PART – II

FUTURE MANAGEMENT DISCUSSED & PRESCRIEBD

CHAPTER – I

BASIS OF PROPOSALS

OBJECTS OF MANAGEMENT

2.1.1.0 The ultimate object of management is to convert the forests into normal forest and to bring about all round improvement to the forests so that they reach a state of maximum productivity in the shortest possible time. The immediate objects of management are :-

I. To work the forests scientifically on the principle of sustained yield by restricting the quantum of felling equal to the increment put on by the forests.
II. To allow fellings only in specified areas.
III. To manage the commercial or the surplus forests to ensure highest possible sustained financial return to the State.
IV. To manage the community or the deficit forests in such a way as to meet the righholders demand for timber and firewood as far as practicable and to enrich these forests so as to improve the village economy.
V. To rehabilitate the degraded forest.
VI. To improve the density and quality of forests by planting the blanks and areas containing inferior & useless species.
VII. To manage the forests in such a way and to carry out such soil and moisture conservation measures as to improve the overall environmental effects of the forests and its efficacy in soil and moisture conservation.
VIII. To manage the right burdened forests outside the core area of Hazaribagh National Park and at the same time to meet the rightholders demand.

GENERAL METHOD OF TREATMENT

2.1.1.1 After more than thirty years of scientific-management of the forests in the past if one analyses the over all effect of the past management he finds that the forest are nothing better, if not worse than what they were earlier. The main reason for the failure of the system of management is that the needs of the man living inside the forests were not given due consideration while making prescriptions. The general method of treatment in this. Plan would be largely guided by the fact that the man living inside and around the forests is the most significant constituent of the whole ecosystem of which forest is another constituent. The concept of the forest in isolation of the man of the forest will be something imaginary and any prescription or system of management based on such concept is bound to fail at least partly if not fully.

2.1.1.2 Till now, ever since the times of Britishers, the forests have been treated mainly as a source of revenue and whole structure of the management was revenue oriented. Of late, the environmental effects of the forests is being given due importance after the people have been the devastating effects of slow disappearance of forests. Now the environmental efforts of the forest is being considered more valuable than the revenue. Hence the basic principle behind general method of treatment will be to preserve and enrich the forests even at the cost of revenue.

WORKING CIRCLE

2.1.1.3 To achieve the above objects of managements the following working circle have been constituted :-

i. Coppice working circle.
ii. Village working circle.
iii. Rehabilitation working circle.
iv. Plantation working circle.
v. Protection working circle.
vi. Bamboo (overlapping) working circle.
vii. Khair (overlapping) working circle.
viii. Koreya Papraut (overlapping) working circle.

ix. Resin & gum (overlapping) working circle.

AREA STATEMENT

2.1.1.4 The Range-wise break up of total area into various working circles is given below:-

Name of Range	Coppice Working Circle	Village Working Circle	Rehabilitation Working Circle	Plantation Working Circle	Protection Working Circle	Bamboo Working Circle	Khair Working Circle
1	2	3	4	5	6	7	8
Ramgarh	5238.78	477.18	3958.89	12990.62			
Tandwa	12393.31	950.60	6803.79	5918.53			
Barkagaon	24713.79	6706.83	2629.17	6711.50	707.59		
Hazaribagh	12009.17	5208.96	6984.81	2653.53			
National Park	-	6802.91	3460.98	122.77	6833.46		
Barhi	4307.63	431.84	11326.76	17353.72	438.65		
TOTALS	**58662.68**	**20578.32**	**35164.40**	**46852.67**	**7979.70**		

PERIOD OF THE PLAN

2.1.1.5 The period of this plan will be 20 years. The objective and priorities are changing. Hence a review of the plan will be done at the end of 10 years to find out if the prescriptions of the plan are in keeping with the change objectives and priorities and, whether any modification in the Plan would be necessary.

STOCK MAPS

2.1.1.6 Occular stock maps have been prepared on 6”=1 mile or 4”=1 mile scale maps drawn on tracing paper. For such areas which were under coppice working circle the old stockmaps on the topomaps (6”=1 mile of 4”=1 mile) were supplied to the field staff to help them in locating their position in the field precisely. For other areas 6”=1 mile or 4”=1 mile maps on tracing paper showing forests boundary were supplied for stockmaping. The following details were shown on the stockmaps.

1. Sal (Blue wash)

(a) Above 20 cm dia

(b) 10-12 cm dia

(c) Below 10 cm dia

2. Sal cut-back (Green wash)

(a) Above 10 cm dia

(b) Below 10 cm dia

3. Sal rooted waste (Bushy) (Green wash red hatch)

4. Miscellaneous (Vermillion)

(a) Above 20 cm dia.

(b) Below 20 cm dia.

