and water conservation so that the site clearance will not accelerate the soil erosion and contribute to escalate drainage. Hence the site should be carefully studied regarding the slopes, drainage pattern, soil work intensity, choice of species by specific sites.

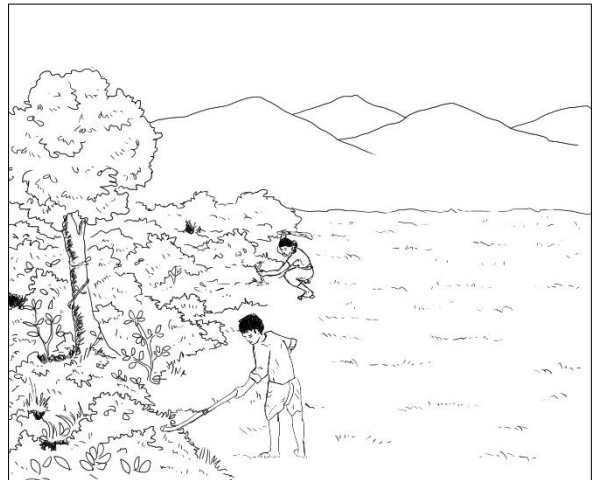


Figure 2: Bush Clearance

If necessary, runoff can be diverted to minimise soil erosion. Waterlogged area should also be assessed – it can be temporary water logging during rainy season or wet area. Planting species should be considered by these specific sites with the plantation establishment area.

Though site clearance depends upon the terrain and vegetation but it is guided by the budget availability as well. Given to terrain and labour availability, site clearance can be reduced instead whole area to be cleared. Planting species and its size shall govern the site clearance. Instead of whole area clearance, pitting site periphery at a radius of 50 cm can totally eliminate the vegetation. For fire protection and over growth coverage to the plants, the vegetation should be cleared to ground level.

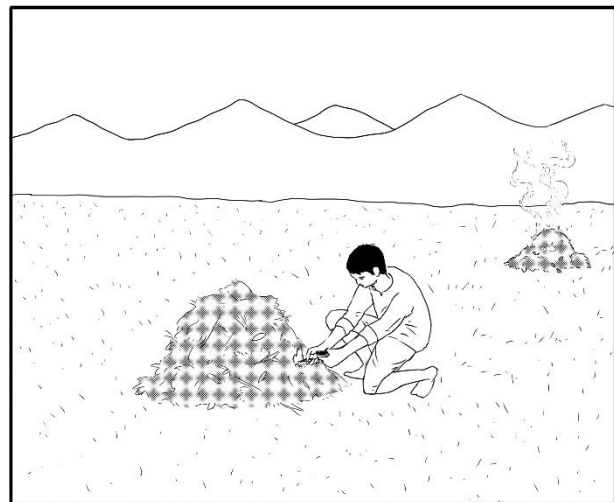


Figure 3: Burning the Collected Bushes

For the project area, the plantation site will be cleared manually with agricultural tools such as axe, spades, hoes, saws and others. It is also necessary to assess the existing fruit bearing trees and shrubs that are edible and preferred by WRCG members, such vegetation should retain provided it will not adversely affect to planted seedlings. Useful trees with coppice can retain for firewood. *Eupatorium* (Banmara in Nepali), berberis and Lantana (*Lantana camera*) shrubs are common in low altitude area. These plants are invasive and must eliminate as far as possible. Natural forest area with scattered trees may have to fell as necessary. The left-over branches should be piled and kept as windrows. It can also burn if not necessary as such biomass will be fire hazard.



One must be careful that if useful existing trees are retained, there should not be planting under the existing canopy.

Bushes and branches should be collected at appropriate site within the plantation area and burn it if necessary. The plantation area should be treated with control burning. As the burning the debris is not environmentally friendly, the debris can be dumped by digging appropriate pits.

**Control Burning**

- Fire should burn against the prevailing wind so that it will not spread quickly.
- It should burn in downhill on slopes.
- Burn in the day while little windy. Morning is preferred for burning.
- Close supervision is needed with sufficient labours so that they can control the fire.

