PART - II

FUTURE MANAGEMENT DISCUSSED AND PRESCRIBED
CHAPTER -1
BASIS OF PROPOSALS

II.1.1 GENERAL OBJECTS OF MANAGEMENT: - The general objects of management are:

(i) Management of environmental stability through preservation and where necessary, restoration of the ecological balance that has been adversely disturbed by serious depletion of the forests.

(ii) Conserving the natural heritage of the division by preserving the remaining natural forest with the vast variety of flora and fauna, which represent the remarkable biological diversity and genetic resources of the division.

(iii) Checking soil erosion and denudation in ecologically fragile areas and the catchment areas of rivers, streams etc. in the interest of soil and water conservation.

(iv) Increasing substantially the forest cover in the division through massive afforestatlon programme.

(v) Increasing the productivities of forests to meet essential local needs of rural and tribal population for small timber, fuel wood, fodder and non-timber forest produce.

(vi) Creating a massive people's movement in protection and scientific management of the forest and promoting a sense of community ownership.

(vii) Consistent with the above, obtaining the maximum sustained annual yield of timber, poles, fuel wood and non —timber forest produce etc.kt. Economic and scientific exploitation.

II - 1.2 GENERAL METHODS OF TREATMENT: - The forests of Ranchl East Division are characterized by their small sizes highly serrated boundaries, heavy burden of rights of the local people. The forests have traditionally been managed to produce small timbers, poles and firewood for the consumption of local people. However the regulatory forest management practices have led to the alienation of the local people and hence to the most of its forest being degraded by the early 1980s . However, by mid and late eighties, villagers had started protecting forests in their vicinity. Such grass roots initiatives gained momentum now due to growing concern over the rapid rate of deforestation. With the passing of)FM resolution by Bihar &)harkhand Govt. the protections of forest by villagers has gained momentum and VFMPCs have been formed which are protecting eof forests .Many of these VFMPCs consist of officially recognized self-initiated forest protection groups. In addition, there are a considerable number of village protecting groups which are yet to be formally recognised . Peoples participation in protection, rehabilitation and management will help in conservation of the forests of this division. Sufficient root stocks and stems, though of low quality still available in most of the forests will help in conservation of the forests of this.Division. With easy coppice regeneration, the degraded areas start spoiling back to tree growth. The methods of treatment therefore will be-

1. Protection, improvement and management of degraded forest will be undertaken by adoption of Join forest management (JFM) as per Govt. guidelines on the priority basis.

2. Management of better stocked forests will be under taken to increase the productivity of such forests.

3. Blank forest areas where no natural regeneration Is possible will be planted with suitable species to suit local conditions and for increasing the flow of forest products partlculariy of NTFPs to the local people.

4. SpecIal vegetative and mechanical soil and moisture conservation schemes will be Implemented in ecological fragile *I* eroded areas.

5. Habitat improvement measures to minimize man- animal conflict, particularly for migrating elephant population in Ranchi East, Khunti and Jariya Range of the Division, will be given priority.

II - 1.3 **CONSTITUTION OF WORKING CIRCLES:** - To attain the above objects of management, the forests have been divided into following working circles according to the composition and density, of vegetation, the local site conditions, silvilcuftural needs of the forests and requirements of the local people.

1. Improvement Working Circle.
2. Rehabilitation Working Circle.
3. Plantation Working Circle.
4. Protection Working Circle.
5. Working Circle out side the forest.

II — **2.4 IMPROVEMENT WORKING CIRCLE** :- This working circle comprise 4 all the forest which were earlier managed under Coppice Working Circle. The crop in this working circle is almost uniform, young varying in age between 10 to 15 yrs. Due to protection given by VFMPCs the crop is congested. The area under this working circle is 59221.57 ha.

II — 2.5 REHABILITATION WORKING CIRCLE: - This working circle comprises all the areas in which the crop is in need of rehabilitation. This includes area of Sal and miscellaneous rooted waste8 where the forests have been mostly deteriorated by irregular cutting , grazing, fire and soil erosion. The total area allotted to this working circle is 47115.78 Acre! 19075.21 Hact.

II — 1.6 PLANTATION WORKING CIRCLE: - Plantation working circle embraces all the existing plantations, and area fit for plantation which embraces blank area also. The total area allotted to this working circle Is **35454.45** Acre. / 14354.02 Hact.

II — 1.7 PROTECTION WORKING CIRCLE :- This working circle covers the forests on steeper hill slopes and worked — over areas severely affected by head loaders, grazing, fire etc. The total area allotted to this working circle is 1015.34 Acre. / 411.06 Kact. Besides this a total of 941.52 Acres are under encroachment in Bero range.

II — 18 WORKING CIRCLE OUTSIDE FORESTS :- This working circle comprises the area out side forests. This will include the pattern of land distribution with their utility of the village in the vicinity of forests.

II — 1.9 FELLING SERIES: - Each group of village is a unit for felling series. The demarcated forests In felling series is shown on the 2.5d mile and 4” = 1 mile cadastral as well as topographical maps. In most of the cases the maps have been traced and prepared from the earlier plan and utilized for the purpose. Some mistakes are, therefore, likely to have occurred , but these can be overlooked. up to haphazard release of forest land and frequent encroachment the positions of boundary lines, pollars on the ground do not tally with the maps in certain cases. This state of affair, therefore, makes it obligatory to bring the maps and other records upto date.

II — 1.10 This revised working plan has been drawn for a period of 10 years, i.e. from 2003 -2004 to 2012 -2013. A mid-term review of the results of the treatment prescribed in this plan may, however, be made after 5 yrs and necessary modification be incorporated in this plan if so required.

CHAPTER-I

Improvement Working Circle

II — 2.1 General Constitution This Working Circle Comprises such forests of Ranchi East Division which have crop of density more than 0.4. They are distributed throughout the civil sub-division of Khunti and part of Ranchi Subdivision.

II — 2.2 Character of Vegetation: - The principal species found in these forests is Sal and its associates.

The associates of Sal are Terminalia tomentosa, Diospyrous melanoxylon, Buchnania latifolia, Anogeissus latifolia, Adina cordifolia, Butea frondosa, Albizzia Spp. , Lannea grandis, Boswelia serrata, Eagle marmelos, Ougenia dalbergoides, Lagerstromia parviflora. Emblica officinalis, Terminalia chebula, Terminalia belerica etc. A large number of forests were allotted to the coppice- working circle in earlier working plan. But due to illegal cuttings, uncontrolled grazing, forest fire etc. the objectives and prescriptions remained elusive. The crops under this working Circle are mostly young and consist of saplings and poles. Still , trees capable of producing small sized timber are found.