5. Protection (Red wash)

6. Plantation (Yellow wash)

Acacia (Ac) Eucalyptus (Eu) Sissoo (Si)

Chakundi (Ch) Bamboo (Ba) Khair (Kh) Teak (Te)

Semal (Se) Gamhar (Ga)

7. Fit for plantation (Yellow wash)

Failed plantation area (red cross)

Failed sal. Reh. Area (red hatch)

8. Bamboo (Black dots)

9. Salai : (S1) Above 75 cm girth

(S2) Less than 75 cm girth

10. Khair : (K1) Above 20 cm girth

(K2) Less than 20 cm girth

11. Eroded (Black Des)

12. Blank : Blank

13. Encroachment (Red Line)

Density :

X : 0.30

Y : 0.30-0.60

Z : 0.60 Above

CHAPTER – II

COPPICE WORKING CIRCLE

CONSTITUTION OF THE WORKING CIRCLE

2.2.1.0 The working circle comprises mainly the commercial forests of the previous (Mishra's) Plan. The commercial forests are the right free Ex. R.Fs. of Ramgarh Estate and such right burdened forests where surplus forests produce is always available in the annual coupe for sale after meeting the demand of the right-holders. The community forests or the deficit forests which previously formed a part of the coppice working circle have been taken out from this working circle and put under a separate working circle, the village working circle with a view to manage these forests to the best interest of the village community.

2.2.1.1 This working circle contains such sal and miscellaneous forests which can regenerate after coppicing and establish into pole crop without any special treatment. The forests on steep slopes and rocky outcrop which after coppicing are likely to turn into blank have been taken out of this working circle and put under protection working circle.

SPECIAL OBJECTS OF MANAGEMENT

2.2.2.0 The main object of the working circle is to maintain and improve the environmental effects of the forests and at the same time to produce timber of such sizes as to meet the requirement of local people and industries. With this end in view the special objects are :-

i. To confine all felling in the annual coupes only.
ii. To ensure that the areas after coppicing regenerates adequately and grows to pole crop and to achieve this objective to nurse the crop by proper cleaning, thinning, climber cutting and fire protection.
iii. To harvest the mature crop for supplies of forests produce to the rightholders and also to the non-rightholders and industries of the locality.
iv. To arrange for proper sale of surplus materials so as to ensure highest possible financial return to the state.

SILVICULTURAL SYSTEM

2.2.3.0 The silvicultural system for this working circle will be coppice with standard system. It will not be advisable to retain the standards for more than two rotations and, therefore, these will be felled in the next rotation.

ROTATION

2.2.3.1 In general the object of fixing a particular rotation is to produce such material which would meet the demand of the market and local people yielding at the same time maximum revenue to the State.

2.2.3.2 As discussed earlier in part-I. para 1341 the forests being situated in the heart of colliery belt the main demand is for 15.0 cm to 17.5 cm dia (butt-end) props. The local demand in the villages is generally for poles of 10 to 15 cm dia to be used as rafters in the construction of houses. Big size poles of 17.5 cm. dia and up and 8 to 10 metre length are in special demand for electric transmission poles. The general quality of the forests corresponds to Q.B. (Coppice) Q.A. forests occur in small patches.

2.2.3.3 The age dia graph corresponding Q.B. indicate that the average dbh overbark at the age of 30 and 40 years is 16.25 cm (6.4 inches) and 18.80 cm (7.4 inches) respectively which at the stump height (butt-end) will measure about 15 cm (6 inches) and 17.5 cm (7 inches) under bark.

2.2.3.4 The rotation in the previous plan (Mishra's Plan) was 30 years for forests of average quality and 40 years for comparatively better forests. As discussed above it is possible to produce colliery props of 15.0 to 17.5 cm butt-end dia under bark with rotations of 30 years and 40 years. Hence the same rotations of 30 & 40 years as were applicable to different felling series has been adopted. This will also ensure the continuity of operations which is essential in silvicultural practice.

YIELD

2.2.3.5 The yield will be regulated by area. For this the felling series have been divided into number of coupes equal to the rotation in years. All the coupes are more or less equal in area. Since the crop in a particular felling series is not uniform all overs, the particular felling series is not uniform all over, the different coupes in a felling series may not be equiproductive. However the total yield from all the felling series of the Division should even out and be more or less uniform.

CONSTITUTION OF FELLING SERIES

2.2.4.6 The Commercial felling series of Mishra's Plan were continued by grouping forests of adjoining 2-3 villages so as to make the annual coupe area between 30 to 40 acres. While grouping the villages for the constitution of felling series the following additional points were kept in view :-

i. Whole forest of a village had been allotted to a particular felling series;
ii. Surplus forests were not grouped with deficit forests.
iii. As far as possible villages having more or less similar forests were grouped.
iv. Forests having similar extent of right were grouped.
v. P.Fs have not been included with as R.Fs in constituting the felling series.