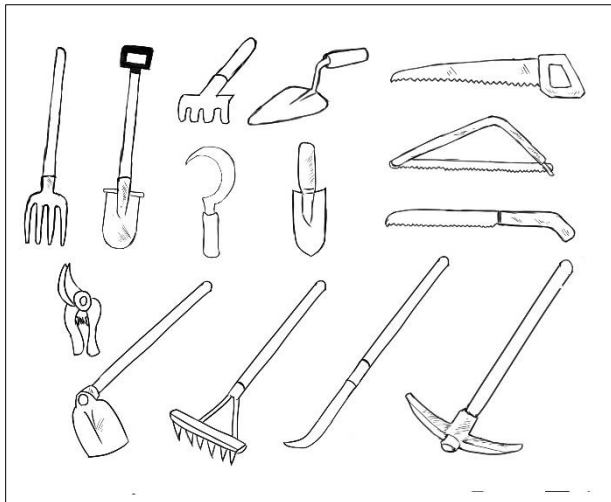


Figure 4: Plantation related Tools

While burning, there should be enough labours to take care the burning. Careful supervision is necessary so that the fire will not spread outside the area. If necessary, fire lines in up to 5 m width should be made appropriately, especially in the plantation boundary and/or dividing the area. Forest technician will assist to layout forest fire line.

The site should be planted in the same monsoon season that will contribute to bring “flush of nitrates” in the soil stimulating plant growth. Delay in planting will loss these nitrates intake.

Utmost care should be taken to retain topsoil of the area. If the area is clearing massively, topsoil can collect and dump at site and use/spread later.

Identifying the area, it needs to estimate how best the site can be cleared. Bush density, existing forest/natural trees, waterlogged area and others should be assessed and determine the site treatment.

If the waterlogged area is shallow and possibility of the planting, then raised mounds can be prepared. In such area, species of excess water tolerance should be selected.



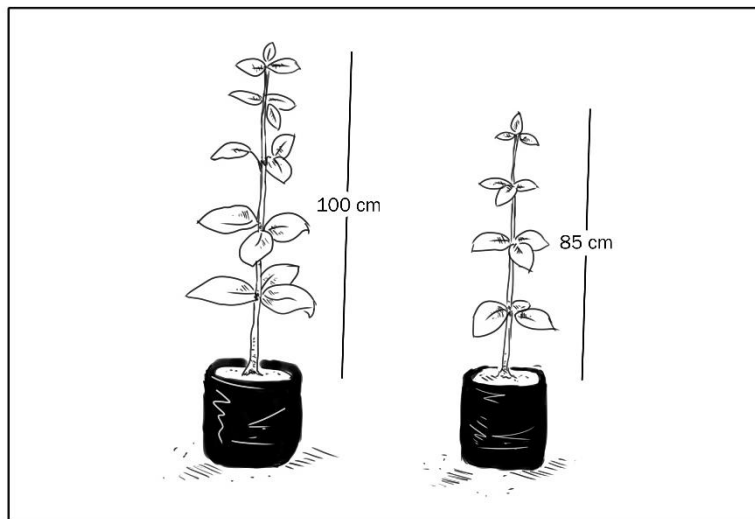
Figure 5: Plantation in waterlogged area making domes

## 5.2 Plantation Spacing

Spacing depends upon the objectives of the plantation and choice of species. There are a number of factors that governs the spacing determination.

1. Phenology of the species such as tree growth and canopy cover
2. Soil moisture and nutrient availability
3. Weed competition and effect of shrubs
4. Inter-cropping if required
5. Danger of forest fire
6. Silvicultural treatments such as thinning and pruning
7. Cost of the plants and plantation maintenance

Whereas close spacing is generally considered for plant competition, both root and shoot, especially for firewood production in short rotation; long distance planting is for long term



**Figure 6: Appropriate plant height for planting**

purpose of the tree use as timber and for cost effectiveness especially to avoid thinning.

Close spacing is desirable for fuelwood for volume increase, high in rotation.

For timber production, wide spacing is preferred. Close spacing can later make it wider, or planting wider to minimise the thinning but for fuel wood and timber, close planting is better.

Close spacing advantages

1. Canopy close faster, reduce weed and fire
2. Few deaths/ mortality occur, does not make large gaps
3. Tree grows straight and low branches
4. Total wood production higher especially on short rotation
5. If timber, thinning makes early revenue

Close planting is costly due to high number of pits and seedling requirements.

**Table 2: Number of Seedlings by Plantation Regimes**

No	Afforestation	Plants/ha.
1	Mixed species afforestation	1100
2	Aided natural regeneration	Plants depends upon the gap in the area up to 600 plant
3	Riparian buffer afforestation	1333

### 5.3 Pitting

Pitting should be carefully organised assigning different works to labour as there will be high number of labour force at the site. It can be organised by group and assign to appropriate area to cover in a day. Major work assignments are pitting layout, pitting, seedling-transportation, planting and cleaning of the site collecting the polypots and others. Supervision is utmost important both for each planting and overall planning operation.