II — 2.3 Special Objects of Management - The special objects of management are stated as below:

1. To meet the bonafide agricultural and domestic requirements of the local people especially of the N.T.F.P. without causing deterioration to the forests.

2. To improve the stocking and quality of the forests by undertaking sound silvicultural operations.

3. To maintain the vegetative cover with a view to prevent soil erosion and to conserve moisture for regulation of water supply.

4. To foster among the local inhabitants a sense of the value of forests and to win their willing and active participation in forest conservation and management.

5. To organize the management of the forests in such a way that the people living in the vicinity of the forests may find sufficient work in forestry operations so as to earn their livelihood.

II — 2.4 Area Statement: - The area covered under this working circle is 146277.30 Acres / 59221.57 Hact. Range wise statement is given below. The area detail's is given in

Appendix —II.

Name of Ranges	Area in Acres.
Ranchi East	20154.37
Ranchi West	9144.47
Jariya	15532.61
Bero	14603.91
Total: -	**146277.30 Acre / 59221.51 ha.**

II — 2.5 Stock Maps: The forests under this Working Circle have been stock mapped on 2.5" =1 mile Scale and 4' = 1 mile Scale. The stock maps show the distribution of principal species, the average age and density of forest crop.

II—2.6 Growing Stock and Mean Annual Increment: -

The detailed data of sample enumeration of trees of Sal in Ranchi East Division is given in Chapter —VI of Part-I. However average no. of trees/ha. in different diameter classes is summarized as below.

Diameter-class

Range	10-15 (cm.)	15- 20(cm.)	20- 25(cm.)	25-30(cm.)	730(cm.)
Bero	219	85	7	2	
Jariya	219	88	9	3	
Khunti	227	89	10	5	
Ranchi East	219	88	8	2	
Ranchi West	218	88	7	5	
Tamar	225	85	10	17	
Average for whole Divison	221	88	9	6	

Thus average total no. of trees / ha. for whole division is 324. Now to calculate the growing stock /ha. for Sal local volume equation developed for Ranchi District by Forest Survey of India. Eastern Zone, Calcutta in their draft report No. 333 dated 29-03-2000 will be used.

This volume equation is given below.

V / D2 = 8.714 — 0.70158 /D + 0.022585 / D2
Where V = Volume in M3 and D = Diameter in metre.
Thus growing stock / ha. for Sal is Computed in tabular form stated as under.

Diameter Class(cm.)	No. of trees	Average Volume/tree(cm3)	Total Volume(m3)
10-15	221	0.071044	15.700724
15-20	88	0.166675	14.667400
20-25	9	0.305876	2.752884
25-30	6	0.488647	2.931882
730	--	--	--
Total	**324**	**1.032234**	**36.05289**

From above table it is obvious that the growing Stock /ha. for Sal in Ranchi East Division is 36.05289 m3. As total, area allotted to this working Circle is 599221.57 ha. , the total growing Stock of Sal for this working Circle is 2135108.7 m3.

II — 2.7 Quality and Age Classes:-

The general quality of crop varies from

III to IV. The crop is mostly young.

II — 2.8 Density: - The density varies from place to place. The density of forests allotted to this working circle varies from. 4 to. 6.

II — 2.9 Silvicultural Systems: -

The crop in these forests varies in density and quality. The well stocked areas have better quality and condition of natural regeneration is also satisfactory. The growth of trees is also good. But the crop is young to middle aged and so felling for improvement will be carried out. Tending of young crop will be required. In the under stocked areas tending of existing crop and artificial regeneration will be undertaken to restock the area. The best system to achieve the special objects of management will , therefore, be the improvement felling supplemented by planting and tending of naturally regenerated crop. In plantation, species required by people for their domestic needs will be preferred. For Coppice species the coppice crop Will be future crop.

II — 2.10 Harvestable Girths: -

As a matter of fact, there is no need of fixing a harvestable girth for improvement felling . However felling for bringing normaley and tending will take place in all girth classes for improvement in the crop and induction of regeneration. Marking will be thinning marking and therefore from all girth classes surplus trees will be removed. Scattered mature trees will not be harvested. The small wood ,poles and firewood obtained from the above felling will be utilized to meet the bonafide requirement of the local people.

II — 2.11 Felling Cycle: Felling Cycle is kept at 10 years equal to the period of the plan.

II - 2.12 Regulation of yield:- The crop is generally young to middle aged and therefore , not much yield will be available. However , during the course of improvement felling small size timber, poles and firewood in some quantity are expected to come. These materialswill be made available to the local villages and disposed off as per JFM resolution of Govt. of Jharkhand

II - 2.13 Demarcation **Of Coupe:-**

Thinning coupes will be demarcated an year in advance of felling.

II — 2.14 Preparation of treatment map: -

Soon after the demarcation of thinning ioupes a treatment map will be prepared by ROF after thoroughly inspecting the area This map will be verified by ACF . D.F.O. should check a few as a test case and when he is satisfied , only then next step should be taken. The treatment map will show the following areas distinctly:

1. Protection Areas:- Those will include

(I) steep slope above 600

(ii) Nala banks and river courses 1 chain wide on either side.

2. Under Stocked Areas: Thes

will include areas with density below 0.4
including blanks.

3. Well Stocked Areas: Thes

will include all areas above density 0.4.

II - 2.15 Marking Rules: Marking will be done in the same year in which demarcation will be done. Soon after the receipt of approved treatment map, marking will be done. The marking rules will be as follows:

1. No marking will be done in protection areas.
2. In under stocked and well stocked areas the following trees will be marked for felling:
(i) All dead, dying , diseased and malformed trees.
(i) All but one vigorously growing Coppice shooter stool.
(iii) All live high stumps. All edible fruit and flower yielding trees will be reserved from felling.

3. As per normal stand table for quality class III site for Sal the following no. of trees /ha. will be retained and the rest will be marked.

Age (yrs) —	No. of trees
10	1413
20	914
30	694

II — 2.16 Soil and Moisture Conservation Works:

Soon after the receipt of approved treatment map soil and moisture conservation works will also be taken along with marking and will be completed before onset of monsoon in the next year. These works will include two main operations namely, contour trenching and nala bunding /check dams.

Contour trenches will be taken all over the coupe due for working. In the areas above **250** slope trenches will be dug in accessible area only. Their cross- section of the trenches will be 45 cm to 30 cm. The soil from trenches will be heaped on the lower side of the trenches. The contour interval between the consecutive trenches will be 1.5 m . Depending upon the slope, the distance between two consecutive trenches will vary .This will vary as follows:

Slope in degree	Distance between consecutive trenches
Up to 15	8m
15 to 25	5m
Above 25	3 m

Nala hunding/ check dams will he constructed to reduce run oil and to arrest the silt. Nala hunding will start from the top of nala downwards.