2.2.4.1 No difficulty has been experienced in management of the felling series constituted in the previous plan. Therefore the felling series have been adopted as they were even if a small area of the a felling series have been found contain degraded crop unfit for allotment to coppice working circle, the same has been retained in the felling series in order to maintain the felling series in old shape. Drastic changes in the constitution of felling series changes the position of coupes and sequence of felling and this disturbes the continuity of operation. Minor difference in the total areas of a few felling series from the previous plan.

ANNUAL COUPES

2.2.5.0 The felling series of the previous plan have been adopted more or less in the same shape. The rotation also being the same there is virtually little change in the position of the coupes for the whole rotation. All the felling series have been divided into coupes for the whole rotation. All the coupes have been numbered and shown the felling series map.

SEQUENCE OF FELLING

2.2.6.1 The sequence of felling has been fixed by assigning a serial number to each coupe. The serial numbers have been given in continuation of the serial of coupes felled in the previous plan. The coupes no. 13 in felling series having 30 years rotation and coupe no. 27 in felling series having 40 years rotation were felled during 1979-80. The first coupe to be felled according to this Revised Plan is coupe no. ……. in 30 years rotation and coupe no. 5 in 40 years rotation number of coupes have been changed from the previous plan the old serial number of the coupe as per previous number in order to indicate the age of the crop and also to maintain the history of management for every small piece of forest land. The serial number of coupe to be worked during 1981-82 will be no. 7 for ex. R.F. and no. 3 for other in this plan.

MAPS OF FELLING SERIES

2.2.6.2 The felling series maps have been generally prepared on 6”=1 (1:10,560 ratio) Damodar Valley Corporation Topo Maps. For certain areas for which Damodar Valley maps are not available, enlargements on 4”=1 mile (1:15840 ratio) from 1”=1 mile toppmaps have been prepared. Only one map showing both the stockmap and the management map has been provided in the felling series history file.

LAYING OUT OF THE COUPES

2.2.7.0 The annual coupes will be laid out on the ground by a 1.5 m side line in which the under growth will be cleared. Trees approximately 20 metre apart on the coupe line will be double ringed, by coaltar at breast height after scrapping the superficial dead tissues of the bark. Signboard showing the name of the felling series and the number of coupe will be displayed at prominent places.

2.2.7.1 The rightholders generally prefer to take the produce of their requirement during November-December. Hence the coupe should be laid out well in advance so that the rightholders section of the coupes could be handed over to them in time. The coupes will be laid out entirely at Government cost though part of the coupe is to be handed over to the right holders.

2.2.7.2 A portion of the coupe equal in area to that given in the statement of felling series against each felling series will be carved out for the rightholders. This portion of the coupe will be located in average type of crop of the coupe. This will be delineated on the ground by double half ring marks at breast height on the trees.

2.2.7.3 Areas having steep slopes and rocky outcrop which are not expected to regenerated after coppice felling have been excluded from coppice working circle, Smaller areas having this type of topography might still be there in some coppice felling. While laying out annual coupes such refractory areas would be excluded out of the coupe on the growing by coaltar rings. The coupe map would also be corrected accordingly. Instances of this type would not be man in any Range hence the Range Officer can personally supervise this work and he should be made responsible to ensure that refractory area of this type is not included in the coupe.

STANDARD OF MARKING

2.2.8.0 Selection and marking of standards is very important item of work in coppice working circle. But unfortunately even this item of work is generally neglected. It should be the prime responsibility of supervisory staff to ensure that selection and marking of adequate number of standards of proper quality is done.

2.2.8.1 It should be remembered that the standards are to live for another rotation. The standards are retained mainly for the following purposes:-

i. They serve as a short of overwood and provide shade to younger crop and protest the soil from being dedicated to some extent.
ii. They serve as mother trees and provide seeds for recruitment of new seedlings.

iii. They standards produce larger size timber at the end of second rotation. Almost entire forest of the state, except the high forests of Singhbhum and Palamau are being managed under coppice with standards system at 30-40 years rotation. With these rotations, it is not possible. Hence the importance of standards is immense in view of the fact that these are going to form the only source of large size timber in future all over the state from coppice forests.

2.2.8.2 As per circular letter no. 8213 dated 27.11.62 the chief conservator of forests, Bihar has ordered that 15 trees of valuable non-fruit bearing species will be marked as standards. In addition to this, a maximum of 20 trees of fruit bearing species will be retained per acre. The number of standards of valuable species will be 38 and that of fruit bearing species 50 (maximum) per hectare.

2.2.8.3 For selection of the standards the following guidelines should be followed:-

i. The standards should be selected in the following order of importance: sal, bija, karam, gamhar asan, dhaura, sidha, siris, pajjan, salai.
ii. In case of sal, asan, dhaura, sidha, pajjan the size of standards should preferably be of 10-15 cm dbh for others it can be higher.
iii. The standards should preferably be of seedling origin and should possess clean bole and well formed crown with out apparent sign of any disease.
iv. In drier areas where salai is predominant and forms almost pure crop, sufficient number of standards of salai should be retained.
v. In highly refractory and gullied areas adequate number of standards of any trees species growing there should be retained as standards in order to protect the area from complete denudation of trees cover.
vi. The number of standards along important roads should be more about 60 per hectare (25 per acre) in order to increase aesthetic beauty of the road.