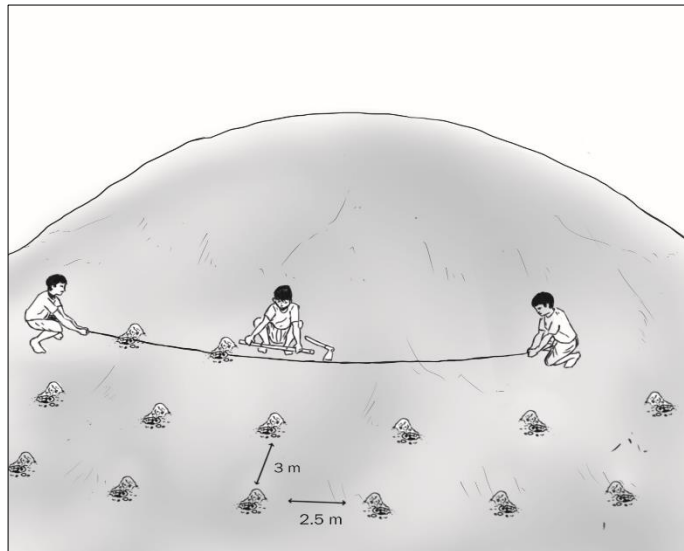


Figure 7: Marking for Pit Spacing

To start the pitting, two persons hold the ends of the nylon (preferable) rope of about 20/25 meters and lay it along the contour. One person will measure by a stick/bamboo of length equivalent to planting distance, 2.5 m in length, and put along the rope. Marking pit will be dig to indicate pitting site. The ropes can also be colour marked at planting distance instead of a stick/bamboo for measurements. Similarly, rope will move upward parallel to previous pitting rows at 2.5/3 m, planting distance, same methods will be followed for pitting. It should be noted that the pits should be just adjacent to previous row pits so that the pits should be parallel from bottom to top.

#### 5.3.1 Pitting Size

Normally the pitting size is 30 cm square size with 30 cm depth at a spacing 3 m x 3 m and 2.5 m x 2.5 m. Most of the tree saplings are raised at this size of polypots. While measuring the depth, always measure at the centre deep of the pit.

If the site is waterlogged, raised domes can be prepared to plant the seedlings. It should ascertain that waterlogging area is temporary then only it is worth to plant in such sites. Wetland area should not be covered with raised domes to plant seedlings.

Pitting should be completed in advance so that soil can be aerated. Soil from the pit should be collected uphill just near the pit. During the monsoon season, these soils may wash out, so better to fill on the pit itself so that moisture is retained and easy to dig during planting. Stones and other external materials such as weeds, wood, twigs, if any, should be removed and should not be mixed with the

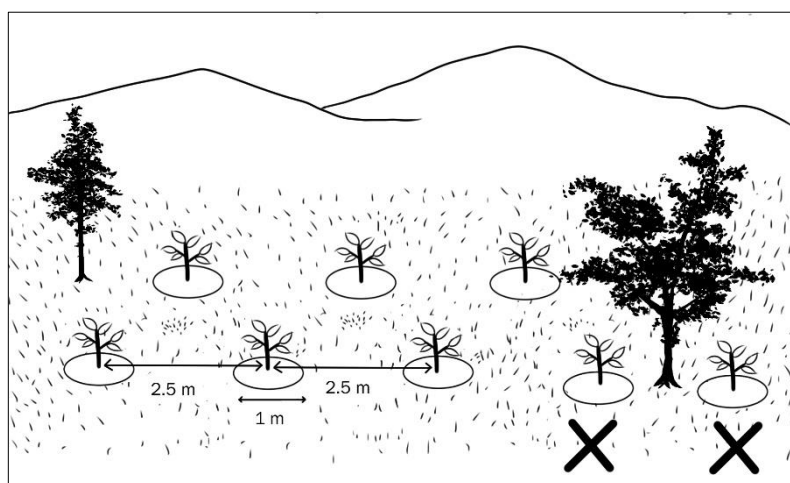


Figure 8: No planting under an existing Tree

soil. If there are good topsoil, it should be collected to 15 cm depth and collect at one place to use during the planning.

For COSFOM watershed area, pitting should start from April/May and complete by early June, in advance of the actual plantation. Above 2000 m especially in Ukhrul district, soils get less dry, hence the pitting can be conducted early as compare to lower altitudes.