11-2.17 Methods of Regeneration:-

In the year following year of thinning, the naturally regenerated seedlings will he cleared off all under growth and will he spaced out uniformly so that no. of seedling per ha is required by the normal stand table given site and composition of the crop.

In the areas with inadequate natural regeneration, artificial regeneration will he taken in year following the year of thinning.

11-2.18 Subsidiary Silvicultural Operations: -

The following operations will he carried out, in the year following the year of thinning and in subsequent years.

A) Cutting back Operations:

(i)Felling of standing trees, marked fir felling hut not felled.
(ii) Felling of trees damaged during felling, which are not likely to recover.
(iii) Climber cutting.
(iv) Cutting of coppice shoots where natural regeneration is adequate.
(v) Cutting of malformed regeneration above 15 cm g.h.h.
B) Cleaning: — In the sixth year from the year of thinning, the following operations will he done.
(i) Climber Cutting.

(ii) Cutting of all coppice shoots where naturally regenerated or planted seedlings are adequate and reducing them to two
per stool where regeneration is inadequate.
(iii) Removal of undergrowth interfering or likely to interfere with the growth of seedlings.

II - 2.19 Thinning:-

Thinning will include the following operations.
(i) Climber Cutting
(ii) Removal of dead, badly damaged trees or trees uprooted by wind or storm after leaving two dead trees /ha. for benefit of wildlife
(iii) Reduction of coppice shoots to two vigorously growing shoots On each stool.
(iv) Removal of inferior growth, interfering or likely to interfere with the growth of species.
(v) Fruit trees will not be felled except if they are congested themselves.

II - 2.20 Other Reticulations:

(i) Protection: - Protection from fire and grazing is the prerequisite for the success of regeneration. Since the areas are in the proximity of the villages, special efforts will be required to protect these areas from fire, grazing and illicit cutting.

The Thinning coupes will be rigidly fire protected for a period of five years from the year of felling. These coupes will remain closed to grazing for a period of five yrs. from the year of felling. Rotational grazing should be practiced .To have success in this mission, local villages should be involved right from formulation of scheme to the final implementation of rotational.

PART —II

CHAPTER III
REHABILITATION WORKING CIRCLE
GENRAL CONSTITUTION OF THE WORKING CIRCLE

II - 3.1. This Working Circle comprises all the villages containing forests which have been maltreated in the past and have been, as a result of such maltreatment, reduced to scrub. Many of such forests have been reduced to what at present is designated as "Rooted Wastes". The rooted wastes of both Sal and Miscellaneous Spp.have been included in this working circle. Also included are areas in need f special treatment as a result of denudation, soil erosion etc. the density of the crop is les than 0.4

II- 3.2 SPECIAL OBJECTS OF MANAGEMENT:-

(i) To protect the rooted wastes of Sal and miscellaneous forests against unregulated cutting, grazing and fire and to improve them by cutting back and proper tending operations thereafter.
(ii) To rehabilitate the rooted waste forests by sowing and planting of suitable species in gaps and degraded land.
(iii) To take anti-erosion measures and improve the soil and moisture conservation capacities of these lands.

11-3.3 ANALYSIS OF CROPS: -

As mentioned in paragraph 11-3.1 above , the forests included in this working circle are of two types, namely Sal rooted wasteland Miscellaneous rooted wastes. These forests are situated in the midst of densely populated areas and as a result they have to bear biotic pressure. Most of these forests have been cut repeatedly because very high incidence of high stumps and pollards are visible. Heavy grazing and repeated forest fires in these areas added to the woes of the forests. Regeneration is completely absent and so any ground flora. The villagers nearby these forests take dry leaves , twigs and branches leaving the ground bare which becomes hard and compact subsequently. Any seeds that fall generally fail to regenerate. In many areas, the crop consists of sapling sprung from the ground and not from high stumps or pollards. There are many areas where the forest have been completely destroyed and soil washed away leaving exposed the parent rocks. Scattered trees and bushes occur here and there.

II — 3.4 STATEMENT OF AREA: - The Total area allotted to this working circle is 47115.78 Acres / 19075.21 Hact. The details are given below.

Range	Area in Acre
Ranchi East	26247.45
Ranchi West	11773.26
Jariya	2649.89
Bero	2655.39
Tamar	148.42
Khunti	3641.37
TOTAL:-	**47115.78**

II — 3.5 METHODS OF TREATMENT: - The forests consisting of Sal saplings sprung from the ground and not from high stumps or pollards need not require cut back. These forests need protection against further cutting, grazing and forest fires. Followings are the guidelines for rehabilitation.

1. **FENCING: -** Fencing is the first step of treatment for rehabilitation. Fencing will be done by cattle proof trenches or stone wall fencing depending on site and availability of fund.

2. CUT — BACK: - After fencing the area is to be brought for cut back. In no case, not more than 60% of the area is to be brought for cut back. The method of cut back is to be done according to the guidelines issued by the C.C.F., Development,)harkhand from time to time.

3. PLANTATION: - About 40% of the rehabilitated area is to be planted. The blank areas of 2 acres and above will be planted with indigenous species of the area. The procedure of plantation, casualty replacement, tending operations, protection etc. will be in accordance with the Green- Book and the guidelines issued by the C.C.F., Development,)harkhand from time to time.

4. SOIL AND MOISTURE CONSERVATION MEASURES:- In area affected by erosion, steps are to betaken up to check it. These will consist of construction of check dams and gully plugging. Diversion channels will be ceased off. Sal forests on plain land with bare floor need contour trenching at suitable intervals, ploughing up the eland in between the contour trenches. These will supplement the natural regeneration of Sal. 5. Species to be planted in these areas are Bamboo, Salai, Asan, Gamhar. In dry areas thorny species e.g. Ber, Babul will be planted. Among fruit trees Mahua, Mango , Amla , Bel are to the planted in this working circle.

6. PROTECTION FROM GRAZING AND FIRE: - It is essential to protect the treated areas from fire and grazing.

7. MISCELLANEOUS: - Tending operation would consist of cleaning the Sal crop in the first year it self. In subsequent years, cleaning to be carried out only if necessary. Gradual thinning will have to be carried out only after the young crop is established. This is not anticipated before at least five years have passed. However these operations have to be judiciously carried out. Bare or too sparsely clothed rock hillocks have little or no soil for sowing of seeds. Any sowing or planting will not have to be done till the area improves as a result of the fencing and anti-erosion measures.

