

Memorandum Order

No. 8

July 4, 1991

SUBJECT: Prescribing the Guidelines in the Implementation of DENR Administrative Order No. 24, Series of 1991

Pursuant to the provisions of DAO 24, series of 1991 shifting logging from old growth (virgin) forests to second growth (residual) forests beginning 01 January 1992, the following are hereby issued for the information and guidance of all concerned:

1. Definition of Terms

For the purpose of this Order, the following terms shall mean as follows:

1.1. **Production Forests** - Forestlands outside the areas specified in item 3.1 hereof, with less than 50% slope gradient and less than 1000 m in elevation; consisting mainly of second growth (residual) forests, including patches of reforested areas, brushlands and/or openlands therein.

1.2 **Non-Production Forests** - Forestlands enumerated in item 3.1 hereof; blocks of old growth (virgin) forests; patches of old growth forests with an area of at least 20 ha within second growth forests; second growth forests with slope gradient of 50% and greater and with elevation of 1000 meters and higher and those along the 20 - m wide strip on both sides of stream banks.

1.3 **Operable Second Growth (Residual) Forests** - Second growth forests within areas less than 50% slope and less than 1000 meters elevation specified under the Production Forest category.

2. Creation of Committees, Secretariat and Composite Inventory Teams

2.1 The Pre-Inventory Evaluation Committee (PIEC), Monitoring and Evaluation Committee (MEC), Inventory Secretariat (IS) and Composite Forest Inventory Teams (CFITs) shall be created by the DENR Central Office under a Special Order to be issued by the Secretary.

- 2.2 The PIEC shall be composed of representatives from the Office of USECs for Policy and Field Operations, FMB, NCR and PWPA. The Committee shall determine and recommend to the Secretary the TLAs/TPSAs that shall be evaluated/inventoried based from the information that shall be submitted by the DENR Regional Executive Directors (RED) and from records with the FMB.
- 2.3 The Monitoring and Evaluation Committee (MEC) shall be composed of supervisors from FMB, DENR Central Office, NAMRIA and Region 4. The MEC shall monitor and check the progress and accuracy of the forest resources inventory, as well as, evaluate the reports that shall be submitted by the CFITs.
- 2.4 The Composite Forest Inventory Teams (CFITs) shall be composed of foresters from FMB, NAMRIA, DENR field offices and other forestry graduates with knowledge of Forest Mensuration & Inventory and Remote Sensing Techniques. The CFITs shall undertake the field sampling in accordance with the sampling design prescribed in this Order.
- 2.5 The Inventory Secretariat (IS) shall be composed of Forest Inventory Specialists, Cartographers, Geodetic Engineers and Computer programmers/operators of FMB and NAMRIA. The IS shall assist the PIEC, MEC and CFITs in the preparation/evaluation of the soil cover maps and analysis of inventory reports.

3. Delimitation of Non-Production Forests

- 3.1 Areas proclaimed as Civil Military and Watershed Reservations; Wilderness Area; Areas identified with historical value, ISF areas with valid Stewardship Certificate; areas under Industrial Tree Plantation (ITP) and Tree Farm Leases; and such other areas proclaimed for ecological, environmental and scientific purposes, shall be delimited on the official concession map (FCI) of the TLAs/TPSAs. These areas shall form part of the non-production forests relative to this Order.

4. Management Blocks

The second growth forests shall be stratified/blocked depending upon the years elapsed after logging (YEAL). The management blocks shall be as follows:

Block No.	Y E A R
I	26 years and over
II	21 - 25 years
III	16 - 20 years
IV	11 - 15 years
V	6 - 10 years
VI	1 - 5 years

4.1 The management blocks shall be determined by the REDs and TLA/TPSA holders, including the location of the non-production forests enumerated in item 3.1 hereof. These information shall be indicated on a white print copy of the concession map to be submitted to the USEC for Field Operations.

5. Preliminary Soil Cover Map (PSCM)

- 5.1 The soil cover within the different management blocks shall be determined from the forest resources condition maps prepared in 1969 and 1985 by the FMB. Likewise, the slope gradient of 50% & greater and elevation of 1000 meters & higher within the blocks categorized in item 4 hereof shall be determined from the 1:50,000 topographic map and indicated on the concession maps. The second growth forest areas with less than 50% slope and less than 1000 meters in elevation shall form part of the operable second growth forests.
- 5.2 The extent (hectarage) of the land resources within the production forests of each management block (stated in item 4) i.e. residual forests, forest plantation, brushlands and openlands, shall be measured and tabulated.
- 5.3 The soil cover of the TLAs/TPSAs for the whole area and by block shall be updated, as soon as, new FRCMs are prepared by the DENR pursuant to DAO 69 as amended by DAO 88, both series of 1990 re-submission of aerial photographs/satellite data by TLA/TPSA holders.

6. Pre-Inventory Evaluation

- 6.1 All existing TLAs/TPSAs shall be pre-evaluated before the forest resources inventory is undertaken.

- 6.2 The basis of determining whether the forest resources inventory within the production forest of TLAs/TPSAs shall be conducted or not, is the existence of at least **One Thousand Two Hundred (1200)** hectares of operable second growth forests in each management block. The 1,200 hectares shall be logged for a period of five (5) years or an annual cutting area of **Two Hundred Forty (240)** hectares which is determined to be the minimum area whereby a TLA/TPSA holder can economically and sustainably develop and utilize the forest resources within their concession area.
- 6.3 If a TLA/TPSA does not have 1,200 hectares operable second growth forest, particularly under Management Block I, such TLA/TPSA shall not be allowed to conduct logging operations beginning 01 January 1992.
- 6.4 The PIEC shall evaluate the extent of the operable second growth forests of TLAs/TPSAs, specifically those within Management Block I. The Committee shall submit to the USECs for Field Operations and Policy the results of the evaluation.

