

Package of practices for forestry works (Model estimates)

**(Summary of discussions held in the senior officers' conference held at
Forest Headquarters on 29/04/2009)
(VE-8/833/09)**

At the outset the Principal Chief Conservator of Forests (PCCF) explained the background of the discussion and emphasized on the need for improving efficiency of working and for ensuring optimum results simultaneously with prudent expenditure management. Principal Chief Conservator of Forests reminded that a proper estimate for a work is an appropriate tool for monitoring and evaluation.

The Chief Conservator of Forests (Vigilance) explained that the objective of the preparation of model estimate is to streamline the field activities and to avoid wasteful expenditure without sacrificing the quality of work.

24 model estimates prepared were discussed item wise in detail and final decisions were taken regarding the items to be included in the estimates.

Raising plantations of teak & 1st year maintenance of teak plantation

Fixing boundary stones:

It was decided to use survey stones instead of temporary Cairns to demarcate boundaries of plantations and to follow the suggested PWD rates. PCCF pointed out that the GPS readings along the boundaries of the plantations (Survey points) should be recorded so that they can be easily incorporated in to digital maps that are being prepared by the FMIS wing. The readings should be recorded in the plantation journals also.

Transport of root trainer seedlings:

The Conservator of Forests (High Range Circle) suggested that for transportation of root trainer seedlings, rate allowed for transportation of poly bag seedlings as per GO (Rt) 1081/88 could be applied since root trainer blocks with seedlings have to be carried to all the pits until the completion of distribution of seedlings in the root trainer block. This suggestion was agreed to.

Making platforms of size 60cm x 60cm with 30cm depth on uphill side and inward slope: -

It was decided that platform of size 60cm x 60cm with 30cm on uphill side and inward slope can be taken. The Conservator of Forests (Southern Circle) opined that season of operations should be specified in the estimate. He also suggested that, in ordinary soil the rate for the bouldary soil need not be allowed. PCCF said that platform should preferably be taken before

pitting so that damage that may be caused to the seedlings while formation of platform is avoided. Since the Forest Schedule of Rates (FSR) prescribes details of various types of soil, appropriate type of soil has to be decided by the estimate passing authority. It was therefore decided to go for platform of size 60cm x 60 cm and 30 cm depth on uphill side with inward slope and to specify the timing of pitting and platform making appropriately.

Application of Manure: -

The Conservator of Forests (Eastern Circle) said that manuring is being done at the time of platform formation itself and no expenditure is charged separately for manuring. He also said that since platform work is done, soil working may be allowed at half the rate. Conservator of Forests (High Range Circle) opined that if manuring is done, there is no point in not charging the expenditure. After discussion it was decided that manuring and soil working need not be allowed together as clarified in earlier circulars since manuring includes soil working around the plants. The ideal season for manuring will be Sept – Oct and since manuring operation includes scraping around plants 30cm, loosening of the soil and application of manure, no separate soil working is necessary in addition to manuring.

It was agreed that use of organic manure has to be promoted in place of inorganic fertilizers. While doing so financial viability should also be looked into.

Engaging protection mazdoor:

All the Conservators opined that one man mazdoor may be provided as protection mazdoor for each 25ha. area of plantation. Duties of the mazdoor will be 1) cutting of double shoots, 2) cutting and removal of climbers 3) casualty replacement, 4) cattle scaring 5) assisting manuring works 6) cleaning the fire lines on a continuous basis and fire protection during fire season. It was decided to call the mazdoor as ‘Plantation Maintenance Watcher’ from now onwards.

General suggestion:

Conservator of Forests, Agasthiavanam Biological Park (ABP) opined that work study has to be carried out for weeding operations in 1st yr, 2nd yr and 3rd yr maintenance areas since the present rate followed is one which is derived based on work study conducted when taungya was in practice. It was also suggested to consider the type of weed as well as timing of weeding. It was agreed that a Work Study can be undertaken for the purpose at the earliest by the Chief

Conservator of Forests (Working Plan and Research). Until the new work study rates are derived and got approved, the existing rates will be followed.

Principal Chief Conservator of Forests suggested that 1) insecticides /pesticides need not be applied in plantations as it causes several environmental problems 2) soil conservation measures such as gully plugging, contour terracing etc. may not be included in the planting estimate 3) separate estimate may be passed for such works. He said that it will be advisable to fix an upper limit for expenditure in each kind of plantations for different years.