II — 3.6 Many VFMPCS are operating in the forests under this working circle. Every step is to be taken up to involve those committees in forestry works as per the guidelines of the Govt. Further the forests where VFMPCs are not there nearby VFMCS should be motivated to work. Following is the list of VFMPCs functioning in this working circle. In the VFMPC areas all development work shall **be** done through the concerned VFMPCs. It is proposed thec. 1000 plants /ha. would be planted at-a spacing of 2mX2m. I About 30% pre-sprouted stumps of shisham, gamhar, teak, bija and semal would be raised. 20% karanj, 20% Harra, Bahera & Aonla, 5% Bamboo and in rest 25% the species such as Aam, Imli, Neem, Jmun, Arjun, Kadam, Bakain, Saar, Sins, Karam, Asan, Amrud, Ghor-Karanj, Sidha, Toon, Ber, Palas, Kusum, would be raised. On trench berns fruits bearing trees such as kathal, Aam, Sahjan etc. may be planted at spacing of 6m. In between at lmXlm spacing sub babool, babul & kachnat will be planted for fodder & food. In no case Acacia,éuriculifomis, Eculyptyus, Acacia, AMangium or Holocia would be planted in forest areas, per ha cost at current wage rate is Rs. 22000/- ha. 2 to 3 cuttings/ha Bargad, Pipal, Pakar etc. would be planted for birds.

PART-II

CHAPTER-IV
PLANTATiON WORKING CIRCLE.

11-4.1 General Constitution: This working circle compiles of: -
(a) Areas on which plantation have already been raised; and
(b) Areas plain to undulating with good soil condition which have become denuded and are fit for plantation.
(c) Blank areas.

11-4.2 Special objects of management: In view of this working circle a single set of objects of management shall not be applicable to the whole of the working circle. The objects of management are therefore set forth separately for the planted and palatable areas:

11-4.3 Special objects of the management of existing plantation:

(a) To improve the stocking quality of plantations by scientific management including operations.

(b)To meet the ever increasing demand of forest products for local people and for local wood based Industries by sale of the products, If any

(c) To ensure soil and moisture conservation.

11-4.4 Social objects for the management of locatable areas:-

(a) To revegetate blank area. with a view to mores.. The vegetation cover and forest productivity.
(b) Consistent with the above to ensure soil and moisture conservation.
(c) To plant a mixture of species so that income starts flowing after one yer.

11-4.5 Statement of areas: The total areas allotted to this working circle consisting of 35454.45Acr / 14354.02 Hac. Including existing plantations and the plantable areas. The details are given below.

Range	Area already planted	Area fit for Plantation	Area under Blank	Total in Acre
Ranchi East	1060.70	9022.09	3189.28	13272.07
Ranchi West	2028.76	2718.38	674.71	5421.85
Jariya	879.37	1683.23	934.79	3497.39

Bero	826.38	903.58	395.98	2125.94
Tamar	1034.44	6832.95	1201.01	9068.40
Khunti	395.95	690.73	982.12	2068.80
Total	6225.60	21850.96	7377.89	35454.45

11-4.6 Description of the pintable areas:- Mostly blank or semi blank areas are included in this working circle. Impact of blotic factors on the forest, especially close to habitation and towns has severely affected these areas. Due to heavy grazing Illicit cutting and fire, many areas have become degraded and some are now complete blank. Failure to regenerate after felling has converted many areas into semi-blanks.

11-4.7 Description of existing plantations :- The earliest effort to raise plantation was made in 1963 with Kaju, Sissoo, Sabal, etc. but the success was insignificant. Hence emphasis was laid on the plantation of mixed species and especially the associates of Sal and Bamboo. In recent years the trend has changed and more. attention was paid to raise species like Eucalyptus hybrid, Chakundi, Accacia etc. These were raised in patches.

11-4.8 Method of treatment :- As discussed in paras Il 4.6 and II 4.7 the following prescriptions are laid down for guidance: (i) By and large the treatment would aim at filling up the intermittent blanks by planting suitable indigenous species depending on edaphic and biotic factors of the areas. The details of the method of treatment would be as per e guidelines for plantation issued by the C.C.F. Development, B'ar, from time to time.

(ii) Plantation areas will be protected at least for three years.
(iii) Cultural operations including casualty replacement should be carried out.
During last plan, the programme of afforestation in most of the area has been a combined process of treatment of sal rooted waste by doing cut back operation and plantation of blanks and scrub forests suffering from varying degree of erosion and denudation with suitable species. Few of the existing old plantation areas is thus a combination of treated natural regeneration and artificially introduced species.

Successful establishment, and growth of the artificially introduced species vary from site to site, depending upon the soil conditions and the effective protection provided to the crop. Most of the areas are inhospitable and suffers seriously from varying degree of erosion. Rigid protection against the fire and grazing is not physically possible in present day situation.

The hunger for firewood is so extreme that almost all the plantations are kept clean, swept by constant removal of all leaf litter by local people and it is a common site to see large number of men, women and children engaged in this act from sunrise to

sunset. Accumulation of humus oriented site improvement is not possible. Although removal of leaf litter has helped in keeping away fire from the plantation area, natural regeneration of planted species is entirely absent

Bamboo has been quite successful in areas having deep loam soils in plain forest. It has also come reasonably well on well drained hills having soil cover. However the practice of bamboo plantation has been discontinued for the last fifteen years due to paucity of funds as well as the inadequacy in protective measure. In this plan it is prescribed that all these areas are to be planted with bamboos

Earlier Eucalyptus sp. and Acacia ariculiformis happens to be the main species of plantation. With the creation of JAAC (Jharkhand Autonomous Area Council) for the Chhotanagpur and Santhal pargana there have been a lot of hue and cry against these exotic species. Awareness of environment among the common mass has also resulted is the outcry against these species. In fact, JAAC has issued a specific order in this regard to ban completely the plantation of all exotic species and instead of them, the indigenous species have been recommended.

Crop formation of the planted species and the growth under varying edaphically condition Acacia aunculiformis and Cassia siamea showns tendency of drying in older plantations.

Theft of forest produce is extensive and it is very difficult to protect the growing stock once it reaches utilisable size of 1 Q cm (4”) diameter and above.

Acacia auriculiformis which forms bulk of the miscellaneous species planted assume an average size of 10 cm in diameter in 10 years. Most of the other species mainly exotic also assume harvestable size by that time. The Forest Research Division, Bihar has taken some adhoc measurements of Acacia plantations in this State. These suggest that the hAl/ha (average) in 1963 in Konar plantation was 4.33 m3 and of 1960 Badla plantation was 3.73 M3. This.indicates that there is a tendency of M.A.l. to fall after 12th year.

SILVICULTURAL SYSTEM:

The silvicultural. System adopted is clear felling with artificial regeneration. Species that coppice well will be regenerated by coppice growth. Natural regeneration of valuable species wherever found in blank areas would be tended and adopted as one of the planted seedlings and would be given the same treatment as that to the planted seedlings.