2.2.8.4 The standards will be marked by two coaltar rings one at the breast height and the other below the stump level. For this the superficial dead tissues of the bark will be

completely scrapped and then a 5 cm wide coaltar ring will be made. The serial number of the standard and the number of coupe will be written above and below the ring mark at breast height as numerator and denominator respectively.

2.2.8.5 SPACING FOR STANDARDS

No. of stand per hect.	Distance in metre	No. of stand per hect.	Distance in metre
05	44.7	35	16.9
10	31.6	40	15.9
15	25.8	45	14.9
20	22.4	50	14.1
25	20.0	55	13.5
30	18.3	60	12.9

2.2.8.6 When area is on slope multiply above by the following factors to get the distance on slopping ground slope below 15^{o} is neglected.

Slope	Factor	Slope	Factor
15^{o}	1.04	30^{o}	1.15
20^{o}	1.06	35^{o}	1.22
25^{o}	1.10	40^{o}	1.31

SUPPLY OF RIGHTHOLDERS

2.2.9.0 The Coppice Felling Series, in the present plan contain only the commercial felling series. The P.Fs constituting the felling series carry rights. The area of the righholders section of the annual coupe has been given in the statement of felling series against each felling series. The area of rightholders portion has been based upon the total number of house holds in the village as per latest census figures. The righholders portion of the coupe will handed over to the respective gram-panchayat for distribution of produce among the righholders. Generally the villages constituting felling series lie in one panchayat. In case villages of two panchayats are involved the rightholders section would be subdivided into two sub-sections proportionate in area to the number of households in two panchayats and each sub-section will be handed over separately to respective panchayats.

2.2.9.1 The felling series are generally rich and the righholders demand is small. The rightholders may not consume the entire produce of the rightholders section. Hence a watch has to be kept on removal of timber and pole. For this the genuine demand of each individual family would be assessed in advance in consultation with the local panchayat and the family will be allowed to take only that much produce. It would be advisable to maintain a register to keep a record of timber, pole and firewood supplied to each household. This will help in scrutinsing the demand of different families.

2.2.9.2 Strict supervision of supply of forest produce to rightholdes should not be difficult as there will be hardly one or two rightholders coupe in one sub-beat. The felling will be supervised by local sub-beat guard. The timber and pole to be taken by rightholders will be regularly passed on the stump site. The transit of forest produce from the coupe to the village will invariable be covered by departmental transit permits which will be issued by the authorized staff. The proposed register for supply of timber poles and firewood and also the use of transit permits will give a correct estimate of forest produce supplied to righ-holders which, as present, is difficult to assess.

SUPPLY TO NON-RIGHTHOLDERS

2.2.10.0 Many of the right-burdened or community forests which are proposed to be managed under a separate working circle do not produce enough material to meet the requirements of the rightholders. Such rightholders and other non-rightholders residing near these commercial felling series have no alternative but to take the forest produce for their domestic requirement from these forest people living near the forest far away from any regular timber depot cannot afford to purchase timber or fuelwood from such depots due to prohibitive cost of transport. He finds it easier to obtain material of his requirement from the nearest forests. At present, since there is no arrangement in practice for supply of forest produce to non-rightholders, they have to resort to unfair means to obtain their requirement. The whole situation breads a chain of corruption and leads to destruction of forest. Therefore, in order to save the forests from wantom destruction at the hands of the local villagers, it would be essential to make arrangement for liberal sale of forest produce from the coupe itself to local villagers. One of the conditions of sale provides for such arrangement but his remains only in paper and is seld on put into practice. What happens is that the purchases purchases a coupe at a high price with a hope to sell the produce at high

rates in the urban area. In face of high price paid by him, he finds it uneconomical to sell produce at low rates in the coupe. Thus the provision for sale of produce in the coupe becomes inoperative. Hence liberal sale of forest produce to local villagers for their domestic use in the coupe depot at reasonable rate must be enforced at all costs. This will, no doubt affect the revenue adversely to some extent but this will have to be come in order control illicit fellings by villagers.

2.2.10.1 Firewood is the only fuel for the rural population in forest area. The villagers used to collect dry fallen wood from the forest. The Government also allowed collection of dry fallen wood free of cost from the forest for bonafide domestic use. Due to increase in population the demand for firewood has increased tremendously. Now sufficient quantity of dry fallen wood is not available in the forest to meet the needs of the people. The privilege given by the Government is now, being grossly misused and green saplings and poles are being out and brought on large scale in the name of dry fallen wood. This one cause is doing a lot of damage to the forest. This problem has to be solved if the forests are to be saved.

