

TECTONA GRANDIS - ELITE MANAGEMENT

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Objectives

(a) To give government immediate revenue of Rs. 90 crores of Rupees in every year without cutting any forest tree and a portion of this revenue as foreign hard currency from NRI investors, from only 3000 ha of Teak Plantations out of the 75000 ha owned by the State of Kerala.

(b) Improving the growth of Teak plantation for much more increment to get much more revenue when it is harvested.

(c) Eco-development of areas under Teak plantations by giving better Silvicultural management to Teak (Spraying, Manuring, Fire protection etc. as well as Soil and Moisture conservation treatments).

(d) Getting funds from public for better Silvicultural management and development of forests.

(e) To encourage people's participation in Forest Management.

(f) Reduction of theft in theft-prone areas by better and intensive management.

(g) To reduce damage of Teak Stands by biotic interference and better management of the area by giving them elite treatment.

(h) To earn huge foreign currency from

NRIs in the long run.

Table 1

Prepared from data from
Nilambur area -Yield table

Site Quality I Area :

(a) Age of Teak trees	= 40 yrs
No. of Stands	= 170 /ha
Total volume of solid timber	= 458 m ³ /ha
(b) Age of Stand	= 45 yrs
No. of Stands	= 153 /ha
Total volume of solid timber	= 500 m ³ /ha
(c) Age of Stand	= 50 yrs
No. of Stands	= 138 /ha
Total volume of solid timber	= 538 m ³ /ha

Inference

Total increment of Timber in 10 yrs	= 82.1 m ³ /ha
Increment in 5 years plantation from 45 year old	= 39.35 m ³ /ha

Site Quality II Areas :

(a) Age of Stand	= 40 yrs
No. of Trees	= 207/ha
Total volume	= 325 m ³ /ha

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(b) Age	= 45 yrs
No. of Trees	= 185/ha
Total Volume	= 355.8 m ³ /ha
(c) Age	= 50 yrs
No. of Trees	= 168/ha.
Total Volume	= 383 m ³ /ha

protection and better silvicultural management like fire protection, spraying, climber cutting, manuring etc. So, when the plantation becomes 50 years from 45 years, the volume of timber available increases by:

Inference

Total increment in 10 yrs = 60 m³/ha
Total increment in 5 yrs = 28 m³/ha

82 m³/ha in Site I
60 m³/ha in Site II
40 m³/ha in Site III.

Site Quality III Areas :

(a) Age	= 40 yrs
No. of Trees	= 269/ha
Total Volume	= 192 m ³ /ha
(b) Age	= 45 yrs
No. of Trees	= 237/ha
Total Volume	= 211 m ³ /ha
(c) Age	= 50 yrs
No. of Trees	= 212/ha
Total Volume	= 229 m ³ /ha
Increment available in 10 years	= 38.42 m ³ /ha
Similarly increment available in 5 years	= 18.28 m ³ /ha

40 m³/ha in Site I
28.78 m³/ha in Site II
18.28 m³/ha in Site III.

We are harvesting Teak after 50 years in Nilambur area. We can take 45 year old Teak Plantation and 40 year old Teak plantations for our scheme. As discussed in the last paragraph, we can increase the increment many times as these plantations reach their 50th year by timely manuring, spraying, fencing, etc.

From 40 year old plantations, we get an average minimum increase of 60 m³/ha by proper selection of areas in the next 10 years.

From 45 year old plantations, we get an average minimum of 30 m³/ha by proper selection in 5 years.

These amounts can safely be obtained in any case in normal course in the next 10 years and 5 years. In fact, even after supplying this, we can give much, much more revenue than the Government could have got in the normal course, from those plantations which are proposed to be put under elite treatment and growth increment

N.B. : Data have been rounded to approximation.

Discussion

When the plantation of one ha area becomes 50 years old from 40 years, the volume of timber increases by :

82 m³ in Site I area per ha
60 m³ in Site II area per ha
40 m³ in Site III area per ha

We can increase this increment manifold by reducing the damage of No. of trees during 10 years by fencing, better

will increase manifold as discussed in the above paragraphs.

To conclude from 40 year old plantations we can safely promise to investors 60 m³/ha after 10 years and from 45 years old plantations, we can safely promise 30 m³ of timber from one ha, when the plantation are to be harvested, and give the Government much more than what it would get at the time of harvesting in future too, besides this quantity.

The prices for teak at Government depots are rising every year. We may promise the delivery of timber of Quality III C. The girth of such timber would be between 76-99 cm. We may promise to supply timber as far as possible of girth on the higher side between this and the girth limit. The prevailing depot price of III C timber is approximately Rs. 16,000/m³. Adding 5% Forest Development Tax and Income Tax 5% and Sales Tax 8%, it comes to Rs. 18,880 or nearly 19,000/-.

The market price is much higher than the depot price. We can, hence, for computation purpose, fix the cost of one m³ of timber of Quality III C as Rs. 20,000/-.

Scheme : Teak Unit Bonds

(a) The Banks double the money in 5½ years (Indira Vikas Patra) and money becomes 4 times in 11 years.