ROTATION:

Keeping all these points in view rotation for plantations shall be 10 years.

HARVESTING OF OLD PLANTATION:'-

A total of 6225.60 Ha. plantation have been raised since 1985 till date. The success of old plantation are not very good. At the time of maturity one hardly gets 30-40% plants of the total planted.

It will be in fitness of things that the mature plantations of 10 years and above should be exploited by State Trading Wing of the Forest Department. It was observed during revision of this working plan that old plantations have not regularly been harvested. Divisional Forest Officer must ensure that all such plantations which has attained the age of 10 years should be harvested on priority otherwise there is probability of being felled illicitly.. The Department may loose considerable amount of revenue in this regard.

Most of these plantations are of fast growing species like Acacia, Eucalyptus and Chakundi. Subsequent to felling replanting should be carried out in next year.

There is no consistency in afforestation work in this Division. Sometime the level of annual plantation is' more than 1 000Ha. and at times it falls drastically afterwards, It is recommended that on an average .622- Ha. of plantation should be taken up annually for this Division to keep the vegetation patches in tact. The afforestation work in Ranchi East Division is done by Ranchi East Division, Ranchi Afforestation Division, Ranchi Social Forestry Division, Forest Research Division & Research & Evaluation Division. In the

PREPARATION OF SITE MAP:

A site map of the plantation area on 16"=1 mile scale shall be prepared. This map will indicate in detail the following features

(i) Natural and plantation species doing well with suitable rotations. (ii) Sal and miscellaneous rooted waste areas (iii) Depth of soil and its texture (iv) Blanks.

(v) Natural regeneration, if present, of valuable species.

(vi) Length of boundary line with indication about suitability of cattle proof trench fencing and boulder fencing. The above map will form the basis of subsequent operations recommended.

METHODS OF EXECUTION OF FELLINGS:

(a) In addition to trees retained along the boundary line no Bamboo, Semal,.i Mahua, Kend, Kusum, Kaju and Karanj shall be felled.
(b) Before starting regular working in plantation coupes a 20' wide strip shall be cleared along the boundary line inside the coupe. Felling shall start from one end and progress systematically. Haphazard and selective felling shall not be allowed. Felling will be taken up section wise and it will not proceed in the next section till he work in the preceding one has been completed.

(c) Young, healthy and well formed saplings shall be allowed to be left which would form part of the future crop.

(d) Fellings are to be done in such a way that the retained trees are not damaged. All trees including old high stumps and pollards shall be cut with sharp tool to give a clean cut as close to the ground level as possible. The stumps shall not be more than 15 cms. in height in any case and should preferably have a slight slope to discourage any accumulation of water on the top.

(e) All climbers on the retained trees in the coupe area will be cut along with main felling.

(f) Trees falling in Jahiras or Samas (sacred groves) shall not be felled.

(g) Re-afforestation shall be immediately taken up once the plantation coupe has been worked.

TREATMENT OF AREA AND PLANTATION OPERATIONS:

The treatment *after* main felling or clearance of site shall aim at rehabilitating the areas falling within the plantation coupe by fencing, plantations and by exercising rigid protection from fire, grazing and unregulated fellinngs.

The details of the plantation technique, the cost involved etc. would be guided by the schedule of rate approved by Chief Conservator of Forests (Development) and

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Presprouted Semal, Teak, Shisam, Gamhar would be planted. Toon, Ailanthus, Bakain, Bamboo, Neam would be planted .Under this working circle plantation would be done under following schemes.

1. Q.G.S.

2. Soil conservation & Afforestation

3. Development of Minor Forest produces.

Bamboo Plantation

Although Bamboo do not occur in the forests of Ranchi East Division in significant quantity, it may be planted in degraded forests along nalas and on hill slopes in miscellaneous forests. It is a versatile species and can be put to multifarious uses. In the view of its role in rural house holds it is proposed that bamboo should be planted in at least in 500 ha per year. The spacing may be kept at Sñ x 5in. Dendrocalamus strictus is only species which is found in these areas. Stress should be laid on the propagation of this species. However, the other species may be tried.

The cost of plantation/ha may be detailed as below. The total cost /ha comes to Rs. 18684.13.

Cutting Cycle: - After four years of planting the bamboo will be cut at the cycle of four year. Each cutting series will be divided into four coupes each coupe will be harvested every year.

Cutting Rules: - The following cutting rules will be observed.

(i) In each clump the cuims of the previous rainy season commonly known as Karils shall not be cut. Even damaged Karils shall be left intact. Only damaged end may be cut.

(ii) In each cluinp old, healthy, green and straight culms equal to number of Kanls or to a minimum six in any case shall be left intact and should be so distributed as to provide the necessary support to each Karil.

(iii) No clump containing less than eight green culms shall be worked but such clumps must be property cleaned.

(iv) Digging and extraction of bamboo rhizomes are strictly prohibited.

(v) Cutting should be done one foot from ground level or just above the second visible node whichever is less.

(vi) Cutting must be done with a sharp axe or saw in such a way that it is not split or torn.

(vii) In a clump which is in flower, no cutting shall be done until seeds ripen. After this all the culms shall be cut.

(viii) Except the culms which have to be retained under the above rules, all culms including the dead, damaged aniigh stumps in he clumps shall be cut. The dead, damaged or malformed

cuims should be cut first. Cutting of green bamboos should be done from in side out so that the cuims which are to be retained should be well distributed on the periphery of each clump.

(ix) All climbers and miscellaneous growth in a clump interfering with their proper development should be cut and removed.

(x) Cutting of bamboos between 1st July and 14th October in each year is prohibited.

(xi) Illegal extraction of kopal should be stopped firmly.

Estimate for Bamboo Plantation

Unit — I ha.

Wage rate = Rs. 64.61 per matiday.