2.2.10.2 The contractors coupe contains large quantity of sals wood which along with thicker pieces of fire-wood can meet the headloaders demand to a great extent. The provision of the special condition of sale should be rigidly enforced in this regard and the contractor should not be allowed to extract firewood from the coupe till the local demand is fulfilled. Firewood should be liberally sold to the headloaders and the carters at reasonable rates from the coupe. The headloaders should be persuaded to purchases firewood from near by at green saplings or poles in the garb of dry fallen firewood should be strictly dealt with contractors coupe and illicit removal.

EXECUTION OF FELLING

2.2.11.0 A set of conditions is incorporated in the special conditions of sale to regulate and control the felling by contractors in the coppice coupes. The conditions which have silvicultural significance are reproduced below:-

i. The felling will remain suspended between 1st July to 15th October. However, the Divisional Forest Officer is empowered to make change in the date when the felling should start after rains;
ii. The trees will be cut as close to the ground as possible. In any case the stumps will not be higher than 15 centimetre;
iii. The contractor will be duty bound to protect the coupe from fire;

The instructions which should be enforced are given below:-

i. The double ringed trees showing the coupe line will not be cut;
ii. A strip of 3 metre width along the exterior coupe line and 2 metre width along the interior section lines will be kept cleared of all undergrowth and poles upto 10 cm dbh during the entire working period.
iii. Felling should start from one end and should be confined in one section till the work in that section is complete in all respects.
iv. Coppicing of unproductive stems or pollards should not be kept pending till felling is complete. It should be carried out simultaneously along with main felling.
v. No sapling or pole of main species upto 10.0 dia at stump height will be cut irrespective of the fact that stem is defective.
vi. The reserved species will not be felled.
vii. No felling will be done within 10 metre width on either side of an active ravine.
viii. Felling should be done in such a way at to avoid damage to standards or other trees to be retained for future.
ix. Any defect in the execution of felling by the rightholders will be rectified by the purchaser.
x. Coppicing till March produces most vigorous coppice shoots. Hence efforts should be made to restrict the felling till March only.

RESERVED SPECIES

2.2.12.0 A number of species depending upon their special use are declared as Reserved species from time to time. Though these are not to be marked as standards, but

they will not be cut. The reserved species are Teak, Khair, Simal, Bhurkund, Kadam, Chhatani, Kusum, Chilbil, Satsar (Dalbergia latifolia) Mahua, Aam, Bans, Koraya, Papraut and trees standing of Jahira, Bija of 30 cm or less dbh is also not not be cut.

Felling of only those salai trees shall be permitted which are 2 feet and over in girth at 6" from the ground level. This prescription is necessary to save the young salai poles from felling which are of little commercial value.

RETENTION OF ADVANCE GROWTH

2.2.12.1 Saplings and young poles below 10 cm dbh (Overbark) do not produce any thing. These do not make even good quality firewood due to larger proportion of bark. Such material is generally left in the coupe as slashwood to rot and to cause fire hazard. The average age of such saplings and poles in about 5 years. If they are allowed to remain unfelled they will grow to a little larger size than the average size of the crop. Hence all saplings and poles upto 10 cm dia (overbark) at stump height of valuable species shether occurring singly or in groups will be retained as advance growth.

REGENERATION

2.2.13.0 The forests of this Division can be divided into two main types from regeneration point of view. The ideal type is that which contains adequate number of trees of younger age classes in the top canopy and the under growth also contains sufficient number of whippy seedlings of main opposite to the first type where the main crop is deficient is trees of younger age classes and the under growth is also devoid of seedling of main species. The former type regenerated by itself provided the coppice shoots are protected against browsing and fire. Another chemical factor which operates in many localities is the illicit cutting of young saplings of sal for ghoran. Thus it is quite easy to regenerate the area and to establish it into young pole crop by providing protection against grazing, fire and illicit removal of saplings at least for five years.

2.2.13.1 The second type of forest is difficult to regenerate naturally and one might have to resort to artificial regeneration by planting. Such areas are generally located near habitations where pressure of grazing is very heavy. If a coupe is located in areas having

second type of crop one will have to be in readiness from before for artificial regeneration. Efforts have been made to identify such areas on the felling series maps but an on the spot study of every coupe at the time of laying out will be necessary to ascertain the future course of action for ensuring regeneration.

2.2.13.2 The main point which is intended to be impressed upon in this paragraph is that the coupes should not be left at the mercy of God for regeneration. Many coupes, in the past, have either turned into blanks or have resulted in crop with sparse density due to lack of attention paid and efforts made towards ensuring and establishing regeneration. One has no right to fell on area unless and until its regeneration is ensured.

2.2.13.3 An annual review of the progress of regeneration will be made by the Divisional Forest Officer after the end of the rains every year. Similar review will also be made by the Conservator of Forests incharge of the Circle periodically, say, after every three years. In case the regeneration has failed repeatedly future felling shall be stopped in that felling series.

2.2.13.4 The efforts for ensuring regeneration generally suffer due to lack of fund for this purpose. Efforts should be made to obtain sufficient grant of fund for this purpose and this should form a permanent future of the Divisional Budget.