Each of the pits will be indicated by a stick so that the pits can be easily identified during planting and so as the plants for the maintenance.

### 5.3 Planting

Selected plants should be kept by the side of each pit so that the labour plants in the pit by removing the polybag. Utmost care should be taken not to break the soil disturbing the root system. After planting and covered by soil, the plant should be gently uplifted to about 10 cm to make the roots downward. After filling the soil, the soil should tighten by leg pressing. An indication stick should be installed to show each plant.

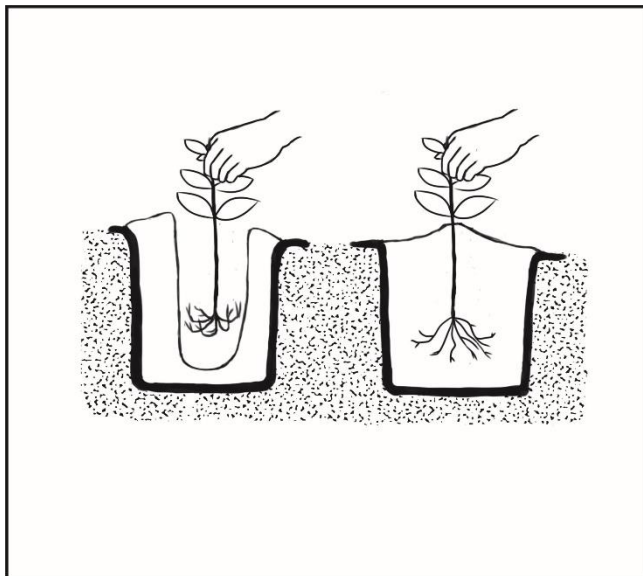


Figure 10: Ensure that roots are downward

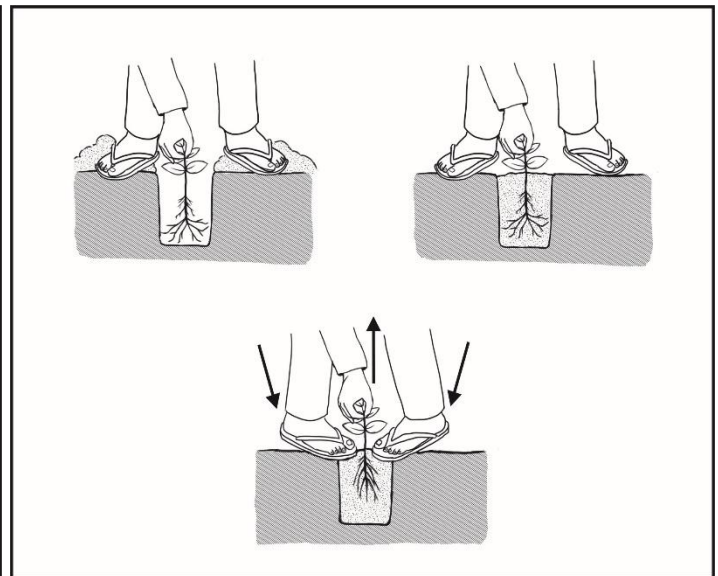


Figure 9: After planting the plant should be pulled for about 10 cm and then firmly press the soil

Farmyard manure should mix with soil before planting, mixing homogenously. All polybags should be collected and dispose to collection cycle.

Regarding the aided natural regeneration, the gap filling depends upon the bare land and/or open area in the natural forest. Depending upon this area, the planting density varies. It can be 200 to 600 saplings per ha. Meanwhile in case of riparian buffer plantation, number of plants are 1333 at 2.5 m and 3 m spacing allowing slope correction.

When the seedlings are delivered to plantation site, seedling quality should be recorded and feed back to supply nursery (Annex 2). Day to day plantation should be recorded (Annex 3) following by plantation completion report (Annex 4).

## 6. Riparian Buffer Plantation

Riparian buffer area connects two different habitats i.e. aquatic and terrestrial and by doing this it will be creating several microhabitats with enhanced floral and faunal diversity. Supporting the plantation along the stream/river or water channel help soil conservation, improve water conservation and developing diverse micro-habitat types as well.

In the project site most of the streams in the head water are transient, thus riparian buffer will cover both perennial and temporary/ seasonal streams. Conservation and restoration measures for water quality improvement will be focused on the headwater streams (first and second order stream), connects the spring head and runoff confluences.