No. of Plants 400/ha

Spacing 5m x 5m

Sl. No.	Items of Work	Mandays	Materials (in Rs.)	Wages (mRs.)	Total (in Rs.)
A. 1st year Operation					
1.	Survey & Demarcation	3	-	193.83	193.83
2.	Bush cutting	7	-	452.27	452.27
3.	Trench fencing (l.75m x l.25m x 1.25m)	75	-	*4845.75*	*4845.75*
4.	Pit digging (.45m x .45m x .60m)	40	-	2584.40	2584.40
5.	Purchase of Bamboo rhizone	480	960		960
6.	Soil and water conservation work	10	-	646.10	646.10
7.	EntryPointwork	30	789	1938.30	2727.30
8.	Nursery work tDec. to March)	4		258.44	*258.44*
9.	Material		366	-	366
10.	Misc. work		50.00		50.00
	Total	**169**	**2165**	**10919.09**	**13084.09**

SI. No.	Items of Work	Mandays	Materials (in Rs.)	Wages (in Rs.)	Total (in Rs.)
A. 2"' year Operation					
1.	Nurserywork	4	-	258.44	258,44
2.	Planting	9	-	*581.49*	*581.49*
3.	Two hoeing and weeding	9	-	581.49	581.49
4.	Planting on trench bern	2	-	129.22	129.22
5.	Protection	7	-	452.22	452.22
6.	Material (Fertilizer rate)	-	160	-	160.00
7.	Misc. work	-	30.00	-	30.00
8.	Entry Point Work	-	383.00	-	383.00
	Total	**31**	**573**	**2002.86**	**2575.86**

SI. No.	Items of Work	Mandays	Materials (in Rs.)	Wages (in Rs.)	Total (In Rs.)
A. **3rd** year Operation					
I.	One hoeing and weeding	6	-	387.66	387.66
2.	Material (Fertilizer rate)	-	34	-	34
3.	Protection	10	-	646.10	646.10
4.	Repair of tenches	*5*	-	323.05	32305
5.	Replacement of causality	I	-	64.61	64.61
6.	Entry Point work	-	287.00	-	287.00
	Total	**22**	**343**	**1421.42**	**1742.42**

Sl .No.	Items of work	Mandays	Materials (in Rs.)	Wages (in Rs.)	Total (in Rs.)
A. 4th year Operation					
1.	One hoeing and weeding	6	-	387.66	387.66
2.	Material (Fertilizer rate)	-	34	-	34
3.	Protection	10	-	646.10	646.10
4.	Entry Point Work	-	192	-	192.00
		16	226	1033.76	1259.76
	Grand Total	238	3307	**15377.13**	**18684.13**

Calculation of Growing stock

To assess the growing stock of existing plantation the local volume equation developed by Forest Survey of India. Eastern Zone. Calcutta in their draft Report No. R-50/2000- 333 dated 27.3.2000 on Forest Resources of Ranchi district for Rest of Species will be used.

The local volume equation is stated as below:-

V/D2 = 9.5879-0.89224/D+ 0.0255841D2 where V= volume in m3 and D= diameter in metre.

Four sample plots each of 1 ha were laid out in four ranges of division and tree enumerations were carried out ant! results so obtained are summarized as below in tabular form.

Sample plot No.	Diameter Class (cm)				
	10-19	**20-29**	**30-39**	**40-49**	**50-59**
1	330	36	-	-	-
2	331	-	-	-	-
3	*354*	*9*	-	-	-
4	813	142	-	-	-
AV./Ha.	**457**	**47**			
The volume table for different diameter class calculated from above mentioned local volume equation is given below :-					

Diameter class (cm)	Volume (m3)/tree	No. of trees	Volume (m3)
10-19	.097	457	44.32
20-29	0.382	47	17.95
30-39	0.858	-	-
Total	-	504	62.27 m3

As total area under existing plantations is 2520.48 ha, total growing stock is assessed to be 156950.28 m3.

This growing stock is proposed to be harvestea in 10 yrs equal to the period of plan. T period has been fixed as per capacity of Ranchi State Trading Division for exploitation and marketing.Availability of the fund for restocking the harvested area immediately after harvesting has also been taken into account so that felled area may be artificially regenerated. Area under Eucalyptus plantation will be regenerated through coppice method.

Constitution of P.S. and Annual Coupes: - Existing plantation areas falling under one range will be treated as one felling series. The formation of felling series and annual coupes is given below.

List of Felling Series and Annual Coups:-

CHAPTER — V

PROTECTION WORKING CIRCLE

II-5.1 GENERAL CONSTITUTION OF WORKING CIRCLE: - The working circle comprises the areas on steeper hill slopes where problem of soil erosion and natural regeneration exists. Seed orchards. Namely Maheshpur, Mahilong are also allotted to working circle.

II-5.2 SPECIAL OBJECTS OF MANAGEMENT- The special objects of Management are-

1. To protect and preserve the forests on steeper hill slopes.
2. To protect the young crop from illicit felling and fire

11-5.3 DISTRIBUTION OF AREA: - The total area under this working is 4368.93 Ac/1768.79 Ha. The Range wise statement follows:

Name of the range	SL No.	Name of the village	Thana	Thana No.	Area in Acres	Remarks
	1.	Rukka	Ormanjhi	31	232.79	
	2.	Chakla	"	32	473.17	
	3.	Mesra	Ranchi Sadar	169	309.38	
			Total :-		1015.34	

II-SILVICULTURAL SYSTEM: - Only removal of dead & trees are allowed. Woody climbers will also be cut.

METHOD OF TREATMENT: - The areas under this circle should be lected and closed for at least 10 years to allow the vegetation to come up. Dry effort has to be made to. Protect the areas against fire and grazing.

VFMPCs shall be encouraged to protect these areas also.

Tending Operation: Thinning will be done to ensure vigorous growth of existing congested coppice saplings. First thinning will be done in the **5th** year, **2nd** thinning in the **10th** year and third in the **15th** year.

STATEMENT OF AREA UNDER PROTECTION WORKING CIRCLE

Name of the Range	SI. No.	Name of the village	Thana	Thana No.	Area in Acresi
Ranchi West	1	Rukka	Ormanjhi	31	232.79
	2	Chakla	"	32	473.17
	3	Mesra	Ranchi Sadar	169	309.30
				Total :-	**1015.34**

PART—H

CHAPTER — VI
WORKING CIRCLE FOR NON-FOREST LANDS

II- 6.1 GENERAL CONSTITUTION: - This working circle comprises the bulk of non forst area of Rarichi East Division.

Bulk of forests of this diviskn are heavily burdened with various rights of the people, chief amongst which are grazing, small timbers, fuel wood for domestic consumption. But growth of population has created certain basic imbalance between the forest and the villagers. The demands of the villagers are not fulfilled by the existing forests. As a result, there is tromendous presure on forest for fuel wood and small timbers. There are Innumerable headloaders, especially women folk operating in all parts of the forests of this division, removing tons of fire wood every day As a consequence of repeated hacking for fire wood collection, illicit cutting for timbers, uncontrolled grazing, fire etc. large chunks of forests have been relegated to bushy stages. In spite of massive rehabilitation efforts In the last few years this process of degradation continues and if this process is not checked, nearly all the forests of this division will be in a state of degradation. Now, therefore, it is high time to give a new thought to bring more areas under vegetative cover. This wUl help on reducing pressure on natural forest of this division. The following table gives a rough estimate of non forest land available in Ranchi East Division.

