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**CIRCULAR NO. 06/PMU.1 73/2002**

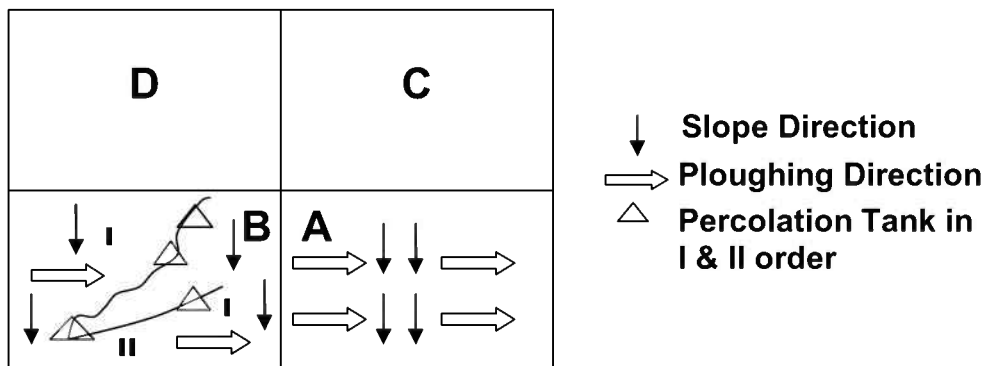
Sub: Raising of Plantations under Semi-Mechanical Method – Certain Guidelines - issued - Regarding.

One of the main activities of the Forest Department is to raise plantations of different species. A plantation should reflect the professional competence and social commitment of the forester and, therefore, there should be an all out effort to reach perfection in this activity.

The choice of species is very important and it has been discussed with the senior officers of the Forest Department and others connected with similar activity.

The necessity has arisen due to the fact that a uniform espacement of 3m X 3m is being followed for all species like Neem, Neredu, Usiri, Seethaphal etc., and the planting area is not being divided into sectors depending upon the topography of the area which is necessary for ploughing of the area by tractor in proper direction for the purpose of soil and moisture conservation. After careful consideration of all the issues, the following guidelines are issued:-

1. The proposed planting area should be perambulated thoroughly in order to determine the direction of slope. If the slope of the entire area is in one direction only, the direction of the slope should be noted in the surveyed sketch and ploughing by the tractor should be done always across the slope. But such instances are very rare.
2. The most common site is having slope in more than one direction e.g., in some portion of the area, the slope may be from North to South whereas in some other portion it may run from East to West. In such sites, the planting area should be divided into different sectors in such a manner that **in each sector the slope is in one direction only** and in the surveyed sketch of the site these sectors with slope directions should be marked and **ploughing should be done in these sectors across the slopes**. The whole idea is to do ploughing always across the slope in order to conserve soil and moisture. This idea is explained in a Diagram given below.



The above diagram shows that the plantation area is divided into four sectors A,B,C,D as these sectors have slope in one particular direction only which is shown by an arrow mark as in Sector-A and the ploughing direction by double arrow marks.

In sector B, there are 1<sup>st</sup> order streams and 2<sup>nd</sup> order streams which are to be dealt with SMC measures like percolation Tanks etc.

3. The gully or stream flow in the planting area should be identified, demarcated on the ground and should not be ploughed to bring the area under plantation, but should be dealt with soil and Moisture Conservation measures like erection of percolation tank (small or big) with or without trench as mentioned in the Circular No.5 / 2002 / PMU.1/3 & Circular No.5-A/2002 / PMU -1/3, communicated by this office RC. No. 17309 / 2000 / PMU. I / 3, dated 23.8.2002. A few CCTs with septa will go a long way in conserving water for the growth of plantation.
4. The choice of the species should be done very judiciously so that maximum annual / periodical return accrues to the society. While importance should be given to NTFP species like Neredu (*Syzigium cumini*), Neem (*Azadirachta indica*), Usiri (*Embllica officinalis*), Chinta (*Tamarindus indica*), Kanuga (*Pongamia pinnata*), Seethaphal (*Anona squamosa*). etc., the other valuable species like Teak, Bamboo, Eucalyptus clones etc., should not be ignored. In the agency areas Tapasi (*Sterculia urens*) should necessarily be raised as plantation at an espacement of 9m X 9m or 10m X 10m.
5. A uniform espacement of 3m X 3m is not only inappropriate but it defeats the goal. The genesis of espacement of 3m X 3m is only due to the fact that tractor ploughing is possible from all directions.
6. After all considerations, it has been decided that Tamarind, Neredu, and Neem should be raised at an espacement of 9m X 9m or 10m X 10m whereas Kanuga, Usiri, Kunkudu and Bamboo may be raised at an espacement of 5m X 5m. Seethaphal should be raised at an espacement of 3m X 3m. Tellamaddi (*Terminalia arjuna*) should also be raised with same espacement because it is maintained generally for its leaf. Chinta graft may be raised at an espacement of 7m X 7m. **This espacement should be followed in VSS areas also while raising NTFP plantations.**