Riparian plantation will be designed in a way that it protect the water channel and reduce the rate of transpiration/ evaporation, manage the flood by influencing the current flow and/or restore the habitat features as well. Considering all above mentioned features riparian plantation will be considered from bank of stream up to 30 m on both the sides (Figure 7). It should be measured by number planting rows that can be planted on the banks.

Plantation in riparian zone will include strips of trees, shrubs or small trees and other vegetation located along the edge waterways to influence ecological processes and provide a variety of goods and services. It will be designed in a way that plantation towards stream edge will prefer broad leaved tree species however on outer edge which is far from the water channel will be covered by some fast growing fuelwood species.

Riparian plantation will be primarily for soil and water conservation purpose with limited use especially for firewood and NTFP production.

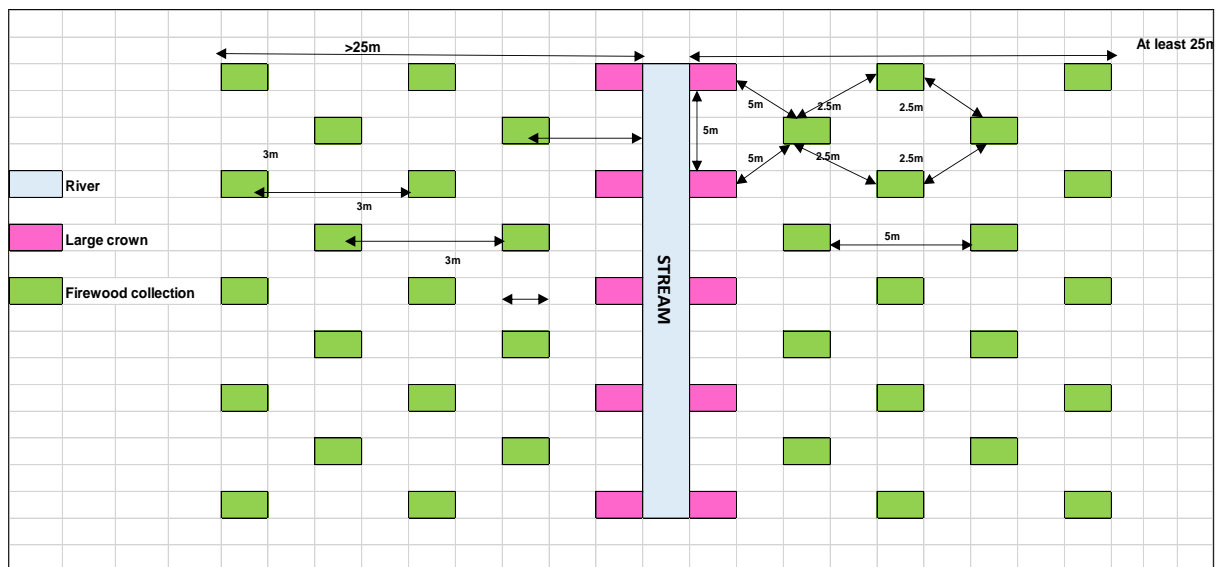


Figure 11: Riparian Plantation Diagram

## 7. Cultural Operations

### 7.1 Weeding and Hoeing

Weeding and hoeing are carried out three times in second year of plantation. In the same year of the plantation, it needs to cover two times. These are normally carries in the following period. When counting the year, the year should be followed Planting Schedule by month shown in Appendix 1.



*Figure 12: Mulching with dry leaf to certain thickness is important*

#### **First weeding/hoeing**

Immediately after monsoon (September/October) when the weed growth takes place with the onset of monsoon

#### **Second/hoeing**

Mid-winter season (December/January) during the dry season to minimise root competition and area clean to protect from the forest fire

#### **Third weeding/hoeing**

Dry season (April/May) to minimise root competition and area clean to protect from the forest fire

Weeds are totally removed around each plant at 50 cm radius. Hoeing around the plant with soil work will help aeration. Removal of weed growth and mulching with dry biomass to manage rate of

transpiration are necessary. Mulching will contribute to retain moisture.

### 7.2 Beating-up

Up to 20% casualty replacement is allowed. The casualty of the plants should be surveyed and report should be prepared assessing the causes of casualty. This will help to take measures in the future avoiding the repetitions. These can be animal grazing, fire, human disturbances, poor seedlings, unsuitability of the plants to site, weather condition, insects and disease, and others.

### 7.3 Third Year Onwards

Normally no beatings up operations are carried out during these years but full attention is given to protect the area from grazing and fire. However, soil working and weeding around the plants during the rainy season promote the growth of seedlings. So weeding is necessary to protect from fire and other weed competition.