Decisions taken:

1. PWD survey stones should be used to demarcate plantation boundaries instead of temporary cairns and PWD rates can be used for the purpose.
2. For transportation of root trainer seedlings the rate for transporting poly bag seedlings can be applied.
3. Platform of 60cm x 60 cm with 30cm depth on uphill side and inward slope should be taken before the pitting. Pitting may be done at the centre of the platform as done in the case of rubber.
4. Application of inorganic fertilizer may be done during Sept – Oct depending on rain condition. One third rate of the manuring only need to be allowed since scraping & loosening the soil are done while platform formation. Inorganic fertilizer should be gradually replaced with organic manure.
5. Additional weeding if allowed should be done only after the inspection of the plantation by CF and after recording in the plantation journal. Estimate shall not be passed with the provision of "Additional weeding if found necessary".
6. One man mazdoor can be engaged for 25ha plantation as plantation maintenance worker who should be entrusted with the works of 1) cutting of double shoots, 2) cutting and removal of climbers, 3) casualty replacement, 4) cattle scaring 5) assisting manuring works 6) cleaning of fire lines on a continuous basis and fire protection during fire season etc.
7. Soil conservation measures such as gully plugging, contour terracing etc shall not be included in the planting estimate. It may be taken up separately when found necessary.
8. A provision for construction of inspection path may be provided in the plantation estimate to facilitate inspection and to divide large areas into smaller blocks.

Second year maintenance of teak plantation

Repairing the damaged platform:

CF (ABP) suggested that instead of repairing some platforms, all the platforms should be repaired and manuring should be done along with the repair of platforms. No separate expenditure need be provided for manure application. Platform maintenance work and manuring shall be done in the pre-monsoon period.

Mikania eradication:

It was suggested that mikania eradication works need not be included in the plantation maintenance estimate. If the plantation is heavily infested with mikania, separate provision for mikania eradication can be provided after inspection of area by CF. CF (ABP) mentioned that he has made a successful mikania eradication works in 4th year teak plantation heavily infested with mikania. Mikania cutting was done 3 to 4 times in a year depending on weed intensity. For this purpose he followed the rate permissible in FSR 154 (b). This is most economical and effective method. Once mikania was dried up, crown development of teak took place. Mikania may not come up well in shade.

Decisions taken:

1. Repairing of damaged platform may be allowed for entire plantations. Rate for repairing of platforms includes application of manure also.
2. For transportation of root trainer seedlings, the rate for transporting poly bag seedlings available in FSR shall be applied.
3. Item of application of manure is deleted.
4. Mikania eradication work should not be included as part of maintenance estimate; but should be taken up separately if found necessary.
5. Additional weeding should not be allowed as a routine while sanctioning estimate, but if found absolutely necessary, can be allowed only after the inspection of the plantation by CF and after recording in the plantation journal. Estimate should not be passed with the provision of "Additional weeding if found necessary".
6. One man mazdoor can be engaged for 25ha plantation. Plantation maintenance worker should be entrusted with the works of 1) cutting of double shoots, 2) cutting and removal of climbers 3) casualty replacement, 4) cattle scarring 5) assisting manuring works 6) cleaning the fire lines on a continuous basis during fire season.

Third year maintenance of teak plantations.

Decisions taken:

1. For transportation of root trainer seedlings the rate for transporting poly bag seedlings shall be applied.
2. Instead of soil working, maintenance of platform may be allowed.
3. Mikenia eradication work should not be included as part of maintenance estimate, but it could be taken up separately if found necessary after inspection by Conservator of Forests
4. Additional weeding should not be allowed.
5. One man mazdoor can be engaged for 25ha plantation. Plantation maintenance worker should be entrusted with the works of 1) cutting of double shoots, 2) cutting and removal of climbers 3) casualty replacement, 4) cattle scaring 5) assisting manuring works 6) continuous cleaning of fire lines & fire protection during fire season etc.