(Area in thousands of hectares)

Land not available *for* cultivation		Culturable land			Waste land	
Barren Land	land put to nonagricultural	Pasture	Culturable Waste	Grooves	Other fallow land	Current fallow
108.00	99.00	3.00	74.00	10.00	188.00	214.00

There is large gap between demand and supply of fodder fuel wood and small timber in Ranchi district. To bridge this gap it is essential to undertake plantations on revenue and private lands. This biomass production from non -forest land will decrease pressure o forest land.

Treatment Proposed

1. There is provision for interface activities in all the plantation scheme of Govt. of India & Govt. of Jharkhand . This amount will be mainly utilized for construction of water- harvesting structures and plantation, of hybrid varieties of fruit plants, fodder & fuel trees , on private land.

2. Under " Greening India Project" there is provision for setting up of hitech & satellite nurseries in private sector. This fund will be utilized for plantation on private land.

3. Forest Development Fund constituted under JFM resolution will also be utilized for plantations on private land.

4. Funds from watershed management projects, Wasteland Development Project and DRDA may also be utilized for social forestry & agro-forestry purposes.

5. Loans from NABARD may be arranged for plantation on Private land.

PART—Il

CHAPTER — VII

MISCE4..LANEOUS REGULATIONS

II — 7.1 FOREST FIRES: - The evil effects of forest fire have been well recognised. Forest fires are mostly man made fires. The local inhabitants and other people moving inside the forests during summer are responsible for this. The cause of forest fires is also well known. Due to inadaquate man power and funds most of the forests catch fire every year. It causes direct damage to seedlings, poles and trees. This leads to gradual retrogression and erosion. If early steps are not taken to control fires the good forests will be lost for ever. An emphasis on the protection of forests from fire had been given in the previous plan also. But it appears that a little has been done in this regard. Thus a well thought out scheme based on the modern fire fighting measUres is required to be prepared and introduced to curb this menace. Accordingly the following fire protection scheme is prepared and measures prescribed for its implementation.

II — **7.2 FIRE PROTECTION SCHEME:-**The scheme can be discussed under the following headlines:

a. Preventive measures.
b. Quick Detection.
c. Fire Fighting.
d. Punitive measures.

11—7.3 (a) PREVENTIVE MEASURES :- **The following** preventing measures should be taken.

1. All the fire lines of thedivision which had been rendered redudant should be revised.

2. All such fire lines including the existing ones should be control burnt annually latest by the end of February.

3. Strips 3 mt. wide on either side of the forest roads and important foot paths should be cleaned and burnt repeatedly until the annual leaf fall of the Sal is completed.

4. All the regenerated and the plafitations upto 5 years of age should be fire traced by a clear strip bf 3 mt. width surrounding the entire area.

5. In coupes where felling is in progress the right-holder, VFMPCs and the dept. should be insisted to collect the debris and make them into heaps at suitable places. These can be dumped into a nallah which passes through the coupes or forest. A clause to this effect should be introduced in the working conditions of the coupe.

6. Seasonal fire watcher in significant numbers should be employed to move round the forests in fire season.

7. Fire watch towers/hunts should be constructed in the interior and lonely forests or vulnerable areas and gang of 4 to 5 watchers may be posted there.

8. Adequate publicity should be organized in the adjoining villages explaining the causes, damage caused by fire, the role to be played by the villagers in controlling the forest fires.

9. Sign boards should be fixed at all the entrances to the forests showing the effects of forest fires, and punitive measures if any body is caught setting fire.

10. A systematic record of control burning, date, cost incurred should be kept in F.S. and control forms.

11. A vulnerability index should be worked out and maintained at important places.

11-7.4 QUICK DETECTION: - This is important in protecting the forests which are very scattered. This will include a series of fire watch towers, Huts fitted with wireless sets. Each set is to be manned by a forester assisted by at least two forest guards.

In view of the installation of wireless communication system in the forest, followings stations are considered as key posts for detection, and control of forest fires and should be built as early as possible.

SI. No.	Range	Name of the Places
1.	Ranchi East.	1. Mahilong. 2. SiIIi. 3. Angara.
2.	Ranchi West.	1. Kanke. 2. tDrmanjhi.
3.	Bero.	1. Bero.
4.	Jariya.	1. Karra.
5.	Khua2i.	1. Jate. 2. Tapkara. 3. Rarila.
6.	Tamar.	1. Tamar. 2. Bundu.

Each fire station must be managed in such a way that in case of fire-hazard, quick information should be communicated to Beat office from the fire-station and then to Range Head-quarter and finally to Divisional Head-quarter in a war-footing level. Each Range Head-quarters is to be equipped with wireless set with a connections to Divisional Head-quarters. A watch tower should be provided with the followings:

1. A Plane table with a copy of 1” = 1 mile scale map.
2. A binocular.
3. A Prismatic compass.
4. A bi-cycle.
5. A register.
6. A time piece.

All the watch tower-must be manned form 1st March till the break of rains. **11-7.5 (C) FIRE FIGHTING** :- At least six fire fighting stations, one in each Range should be kept. The fire fighting station be under the charge of ROF senior forester and should be equipped with the following

1. Fire fighting station nJst have facilities for storage of water.

2. One truck.

3. At least 10 drums of 200 liters capacity each or a tank of adequate capacity.

4. At least 25 sprayers.

5. 10 fire extinguishers.

6. 50 axes, 50 bill hooks and 50 sickles.

7. A gang of 25 labourers.

As soon as the location of fire is known, the fire fighting squad should move to fight fire.

II — 7.6 (D) **PUNITIVE MEASURES: -** The offender should be brought to book and ample punishment should be awarded. If criminal prosecution is not possible, heavy tine should be imposed. Most of the fires are usually set by local people. Therefore the local staff should remain vigilart in the, fire season and should take every sincere step to control fire.

II — 7.8 GRAZING :- At present there is no restriction on grazing except for the-newly coppiced areas. But it is seen that even the newly coppiced areas are freely grazed. The right holders have free grazing rights in the forests. Besides cattle from the other villages whoe have no rights are also grazed in the forests. Grazing causes incalculable damage to the seedling and poles. Regeneration is never estabished and soil become eroded and infertile due to over grazing. Last plan sounded for rotational grazing and prescribed good suggestions. But these couldn't be implemented. As grazing is a great concern it is to be handled according to the situation. Following are some of the steps recommended in order to reduce the intensity of grazing on forests.

1. It is realized that it would not be an easy task for the Divisional Forest Officer nor any field staff to control grazing without the sincere co-operation of the rightholders and other villagers, who have no rights also. At present many VFMPCs are functioning in the division. Their help and co-operations are sought for in this regard.

2. Rotational grazing should be introduced with the help of right-holdersNFMPCs
3. A grazing fee should be imposed on all cattle belonging to non-right holders.
4. Stall feeding among the villagers is to be encouraged.
5. Reduction in Cattle population.