#### *Fencing*

Provide fencing to the plantation site based on the locally available conditions and materials specific fencing i.e. stone wall, bushes, barbed wire or CPT (cattle proof trench).

### *Plantation Protection*

Plantation watcher is provided on a regular basis to protect the plantation. Watcher should patrol the area on a regular basis, and it is more important during dry season to protect from fire. The reporting should be made (Appendix: Reporting format).

Forest User Groups are responsible for the protection and management of the plantation. Regular monitoring and supervision should be regularly followed.

## 8. Seedling Transportation

The seedling transportation can be divided into two parts- nursery to planting site and within the plantation area. Community nursery may not be far from plantation site where transportation by labour can also be organised. Depending on the seedling size, layer of the transport box should be at least 50 cm apart so that the seedlings will be upright and do not bend. Similar measures will be applied while transporting by mini-truck, tractor or vehicle use. The seedlings can be kept in a tray of size 30 cm x 45 cm that holds 60 seedlings. Tray size of 36 cm x 25 cm holds 45 plants (3" x 7" polypots), weight 300 kg.

### 8.1 Handling of the Seedlings

Handling of each seedling is very important to minimize the stress to the seedlings. To note, seedlings are handled at many stages specifically as follows.

1. Seedling remove from nursery bed and kept in the transportation tray/basket
2. Transportation tray/basket loaded to transportation vehicle
3. Unloading from the transportation vehicle
4. Transport to planting site
5. Transport to pits

There may be additional transportation depending upon the transportation site, distance and means of transportation. Having such seedling movement, there is possibilities of seedling damage in handling. Utmost precautions should be taken while handling. It should be carefully

1. The seedlings should be hold at the bottom with polypots instead of the shoots.
2. Roots should not be disturbed and keep intact.
3. Soil around the seedlings should not be loosely broken and not shacked.
4. While transportation, seedlings should be packed upright but not crammed and pack by applying force.



**Figure 13: Never lift the seedlings by holding shoots**

## Annexes

### Annex 1: Tasks to be covered under Plantation Activities (Activity Calendar)

Activities	Pre-planting Operation				Planting (Monsoon)			Post-planting Operation				
	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Following Year Jan Feb	
<b>Pre-planting (Pre-monsoon)</b>												
Site Survey and site clearance	█											
Alignment, Marking and Pegging in the ground		█										
Fencing Measures to be adopted		█										
Pitting layout			█									
Pitting			█									
Preparation of Soil Mixture			█									
Application of Fertilizer & Insecticide/ Pesticide (if applicable)			█									
<b>Post-planting (Monsoon)</b>												
Transportation of Saplings from Nursery to plantation sites				█								
Inter-transportation of sapling from site to pit				█								
Planting of sapling to the Pit (During the Monsoon)				█								
Staking (Just after Planting)				█								
Protection by watchers				█								
Weeding and Hoeing/ soil working						█						
Casualty Replacement					█							



**Annex 2: Seedling Quality Record by Delivery**

WRCG Village	Species	No. of seedlings delivered	Seedling Quality (2% sample)			
			Species	Height cm	Root Collar diameter mm	Seedling Health
	1 2 3 4  Total					
1	Nursery/Address from where seedlings delivered:					
2	Delivery Date					
3	<b>Seedling damage type</b>	<b>Total rejected for plantation</b>	<b>Species</b>			
4	Seedlings kept at ..... in the plantation area (safe and shady area)					

Note: Record by each delivery of the seedlings to plantation site

### Annex 3: Plantation Record (Day by Day)

Date:	WRCG Village	
Plantation area name:		
Species planted	No. of plants	Location in the area
1.		
2.		
3.		
4.		
No of labours		
Supervision (WRCC) Names		
FSU Support (Name)		
NGO Support (Name)		

### Annex 4: Final Report

<b>Final Report</b>		
Date:	WRCG Village	
Plantation area name:		
Planted Area:	Ha.	
Plantation period:		
<b>Plantation Completion Status</b>		
<b>Species</b>	<b>No. of planted seedlings</b>	
Total		
<b>Remarks</b>		
<b>Total No. of discarded seedlings</b>	<b>Nursery Source</b>	<b>Reasons</b>
Reported by WRCC (Name)/Date		
<b>Supervision by</b>	<b>Signature</b>	<b>Name</b>
Supervision (WRCC)		
FSU Support		
NGO Support		