7. **Sampling Methods/Procedures**

- 7.1 Strip sampling at 10% intensity shall be applied in the forest resources inventory of the operable second growth forests within each management block. The areas under Block I (areas logged 26 years and over) shall be inventoried first. If the areas under Block I are not contiguous, number the sub-blocks accordingly, e.g. Blk. I-1, Blk. I - 2, Blk. I - 3, etc.
- 7.1.1 The baseline(s) shall be established following the general directions of main river/stream in the block of sub-block, so that the operable second growth forests at different elevations are adequately sampled.
- 7.1.2 The center of each 20 m - wide strip shall be numbered consecutively along the baseline. The distance between strip is 200 meters.
- 7.1.3 In the process of sample strip establishment, all trees with diameter at breast height/diameter above buttress (DBH/DAB) of 15 cm and larger within the strip shall be measured and

tallied. The DBH/DAB shall be recorded to the nearest centimeter.

7.1.4 Measurement of DBH/DAB

- a) **Normal Trees** (without buttess) The DBH is measured at 1.3 meters above the ground. If the ground is sloping reckon the 1.3 m from the upper portion of the slope.
- b) **Swell Butted Trees** - Trees that are naturally swell butted or have high basal flanges, the DAB shall be measured 30 cm above the highest buttress or flange.
- c) **Trees sprouting from high stumps** - Occassionally, the main stem has resulted from the sprout or limb on a snag taking over the bole that has died back or been broken off. In this case, the diameter is measured at the usual point at DBH, however, if the new stem sprout above the normal DBH point, measure the diameter 5 cm above the base of the new stem.
- d) **Forked Trees** If the fork is less than 3 meters from the ground, consider the stems as separate tree and measure the diameter of each stem above the fork. However, if the fork occurs higher than 3 meters from the ground, consider it as one tree and measure the diameter at DBH.

7.1.5 Merchantable Height Limit

- a) All sound trees with DBH/DAB of 35 cm and larger, the merchantable height limit is up to 1st main branch. If there is a clear length of more than 2 meters after the 1st main branch up to 30 cm top end diameter, include that portion to the merchantable section of the tree.
- b) Trees with DBH/DAB below 35 cm. the minimum top diameter is 60% of DBH/DAB. The merchantable

height is the length between the diameter at DBH/DAB and top diameter, since natural grown trees are estimated to taper one cm for every meter increase in height. The merchantable height shall be recorded to the nearest meter.

7.1.6 Tree Quality

The quality or soundness of all tallied trees shall be determined and recorded on the tally sheet. The quality is based on the section or portion of the tree suitable for saw log utilization. Trees with defect should have at least 50% sound wood volume except for premium species where the sound volume may be as low as 25%.

7.1.7 Tree Identification

The tallied trees shall be identified by its official common name. In cases where a particular tree can not be identified by its official common name, the local name shall be recorded and specimens of bark, leaves, flowers and/or wood shall be collected and labelled for identification by UPLB College of Forestry and/or Forest Products Research and Development Institute (FRDI).

7.1.8 The areas within the stream bank protection, with slope of 50% and greater, or with elevation of 1000 m and higher shall be excluded from the field sampling.

7.1.9 Field notes on the changes of the forests condition along the strip shall be recorded on the back of the tally sheet. There shall be a separate tally sheet every 100 meters horizontal distance along the strip.

7.1.10 Sampling of Reproductions

Reproduction shall be sampled on a one-meter radius plot located at every 100 meters along the strip. The seedlings that shall be tallied should have a minimum height of 1.5 m up to 5.0 cm in diameter.

7.1.11 Sampling of Saplings

Sapling (trees with diameter of 6 to 14 cm) shall be sampled within a five-meter radius plot located at every 100 meters along the strip, concentric with the reproduction plot. Only the diameter shall be measured and tallied.

7.1.12 Tree Volume Computation

The volume computation of all measured and tallied trees within the 20-m wide sample strip shall be computed using the Regional Equations and volume for standing Trees in the Philippines.

7.1.13 The field sampling of the operable second growth forests in the other blocks shall be undertaken, as soon as, the report for Block-I shall have been submitted and evaluated.

8. Report Preparation/Submission

8.1 The report on the results of forest resources inventory shall be submitted by the CFITs within 20 calendar days after the completion of the field works. The report shall include statistical analysis to show the reliability of the inventory data.

8.2 The report shall be signed and under oath by all Team members and notarized by a notary public.

8.3 The report shall include the following:

8.3.1 Summary - it shall consist of the sampling method used, description of the area evaluated, duration of inventory work, expenses incurred, recommendations, etc.

8.3.2 Stand and Stock Table - it shall indicate the species and species groups, size classes, number and volume of each tree species.

8.3.3 Soil cover maps - shall consists of the preliminary map (prepared before the starting the field work) and final map at scale 1:50,000 which shall show the location of the field samples established; the forest cover by block & whole concession area; and the operable and non-operable second growth forests;

8.3.4 Original tally sheets; and

8.3.5 Photographs showing panoramic view of the area.

9. Inventory Report Evaluation

The submitted report shall be evaluated by the Monitoring and Evaluation Committee. The evaluation shall indicate, among others, whether the TLA/TPSA holders shall be allowed, to continue logging operation beginning 01 January 1992 or otherwise.

This Memorandum Order takes effect immediately.

FULGENCIO S. FACTORAN, JR.
Secretary