SUBSIDIAR SILVICULTURAL OPERATIONS : CLIMBER CUTTING

2.2.14.0 This will be done at the time of marking of standards. This will be repeated at the time of all subsequent silvicultural operations.

CLEANING

2.2.14.1 In the year following the main felling cleaning will be done all over the coupe. This will be done departmentally. The defective stems of the advance growth the high stumps will be cut back. The first cleaning will also include freeing of the seedlings of main species from weeds and useless species.

2.2.14.2 Another cleaning in the 5th year is also proposed. Besides climber cutting this operation will include removal of existing or expected interference by useless species with the growth of coppice shoots of valuable species. During second cleaning number of shoots per stool will be reduced to 2 or 3.

THINNING

2.2.14.3 C-grade thinning in 14th and 17th year in felling series having 40 years rotation is the general prescription in coppice forests of the state. The crop in most of the felling series is generally open, hence, thinning may not be necessary in most of the felling series. If the 5th year cleaning has been done only one thinning in the 20th year will be good enough. The following table, extracted from the Indian Forests-Records, Vill-XII, Part-IV. Yield table for clearfelled sal coppice forests, gives the number of stems per acre after thinning.

2.2.14.4 Table

Average dia	No. of after	Stems per acre thinning
4”	700	
5”	500	
6”	400	
7”	320	
8”	260	
9”	210	
10”	180	

2.2.14.5 Best stems should always be selected as centres of spacement. Thinning is best done when the crown is full of leaves. All dead, dying suppressed and dominated trees should be cut back. Thinning, however, should not create permanent gaps in the canopy.

CHAPTER – III
VILLAGE WORKING CIRCLE

Constitution

2.3.1.0 This working circle comprises the so called community forests i.e. such right-burdened forests where the demand of rightholders exceeds the total produce available in the annual coupes. In such forests nothing is left after meeting the demand of the people. Many of the Community forests are in very bad state of degradation. This Working Circle will comprise only such community forests which can yield poles and fuel-wood and which can be regenerated by coppicing. The entire area of a village has been allotted to this working circle even it contains young sapling crop to the extent of 30% of the total area of the P.F. A liberal attitude has been adopted in allotting areas to this working circle with a view to meet at least the fuelwood requirement of the villagers.

SPECIAL OBJECTS OF MANAGEMENT

2.3.2.0 The special object of management of this working circle is to produce small size poles, fuelwood and other material in adequate quantity so as to meet the domestic and agricultural requirements of the rightholders and to augment the village economy as far as possible in so far as it depends upon forest produce. To achieve these objectives the forest will be brought to optimum level of productivity.

1. Natural crop will be harvested to meet the requirement of the people.
2. The immature and degraded crop will be nursed.
3. The blanks will be planted with suitable species like lac and tussar host trees, fruit trees and such fast growing species which can produce small size poles and fuelwood in sufficient quantity in shortest possible time.

SILVICULTURAL SYSTEM

2.3.3.0 The main system of management will be simple coppice system. The degraded portion of the forest containing sapling crop and sal rooted wastes will be rehabilitated while the blanks will be planted.

ROTATION

2.3.4.0 The rotation will be 20 years. With this rotation is expected that poles of about 10 cm. dbh over bark will be produced which will be good enough to meet the requirement of people for construction and repair of houses.

YIELD

2.3.5.0 The yield will be regulated by area. For this entire felling series has been divided into 20 coupes of equal area. Due to variation in the crop the yield is not expected to be uniform.

CONSTITUTION OF FELLING SERIES

2.3.6.0 At present the community felling series are generally village-wise. Their number is too large for efficient supervision of the working of annual coupes. The felling series have, therefore, been constituted by grouping forests of adjoining villages. While grouping the villages the following points have been kept in view:-

i. Villages belong to the same Gram Panchayat.
ii. The forest crop of the P.Fs constituting the felling series are similar.
iii. The burden of right i.e. the area of forest per household in the village is more or less the same.
iv. The resultant area of the annual coupe after grouping is between 12 to 20 hectares (30 to 50 acres)

DIVISION INTO COUPES

2.3.6.1 The whole felling series has been divided into 20 coupes of more or less equal area. While making Division of the coupes the advantage of the natural features like prominent nalas, foot-paths and roads has been taken.

SEQUENCE OF FELLING

2.3.6.2 Due to excessive biotic interference the crop over the entire P.F. in some villages is more of less young and immature. Distinctly mature crop in less young and immature. Distinctly mature crop in such P.Fs is generally absent. Therefore it has been difficult to suggest sequence of felling on the basis of maturity of crop. However, efforts have been made to locate, at the least, the initial set of coupes in area having crop of younger age class will naturally be felled in the later part of the rotation. Till then the crop in these areas will be rehabilitated and protected to grow to utilizable size before they become due for felling.