Raising plantations of pulp wood (*Acacia mangium*, *A. auriculiformis*, *Eucalypts* sp etc) &

1st year maintenance

Decisions taken:

1. PWD survey stones should be used to demarcate plantation boundaries instead of temporary cairns.
2. It is decided to follow the espacement of 2.5m x 2.5m for pulpwood species.
3. For transportation of Root Trainer seedlings, the rate for transporting poly bag seedlings shall be applied.
4. Platform of 60cm x 60 cm with 30cm depth on the uphill side with inward slope should be taken before the pitting. Pitting may be done at the centre of the platform as done in the case of rubber.
5. Application of inorganic fertilizer may be done during Sept – Oct depending on rain condition. One third rate of the manuring only need to be allowed since scraping & loosening the soil are done while platform formation.
6. Additional weeding should not be allowed as a routine while sanctioning the estimate. But if found absolutely necessary it can be allowed only after the inspection of the plantation by CF and after recording in the Plantation journal. Estimate should not be passed with the provision of "Additional weeding if found necessary".

7. One man mazdoor can be engaged for 25ha plantation. Plantation maintenance worker should be entrusted with the works of 1) cutting of double shoots, 2) cutting and removal of climbers, 3) casualty replacement, 4) cattle scarring 5) assisting manuring works 6) continuous cleaning of fire line and fire protection works during fire season etc.
8. Soil conservation measures such as gully plugging, contour terracing etc shall not be included in the planting estimate. It may be taken up separately if found necessary.

Second year maintenance of Pulp wood plantations

Decisions taken:

1. Repairing of damaged platform may be allowed for entire plantations.
2. For transportation of root trainer seedlings, the rate for transporting poly bag seedlings shall be applied.
3. Manuring during second year is not required in pulp wood plantation other than for eucalyptus.
4. Items for cost of fertilizer and application of fertilizer should be included in the estimate.
5. Additional weeding need not be sanctioned.
6. One man mazdoor can be engaged for each 25ha plantation. Plantation maintenance worker should be entrusted with the works of 1) cutting of double shoots, 2) cutting and removal of climbers, 3) casualty replacement, 4) cattle scarring 5) fire protection etc.

Third year maintenance of pulp wood plantations

Decisions taken:

1. Soil working is not required in third year maintenance plantation.
2. One man mazdoor can be engaged for 25ha plantation. Plantation maintenance worker should be entrusted with the works of 1) cutting of double shoots, 2) cutting and removal of climber, 3) casualty replacement, 4) cattle scarring 5) continuous cleaning of fire lines and fire protection during fire season etc.

Raising bamboo/cane plantations& first year maintenance:

PCCF mentioned that there is an allegation that weeding in natural forest badly affects biodiversity and hence it should be minimized or stopped. It was the general feeling that in natural forest, weeding is not required. Instead of weeding platforms of 1m x 1m size with 30 cm depth on uphill side and inward slope should be taken before planting. Pitting shall be made at

the centre of platform. After planting, thorny bushes or any other material may be kept around the platform since fresh soil may attract animals and cause damage to seedlings. Provision for inspection path may be provided to reach the planting areas. Casualty replacement may be done on the basis of number of plants planted rather than on per ha. basis. The minimum wage rate may be followed for this purpose.

Decisions taken:

1. No weeding shall be done in bamboo/cane plantations.
2. Platforms of 1m x 1m with 30cm depth on uphill side and inward slope will be taken before pitting and seedlings will be planted at the centre of platform. After planting, thorny bushes or any other material may be kept around the platform so as to avoid damages by wild animals.
3. Casualty replacement may be done based on number of plants and not on ha basis. Minimum wage rate may be followed.
4. One man mazdoor can be engaged for each 25ha plantation. Plantation maintenance worker should be entrusted with the works of 1) removal of weeds, 2) cutting and removal of climbers, 3) casualty replacement, 4) cattle scaring 5) continuous cleaning of fire lines and fire protection works etc.
5. Soil conservation measures such as gully plugging, contour terracing etc shall not be included in the planting estimate. It may be taken up separately if found necessary.

Second & Third year maintenance of bamboo/cane plantations:

Decisions taken:

1. No weeding need be done in bamboo/cane plantations.
2. Provision for maintenance of platform may be allowed.
3. Casualty replacement may be done based on number of plants and not on extent in hectare basis. Minimum wage rate may be followed.
4. One man mazdoor can be engaged for each 25ha plantation. Plantation maintenance worker should be entrusted with the works of 1) removal of weeds, 2) cutting and removal of climbers, 3) casualty replacement, 4) cattle scaring 5) fire protection 6) continuous cleaning of fire line and fire protection works etc.