In order to make our scheme more lucrative, we may realise the price of 0.5 m³ of timber for one Teak Unit Bond and supply 1 m³ after 5 years in the first scheme and 2 m³ after 10 years in the second scheme. Hence as per above cost data, each unit bond will cost Rs. 10,000/- i.e. the cost of 0.5 m³ of Teak which we have calculated for

computation purpose.

(b) Teak prices have increased nearly 10 times in the last 10 years. So we can safely assume that in the next 5 years it will double and in another 5 years still double again. Therefore, the net return on these investment will be huge. The net return after 10 years will be nearly 16 times in any case. The response from the public, and concerns will be a frenzy.

No. of Bonds/ha. From 40 year old plantation in the next 10 years we can promise 60 m³ of Teak as per above discussion. Hence we can fix 30 bonds/ha to such plantations.

Revenue Projection

(a) With 10 year gestation period from 40 year old plantation revenue/ha = No. of Bonds x Value of Each Bond = 30 x 10,000 = Rs 3 Lakhs/ha.

If we take 500 ha of plantations in each of Northern, Central and Southern Circles, the total revenue that can be tapped is 1500 x 3 lakhs = Rs. 45 crores.

(b) From 45 year old plantation also we can get Rs. 45 crores per year.

Total Revenue/Year = Rs. 90 crores/year.

(c) Kerala has over 75,000 ha of Teak plantation. By gradually bringing more plantations under this scheme on a rotation basis every year, Rs. 100 crores can be netted.

(d) By declaring Teak as agricultural crop, income tax concessions could be applied to this scheme. Hence we may properly publicise this scheme and get about Rs. 100

crores of foreign currency by giving NRI Investments priority in allotment.

Quality of Teak to be supplied as per bonds

The quality of timber will be III C type which will have girth on the higher side i.e. (between 76 cm to 99 cm).

Infrastructure

One CCF, three CF, six Dy. CFs and adequate No. of A.C.F.s and subordinate field and office staff along with computer facilities are needed. All this should be put under one Prl. C.C.Fs, who should be here for full time.

Expenditure

A portion of the revenue say 10% can be earmarked for meeting the expense of maintainance of these plantations under this scheme. A small portion of this will be sufficient for infrastructural expenses and expense towards computerisation, etc.

Causes of Loss of Increment

The increment in trees or plantations are lost chiefly because of :

- (a) (i) Diseases
 - (ii) Fire
 - (iii) Loranthus, climbers, etc. (Parasites)
 - (iv) Theft
 - (v) Biotic interference as uprooting by elephants, and damage by human beings who enter forests for firewood, etc.
- (b) As years of plantations increases, No. of standing trees decrease because of drying, uprooting, theft, etc. This is clear from the data sheet also.

Even if this is checked, the increment received by way of growth would be many times more than what is proposed to be sold to public.

The plantations should be maintained statutorily every year with these funds so that the loss in increment is minimised.

Cost to Government

There is no liability even for a single paisa as the Government does not have to spend anything. On the other hand, because of more growth, and hence greater increment than what the trees would have put in normal course, even after reducing the quantity for public from the increment, Government will get much more revenue when the plantations are felled. This is over and above the present immediate revenues.

The exact No. of unit bonds per ha can be decided after field inspection of the earmarked areas by a committee of senior forest officials constituted by the Government.

Action Expected

To begin with, we may start with 500 ha at Nilambur and 500 ha at Konni only to watch the response. We may select site Quality I i.e. very good Teak areas. We can take 40 years and 45 years old plantations each of 250 ha in Nilambur and Konni. Because of very good soil condition for Teak, hence we may take 40 Teak unit bonds/ha for supplying III C quality of timber. Target of immediate revenue expected now itself will be $40 \times 10,000 \times 1,000 = \text{Rs. } 40 \text{ crores}$. In subsequent years, we may revise our rates and targets depending on various factors.

SUMMARY

The commercial management of teak plantations and its financial aspects are given in detail in this paper.

टैक्टोना ग्रांडिस - विशिष्ट प्रबन्ध

आर० एस० आर० प्रसाद

सारांश

इस अभिपत्र में सागौन रोपवनों के व्यापारिक प्रबन्ध और इसके वित्तीय पक्षों को बताया गया है ।

<i>Snippets</i>	PLANT LOCATION
A computer programme has been developed that selects optimal OSB plant location and size based on cost minimization. The program, OSB/LOCATION, has two features that make it different from other optimal-location programs. First, the solution is the optimal combination of plant location and size. Second, the program can provide the best alternative solutions in addition to the optimal solutions (or multiple solutions). Alternative solutions provide the decision maker with more flexibility when other factors, such as community life quality and political preference, have to be considered. With small modifications, this program can be used for planning other forest product manufacturing facilities such as laminated veneer lumber plants, or sawmills. For further information, contact Ken J. Muehlenfeld, Forest Products Development Center, School of Forestry, Auburn Univ., Auburn, AL 36849-5418 (USA). Source : <i>Forest Products Journal</i> Vol. 45, No. 5	