2.3.6.3 The rotation of this working circle has been reduced from 30 to 20 years and in some cases the constitution of felling series has also been changed. Hence it is not possible to adopt the old coupes and their serial number. The first coupe to be felled under this working plan will be serial number 1.

MAPS OF FELLING SERIES

2.3.6.4 The felling series maps have been prepared on 6”=1 mile Damodar Valley Corporation topomaps. For such areas for which D.V.C. maps are not available, enlargements on 4”=1 mile from 1”=1 mile topomaps have been prepared. Only one map showing both the stock map and the management map has been provided in the felling series history file.

ASSOCIATION OF PEOPLE IN PROTECTION AND CONSERVATION OF FORESTS.

2.3.7.0 It is a paradox that the forests, the produce of which is entirely appropriated by the people, is destroyed by them. The main reason behind such apathetic attitude is that they do not consider these forests to belong to them so far as appropriation of produce is concerned. There are examples where the community forests have been rigidly protected by the people. Hence the association of the people in protection and the association of the people in protection and conservation of these community forests is essential and is, perhaps the only key to the success in conservancy of these forests.

VAN-SAMITI

2.3.7.1 A van-samiti consisting of the Mukhiya or the representative of the village in the Gram Panchayat and other suitable and sincere persons from the village will be formed to assist in protection, conservation and management of the forests.

2.3.7.2 No rigid rules and procedure are being prescribed for the formation of the van-samiti. What is intended is that the samiti should be sincere and effective in the protection and conservation of the forest. The van-samiti should preferably be felling series-wises and not village wise.

2.3.7.3 The samiti will be associated primarily with the laying out and working of the rightholders coupe, distribution of produce among the rightholders, protection of the entire forest specially the regenerated crop against grazing, fire and irregular felling. The details of the working of the samiti will be finalized by the Conservator of Forests, after examining all the local factors and implications.

LAYING OUT OF COUPES

2.3.8.0 The annual coupes will be laid out by the rightholders under the supervision and technical guidance of the forest staff. Material for laying out of coupes will be supplied by the department. In case the rightholders belong to two different Gram-Panchayats, coupe will be divided into two sections of areas proportional to number of households in each village. The coupe should be laid out well in advance and handed over to the van-samiti so that the rightholders could take produce before June i.e. before onset of monsoon.

SUPPLY TO RIGHTHOLDERS

2.3.9.0 The rightholders coupe will be handed over to the respective Gram Panchayat or to the van-samiti if it has been formed in the month of October. The forest produce available in the coupe will be distributed judiciously among the rightholders. The timber and poles will be supplied to the needy families only after scrutiny of their needs. A register will be maintained to keep a record of timber and pole supplied to each family. The van-samiti will decide what quantity of produce specially timber and pole should be supplied to different families depending upon the quantity of produce available in the coupe and

urgency of the need of different families. Firewood would be generally distributed equally among all families.

2.3.9.1 The coupe will be coppiced by villagers under the supervision the van-samiti which will be assisted by the local Forest Guard in ensuring scientific coppicing. The coppicing should preferably be completed before March. The pole and timber will be duly passed in the coupe by a departmental passing hammer and only then it will be removed by rightholders under the cover of transit permits which will be issued by an authorized forest staff.

EXECUTION OF FELLING

2.3.10.0 1. No feeling will be done during rainy season, i.e. between 1st July to 30th September.

2. The coupe will be handed over by October to the respective Gram Panchayat or van-samiti working of the coupe will start on a date mutually decided by the villagers.

3. Felling shall be completed by the end of March. This restriction, in case of rightholders coupe, is not difficult to enforce.

4. The trees will be cut as close to the ground level as possible. In any case the stumps will not be higher than 15 cm. Special care should be taken to ensure that the unproductive or defective stems and pollards are cut back close to the ground level.

5. No selective felling will be allowed.

6. The firewood cut during the day may be removed the same day by the villagers. The poles will be collected and stacked at one place. These will be distributed among the rightholders after scrutinizing the urgency of need of all the rightholders and total quantity of poles available in the coupe.

7. Efforts will be made to remove all the slashwood from the coupe so as to reduce the fire hazard. This should not prove difficult because the demand for firewood is always more than the material available in the coupe.

8. The thorny shrubs like karanda, ber etc. will be cut and removed to be used for ghoran.

9. No reserved species will be cut.

10. No fruit bearing tree will be cut.

RESERVED SPECIES

2.3.11.0 A number of species which are not of much use to the villagers and which are otherwise required for special use shall not be cut. These will be called the Reserve species. The list of reserve species may change from time to time depending upon the special use of a particular species. Presently the reserved species are :- Teak, khair, bamboo, simal, bhurkund, kadam, chhatani, kusum, chilbal, sonachhal, koraya, papraut.

PROTECTION OF FOREST

2.3.12.0 The villagers will be closely associated with various measures of protection of the forest through their Gram Panchayat or the Van Samiti. The forest needs protection against irregular felling, fire and grazing.