Restoration of degraded forests (ANR, RDF , CA)

Chief Conservator of Forests (NR) suggested that usually in restoration treatment, planting component is very negligible. It may be a maximum of up to 600 plants/ha and in such cases weeding is not required. In conditions where degradation is very high and where planting of more than 1100 nos of seedlings is required, weeding may be allowed. At present FSR 115 is allowed for selective weeding which is objectionable. Chief Conservator of Forests (Social Forestry, EKM) informed that in the restoration works, efforts should be made for assisting the growth of natural regeneration also. All were of the view that instead of sanctioning selective weeding by extent in hectares, it will be better if soil working around naturally regenerated seedlings is provided.

Decisions taken:

1. PWD rate and survey stones should be used to demarcate plantation boundaries instead of temporary cairns.
2. Weeding is not required if planting component is less than 1100 seedlings per ha. If it is more than 1100 ha in highly degraded area weeding may be provided after inspection by the CF and recording in the journal.
3. Platforms of 1m x 1m with 30 cm depth on uphill and inward slope will be taken before pitting and seedlings will be planted at the centre of platform. After planting thorny bushes or any other material may be kept around the platforms so as to avoid damages by wild animals
4. Provision for casualty replacement should be included in the estimate. Casualty replacement may be done based on number of plants and not on ha basis. Minimum wage rate may be followed.
5. Soil working may be allowed to facilitate the growth of natural promising seedlings of valuable species. The number of seedlings to be soil worked shall be decided by the CF after his site inspection.
6. Provision for inspection path may be provided.
7. One man mazdoor can be engaged for each 25ha plantation. Plantation maintenance worker should be entrusted with the works of 1) removal of weeds, 2) cutting and removal of climber, 3) casualty replacement, 4) cattle scarring 5) continuous fire line cleaning and fire protection during fire season etc.

8. Soil conservation measures such as gully plugging, contour terracing etc shall not be included in the planting estimate. It may be taken up separately if found necessary.

Second year maintenance of degraded forests:

Decisions taken:

1. Weeding is not required if planting component is less than 1100 seedlings per ha. If it is more than 1100/ ha in highly degraded area weeding may be provided after inspection by CF and recording in the journal
2. Provision for maintenance of platform may be allowed.
3. Casualty replacement may be done based on number of plants and not on ha basis. Minimum wage rate may be followed.
4. 50% rate of FSR 117 may be allowed for maintenance of natural seedlings.
5. One man mazdoor can be engaged for each 25ha plantation. Plantation maintenance worker should be entrusted with the works of 1) cutting of double shoots, 2) cutting and removal of climber, 3) casualty replacement, 4) cattle scarring 5) fire protection etc.

Third to fifth year maintenance of degraded forests:

Decisions taken:

1. No weeding is required.
2. One man mazdoor can be engaged for each 25ha plantation. Plantation maintenance worker should be entrusted with all plantation works including removal of weeds, cutting and removal of climber, casualty replacement, cattle scarring, maintenance of platform fire protection etc.
3. After third year, protection mazdoor is not required. Only fire protection measures may be taken if found necessary.

Mother bed nursery for miscellaneous species & Eucalyptus:

Decisions taken:

1. FSR item 100 (a) 2 may be allowed for clearing of area for the formation of beds.

Raising poly bag nursery:

Decisions taken:

1. Additional Principal Chief Conservator of Forests (Social Forestry) mentioned that requirement of number of seedlings raised in bigger sized poly bags is minimum.

Proportionate rate can be allowed for filling large size poly bags based on FSR rate for filling 12 cm x 18 cm bags.

2. In the estimate a provision for shade pandal may be included.
3. If the nursery is taken out side the forest area like social forestry activities, provisions for rent of land, cost of soil, electricity charge, water charge etc may be provided as and when required with sufficient jurisdiction.

Teak stump nursery:

Decisions taken:

1. FSR item 100 (a) 2 may be allowed for clearing of area for the formation of beds.
2. Alternate wetting and drying is followed as pre-sowing treatment for last several decades. This work may got be done by nursery/protection mazdoor. No separate provision is required in the estimate for this item of work.
3. Watering is not required in teak stump nursery.
4. It is decided to provide protection to all sides of bed with bamboo thatties/ reeds or any other locally available materials. One mazdoor may be provided for the preparation and fixing of bamboo thatties /reeds etc. A lump sum provision may be provided for the collection of bamboo/reeds from forest.