7. Species with closer espacement like Usiri, Pongamia, Kunkudu and Seethaphal should be raised in blocks whereas the species with large espacement like Neredu, Neem, Chinta etc. should be raised in blocks with the provisions of planting the species of closer espacement in between these species. This point may be further clarified by saying that we when raise Chinta at an espacement of 10m X 10m, at the same time we can put Usiri in between two Chinta trees so that the overall espacement becomes 5m X 5m and the total number of plants per hectare is 400. However, in such a case if we want to put Seethaphal, we may be able to plant 2 Seethaphal plants in between two Chinta plants at an interval of a little more than 3m. Bamboo should be raised at an espacement of 5m X 5m in block. **Bamboo should not be raised** as an inter-crop **in the same** year with the long rotation species of Neem, Neredu etc., of large espacement as Bamboo is very versatile and dominant. However, Bamboo may be introduced only after the 3<sup>rd</sup> year as an inter crop and the plantation be maintained properly so that the suppression of main species does not take place.
8. A small extent of area of 2-5 hectares may be raised with valuable multi-purpose indigenous species like Ravi (*Ficus religiosa*), Marri (*F.bengalensis*), Maredu (*A.marmelos*), Usiri, Neem, Barinka (*Stribulus asper*) and ornamental plants with the idea to create a **'Forests for Recreation'**, for the villagers which may be utilized by them as **"Karthika Vanam"**. This part of the plantation should be nearest to the village and easily accessible by the villagers.
9. From what has been mentioned above, it is clear that a lot of planning is required to raise a good plantation.

**The first stepping stone is a good Nursery** where the seedlings should be maintained **for more than one year to make** them tall and tough.

The seedlings should be genetically superior obtained at least through a process of two cullings - first at the primary bed level and next at the bag plants level.

In permanent nurseries bamboo rhizome banks should be maintained all through out the year in the primary and secondary beds and the bamboo seedlings with more than two year old rhizomes should only be introduced in the plantations.

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Sub: Forest Department - Implementation of Compensatory Afforestation Scheme - Semi-Mechanical Method -instructions issued - Reg.

- Ref: 1. Circular No. 05/2002/PMU-1/3, communicated in Prl.CCF ref. No. 17309/02/PMU-1/3, dated 23.08.2002.
2. Circular No.5-A/2002/PMU.1/3,communicated in Prl.CCF ref. No. 17309/2003/PMU.1/3, dated 16.09.2002.
3. Circular No. 06/2002/PMU.13, communicated in Prl.CCF ref. No. 18309/d2000/PMU.1/3,dated 27.09.2002.
4. Circular No. 02/2003/PMU.1/3.02.2003.
5. Government of India, Ministry of Environment & Forests, New Delhi Ir.no.11.9.98-FC dated 23.04.2004 communicated through Prl.CCF ref.no. 4775/2003/F.5, dated 28.5.2004

We have been raising plantations under Compensatory Afforestation Programme for more than a decade after the enactment of Forest (Conservation) Act, 1980.

Under this programme, the User Agency pays the cost of afforestation in advance. Therefore, there is a great scope for raising a very high value plantation with NTFP and other species so that it can generate huge employment and substantial income within the shortest possible time to the local community.

The technique of raising of such plantation has not been uniform in the State from time to time and therefore the quality of the plantation is also varied. In order to achieve exemplary success in this field, the following guidelines are issued:-

1. Plantations under this programme have to be raised necessarily under Semi-Mechanical Method. The guidelines issued vide reference 3<sup>rd</sup> cited should invariably be followed. Poclain should be used preferably for loosening soil.
2. The plantations should be raised mainly with high value NTFP species like Usiri, Tamarind, Pongamia, Tapsi, jackfruit, (in suitable area and climate) Neredu etc., and with commercial species like Bamboo, Eucalyptus etc.
3. The nearest VSS has to be necessarily involved. If the area is very large it can be divided into two or three parts and allotted to different VSSs located in the area.
4. In general 75% of the area should be raised with NTFP species and bamboo and only 25% of the area may be raised with Eucalyptus and other species.

5. The VSSs should be encouraged to raise medicinal plants and other NTFP items which can be grown as an inter crop in such plantation.
6. For raising bamboo, intensive practices as adopted by Andhra Pradesh Forest Development Corporation Ltd., should be followed. It may be necessary to provide fencing to the bamboo plantation initially for two years.
7. If a portion of the area is hilly and not amenable to use of poclain for loosening the soil or full of rocks, guidelines issued in circular cited 4<sup>th</sup> should be followed to raise the plantations.

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