IRREGULAR FELLING

2.3.12.1 The forests of this working circle are generally deficit forests. At present these forests do not produce sufficient materials to fully meet the requirement of the villagers. Due to overall shortage people rush to obtain their requirement by fair means or foul. Firstly, the villagers will have to cultivate a habit of prudence in the use of forest produce specially firewood and try to limit their requirement within the resources available. Thus is not impossible, because the people of the non-forest area are able to do this by other means. Alternative resources will have to be developed to bridge the gap between the availability of

produce from the existing forest and total demand. This can be done through the social forestry scheme which have been launched since 1978. One opening depots at suitable centres.

2.3.12.2 The unproductive land laying outside forest demarcation either belonging to the tenants or to the State will have to be planted up with such species which can meet the fuelwood and timber requirement of villagers. The marginal agricultural land belonging to tenants which do not yield produce worth the labour and material invested in it may have to be brought under tree plantation in due course.

GRAZING

2.3.12.3 The young regenerated crop is badly damaged due to grazing. Therefore, the young crop should be strictly protected against grazing at least for first 5 years after coppicing. It is the cattle of the same village which graze in its forest. Therefore it should not be difficult for the villagers to direct their cattle to graze in older area which is open for grazing. With a rotation of 20 years three fourth of forest area is always open for grazing.

FOREST FIRE

2.3.12.4 The entire forest should be meticulously protected against fire. It is entirely due to the carelessness of the villagers that fire lit under Mahua trees spreads into forests. With little effort by the villagers, the occurrence of forest fire can be stopped. In case fire occurs it should be immediately controlled. For this the villagers should be always ready for fire-fighting during fire season.

SOCIAL FORESTRY

2.3.13.0 It has been pointed out in the previous paragraph (para 2.3.12 I) that development of additional resources of forest produce is very essential for meeting the requirement of villagers. This can be done through social forestry schemes which have started scale which may have to be expanded on a very large scale to cover all the villagers in shortest possible time.

2.3.13.1 The requirement of the villagers are for fuelwood, timber and poles for construction and repair of houses, timber for agricultural tools, and ghoran i.e. fencing material for the homestead land. Pat of the above requirement is met legally from the material available in the existing forest. The demand for certain items is so pressing that the villagers obtain them from any forest where it is available by any means fair or foul. Therefore additional resources for such material have to be developed. For this the following measures are suggested.

2.3.13.2 Fuelwood Plantation : In many villages vast area of land is lying unproductive. These land either belong to the State or to the temant. These should be brought under plantation of fuelwood. Such plantations would be worked on short rotation for fuelwood only.

2.3.13.3 Plantation of timber species : In the fuelwood plantation itself timber species like sissoo, gamhar, chakundi, Eucalyptus can also be planted at wider spacing which will yield timber and ole. If sufficient land is available separate plantation of suitable species to yield timber and pole can be raised. These, of course, will be worked on long rotation.

2.3.13.4 Ghoran : This is a peculiar problem in this tract. The cattle is never stall-fed. They are let loose in the forest for grazing. In order to protect the homestead land from being grazed by their own cattle the villagers raise ghoran. At present the sal saplings are universally used for this purpose. The fencing is renewed every year or every alternate year. This causes severe damage to the community forests. In order to do away with this menace and exercise of raising ghoran every year it is advisable to raise permanent live fence around all the homestead land of the permanent live fence around all the homestead land of the village through social forestry scheme. The live fence has another advantage, i.e. it will yield fuelwood also.

2.3.13.5 Plantation of fruit trees : Fruit trees like mango, guava, papaya etc should be planted on homestead land at open spacing without causing any harm to the agricultural crop raised on them. The fruit trees will amelerate their economy to a certain extent. In due course some of these trees will yield timber also.

2.3.13.6 Plantation of lac & tussar host trees : The host trees for lac like ber, palas, kusum can be planted on homestead land. The host trees for tussar i.e. asan and arjun can be planted in the blanks of the forest and on the unproductive land laying outside the forest demarcation.

2.3.13.7 PLANTATION IN COMMUNITY FOREST

Many of the community forests have undergone degradation in which large blanks have been created. The Department has been raising large scale plantation on these lands. The community forests do not cease to carry rights if they become blank. The plantation raised in the right burdened forest remain burdened with right. These plantations should not be sold to earn revenue by ignoring the rights of the people on the forest. Hence the plantations raised in the community forest should be such as to meet the requirement of the people. The plantations in such forests may be raised under social forestry schemed in order to avoid audit objection.

SUBSIDIARY CULTURAL OPERATIONS

2.3.14.0 The main objective of management of forests of this Working Circle is to produce sufficient quantity of fuelwood and small size timber to meet the requirements of the people. The forest of this Working Circle are fairly open due to excessive biotic interference in the past. Hence the need for cleaning and thinning is not expected to arise during the short rotation of 20 years.