Preparation of teak stumps:

Draft estimate approved without any correction/ modification.

Timber operations:

General discussion:

The suggestion of CF (EC) that cross cutting of timber should be included in the estimates was agreed to. CF (HRC) mentioned that suggestion regarding haulage of poles in dumping depot need not be mentioned in the estimate. CF (EC) informed that there is an audit objection on allowing hand dragging of 1st and 2nd class poles when the elephant dragging provision exists. CF (HRC) mentioned that non availability of provision for hire charges of elephant and feeding for elephant is the main reason for not engaging elephants in the thinning operations. PCCF said that final decision in this matter can be taken later.

In thinning operation FSR 13 (c) is for marking. In this item, marking at BH & base, chisel numbering, tarring etc are included. Since tarring is not done now, provisions included for tarring may be exempted while allowing item 13 (c).

Decisions taken:

Mechanical thinning:

1. "Suggestions" given as foot note in the estimate need not be reflected in the model estimate.

First silvicultural thinning:

1. PWD survey stones should be used to demarcate plantation boundaries instead of temporary cairns.
2. 2.5MM may only be allowed for marking.
3. Rough stone dry packing rate include hill tract allowance also. Actual rate comes only to Rs.357/-. Rate need not be written in the model estimate for PWD items.
4. "Suggestions" given as foot note in the draft estimate need not be reflected in the model estimate.

Second silvicultural thinning:

1. PWD survey stones should be used to demarcate plantation boundaries instead of temporary cairns.
2. 2.5MM may only be allowed for marking.
3. Rough stone dry packing rate included hill tract allowance also. Actual rate comes only to Rs.357/-. Rate need not be written in the model estimate for PWD items.
4. "Suggestions" given as foot note in the draft estimate need not be reflected in the model estimate.

Third, fourth & fifth silvicultural thinning:

1. Since there is no provision for 4th & 5th silvicultural thinning in FSR, instead of following the rate of 3rd silvicultural thinning, rate for timber felling may be adopted.
2. PWD survey stones should be used to demarcate plantation boundaries instead of temporary cairns.
3. 2.5MM may only be allowed for marking
4. Provisions of cross cutting timber may be provided.
5. "Suggestions" given as foot note in the draft estimate need not be reflected in the model estimate.

Maintenance of central nursery:

Decisions taken

Production & maintenance of root trainer seedlings of teak:

1. Alternate wetting and drying is followed as pre-sowing treatment for last several decades. This work may be done by nursery/protection mazdoor. No separate provision is required in the estimate.

Production & maintenance of root trainer seedlings of pulp wood/miscellaneous:

1. Addition of microbial nutrients may be allowed which may promote growth of seedlings in the field.

Weed compost:

1. Cost of weed compost comes around Rs.25/Kg. It is too high when compared to rate of vermi-compost and other organic compost available in the market. Hence it is decided that all the central nurseries should procure 1 ton vermi-compost from Kerala Agricultural University or any other reputed organizations. (CF (ABP) said that vermi-compost is available with Kottoor VSS @ Rs.6/-Kg.) Range Officer in charge of Central Nursery will raise seedlings of different species such as teak, *Acacia auriculiformis*, *A. mangium* etc in root trainers with vermi-compost instead of weed compost. It may be done during the month of May, June & July of this year. Usually weed composting begins in central nursery by the month of August – September onwards. Hence the final decision for preparation of weed compost for next planting season will be taken after reviewing the performance of seedlings grown in vermi-compost.
2. Weight of compost should be taken prior to sieving. This weight only should be used for charging expenditure of sieving the compost.

Maintenance of timber depot:

1. Unloading and stacking in the depot will be carried out as part of timber operation.
2. No separate estimate shall be allowed for dragging and stacking by depot officer since it is the duty of agency/contractor who does timber operation.
3. No separate provision shall be allowed for dragging timber in depot.
4. Provision for construction of metalled roads inside the depot shall be provided. CF's may submit lay out of roads in depots for construction of roads.

The model estimates with the above suggested modifications is enclosed for reference.
Approximate cost of raising the plantation on per hectare basis is also enclosed.

Approved by Principal Chief Conservator of Forests

Sd/-
Chief Conservator of Forests (Vigilance)