

Shri. S. K. DAS., I.F.S.,
Principal Chief Conservator of Forests.

CIRCULAR No.06-A/G1/3/2005

Sub: Raising of Plantations under Semi-Mechanical Method -Further guidelines -
Issued - Reg.

Ref: Circular No.06-PMU I-3/2002 (communicated through P.C.C.F. Ref.
No.17309/2000/PMUI/3, dated 27-09-2002.

Certain guidelines have been issued in the Circular cited above on how to raise plantations under Semi - Mechanical Method.

From this year onwards considerable investment is proposed in raising plantations under different schemes under Semi-Mechanical Method and it is therefore considered necessary to elaborate the guidelines issued in the above Circular so that it will be easier for the field level functionaries to follow it step-by-step as described below:-

STEP-I: Once the site is selected for raising plantations under Semi-Mechanical method, the site should be perambulated by the field staff in order to have an idea about the drainage of the area. After the clearance of the scrub growth and removal of it from the plantation site, the area should be perambulated thoroughly in order to locate the highest point (ridge) of the plantation area. A pole should be fixed on the highest point. With respect to this highest point the drainage of the area should be found by going round the area again and again.

If the area has got slope in one direction only the exercise becomes very easy, namely if the direction of the slope is North to South, ploughing direction is East to West. But in practice the area having slope in one direction only is seldom available. What is generally available is an area with slopes in more than one direction.

With respect to ridge point, the slope direction should be fixed for every part of the plantation area having slope in a particular direction and thus sectors I, II, III etc., may be formed - each sector having slope in one direction only. These sectors should be demarcated in the field by fixing stone monoliths. **This is a very important exercise.** The Conservators of Forests / Divisional Forest Officers are requested to do this exercise in the field with their field staff. For each plantation site, it may take one full day.

STEP-II: Once the exercise in Step-I is completed the area has to be again perambulated for location of the Nalas/Vagus in the area i.e., 1st order, 2nd order, 3rd order etc. These Nalas/Vagus should be demarcated on either side by fixing poles with red flags in order to indicate that these areas will not be brought under ploughing. These streams/Nalas are to be treated with SMC measures under cost effective structure with appropriate technology as detailed in Circular No. 5 and 5-A.

STEP-III: For uprootal of stumps poclains should be used and once the stumps are uprooted, these should be taken away from the planting site. The areas which have got very soft soil and few stumps, JCB may be used for uprootal of stumps.

STEP-IV: After the removal of the stumps from the planting site the area should be ploughed in each sector across the slope by tractors with or more than 55 HP.

After ploughing, trenches with septa should be dug out at regular intervals all over the plantation area.

While digging the trenches in the area and constructing the percolation tanks on the Streams/Nalas, a simple thumb rule calculation should be made so that the water harvesting structures may impound at least 10% of the total rain fall of the area on 40% of the total run off in a year. This point may be illustrated in detail for the benefit of the field level functionaries.

Example: - Suppose we have a plantation area where the rain fall is 600 mm/per annum.

1. Quantity of rain water to be harvested in the plantation area
= 10% of rainfall or 40% run off = 60mm = 0.06 m.
2. If the plantation area is 100 hectares,
Total quantity of water to be harvested per annum
= $100 \times 10,000 \times 0.06\text{m} = 60,000\text{m}^3$.
3. Generally the trench will allow the percolation to 10 times of its volume and the percolation tanks 5 times.
4. On the streams a series of percolation tanks should be constructed at suitable points.

If the number of percolation tanks in the 100 hectares of plantation area is 100 and volume is 2,000cu.m, these Percolation Tanks will allow percolation of $2,000\text{cu.m} \times 5 = 10,000\text{cu.m}$.

5. We are still left with 50,000cu.m of water to be harvested in the plantation area and this has to be done by the trenches with septa. The total volume of the trenches should be 5,000cu.m approximately. The trenches should be well spread over the entire plantation area with more emphasis on the upper side.

The above estimate is only an approximate one but it serves our purpose well. This estimate should be taken as the minimum quantity of excavation. If the area is highly undulating, eroded with low rainfall (< 700 mm / annum), quantity of excavation may be increased.

It should be noted that under Semi - Mechanical Method all the steps mentioned above should be followed as a schedule of pre-planting operations.

A series of trenches with septa is a very important input in the plantations raised under this method as it has been observed that the plantations raised under this method without trenches suffer badly once the ploughing is discontinued after first/second year. We may reduce the cost on ploughing after raising the plantation and spend the savings from ploughing to have a series of trenches. In fact in the plantations raised with these

pre planting operations, ploughing is not essential but importance should be given on deep soil working around the plants. This is supported by the experience of Clonal Plantations and Bamboo Plantations raised in APFDC which are examples of success stories.

While digging the trenches in the plantation area care should be taken to design a number of trenches as future fire lines as outlined in our Circular No.02/J4/2004.

Sd/-S.K. Das
Principal Chief Conservator of Forests