6. Areas prone to heavy grazing in the regeneration areas should be raided and offenders prosecuted.

7. Adequate publicity should be made of the areas “closed” and “open” to grazing.

II — 7.9 MINOR FOREST PRODUCES AND OTHER N.T.F.Ps:- Minor forest produces and other N.T.F.P.s play an important rçle in tnbals living inside forests. These items are important materials for cottage, small industries and contribute to national economy also. Forests are the store houses of food plants such as cereals, roots tubers, vegetables, fruits, nuts etc. Forests also provide medicinal plants. The tribals obtain their numerous requirements from the forest. The tribal women throughout the year engage themselves in collecting various N.T.F.Ps. Following table gives an idea of seasonal collection of major N.T.F.Ps by the tribals.

Month	Name of N.T.F.Ps.
January	Lac, Tasar, Coccoon, Amla, Harra, Bahera, Sal Leaf.
February	Lac, Sal leaf.
March .	Mahua flower.
April	Mahua flower, Kundu leaf, Chiranjee, fruit, Kendu Fruit
May	Kendu leaf, mahua seed, Kendu fruit, Chiranjee fruit, Sal seed, Behali leaf and rope.
June	Sal, Neem, Kusum, Mahua seeds, Tasar coccoons, Sal leaf.
July	Neem, Kusum, Mahua seeds, Tasar coccoons, Mushrooms, Sal leaf.
August	Mushrooms, Sal leaf.
September	Mushrooms, Sal leaf.
October to	Mushrooms, Sal leaf, roots and tubers,
December	Khajur leaf boom grass.

Among above the following N.T.F.Ps. are worth mentioning: -

1. SAL LEAF:-Its collection spreads over 6 months. A poor woman, on an average, can earn, Rs. *50/-* per day.

2. MAHUA FLOWER AND SEED: - The Mahua flower is partly consumed as food and liquor and party sold. The flower fetches. Rs. 6/- kg.

3. KENDU LEAF: - Although the quality of leaf is not good it is still collected in this division. It is sold at the rate of Rs. 225/- for a standard bag consisting of one thousand bundle. One bundle consists of 50 leaves. During the collection season an household on an average earns Rs. 100/- per day.

4. SAL SEED :-A woman can collect 4 - 5 kg of Sal seed in about 2- 3 hours and an household on an averege can fetch Rs. 60/- per day.

5. LAC:-Ranchi division is the major place of lac cultivation in the country. Many habitants directly or indirectly are connected with Iac cultivation and thus they earn their livelihood from it. Thousands of people are engaged in rearing, collecting and processing the lac. In addition, the inhabitants collect various various types of fruits, leaves, tannin materials such as the collection of bark of Asan, Mahua resins, gums, ropes, grasses, brushwoods, etc.

II —7.10 At present no worthy step has been taken up in regard to N.T.F.Ps. by the department. Department should devise some ways and means to rear, collect and process at least lac, tasar cocoons, etc. Fruit bearing trees such as Mahua, Kusum, Neem, Am, Kend, Harra, Bahera, Amla, etc. need special attention. These trees are to be freed from other species in the vicinity. This will ensure more space which will help in yielding better fruit. The department has to Endeavour for collection, processing, storage and marketing of N.T.F.Ps. and other derivatives. Cottage and small industries need to be set up for the above mentioned purposes. These regards V.F.M.P.Cs will have to eliminate middle man and suppression exploitation of tribals and giving maximum revenue to them.

II — 7.11 MAINTENANCES OF BOUNDARY PILLARS: - The details of boundary 1 pillars in the division are:-

The existing condition of boundary and boundary pillars is very bad. Boundary pillars are not numbered and many are missing on the ground. There is no record, boundary pillars, numbers, length of artificial and natural boundaries for the majoty' of the forest 1 Encroachment exists all over the division. Total encroached area is.

941.53 Hac. Every effort has to br made to demarcate the forests where boundary pillars are missing.

Range	No. of Pillars		Total
	Exterior	Interior	
Ranchi East & Ranchi West	29,334	-	29,334
Jariva && Bero	16,556	794	17,350
Khunti	14,704	617	15,321
Tamar	7,464	2,017	9,481
Total:	**68,058**	**3,428**	**71,466**

Boundary pillars are to be repaired and numbered within period of plan. Pillars made by Boulder Masonry pillars shall be constructed for longevity. All the pillars shall be numbered. Under the scheme, “Consolidation of boundary pillars”, the D.F.O. should under take regular work for repairs. Per year boundar pillar construction / repair work will be taken up for 7146 pillars so that within plan period the work is finished.

According to estimate approved by C.C.F. Development Jharkhand. The cost of construction per pillar is *Rs.* 3001- only. On an average 75% of the
Pillars are to be constructed and the rest *25%* needs only repair. The cost of repair may be
Taken as Rs. 100 per pillar including numbering. So per year 5359 pillar have to be newly
Constructed. This requires an investment of Rs. 300.00 X *5359* = Rs. 1607700.00 only. For
Repair work Rs. l00.00 X 1787 Rs. 178700.00 is needed only. So the total cost would be Rs.
1786400.00 Only.

II- 7.12POSITION OF SAW MILLS , DEPOTS, STONE QUARRIES (CRUSHERS) ETC.

There are a number of authorized and unauthorised saw mills and depots functioning in the jurisdiction of Ranchi East Division. Ranchi city alone in the state houses a large number of saw mills & depots. Besides, registered and unregistered furniture shops are also ,running in Ranchi , Khunti, Murhu and Tamar. Ranchi city is famous for its transactions of timber and other forest produces. These forest produces come legally and illegally from the forests of Ranchi East Division and also from neighbouring division. Following is the list of registered saw mills and depots which arc running in Ranchi East Division.

Name of Range	Saw mill & Depots in Nos.
Depot Range	65
Ranchi East	7
Ranchi West	4
Bero	1
Jariya	2
Khunti	11
Tamar	3

Ranchi city which is the biggest city In South Chhotanagpur, is situated in the heart of this division. Various types of developmental works such as buildings, market complexesa etc. are going On in rural areas as well towns. Further, a large number 0f roads (National & State high ways) and other P.W.D. roads are running through this division. Railway tracks, namely Hatia — Rourkela, Hatia-Muri and Ranchl — Lohardaga are also running through this division. As a result, there is a tremendus preesur on forest of thIs division for chips, boulders, stones, mUrrum, etc. Establishment of crushers in G.M. and rayati lands are noticed mostly in Ranchi East Range. Very oftem ownes of the rushers illegally collect stones, boulders, cheaps, etc. for their crushers. Following is the list of M. & rayati lands where stone quarry activities are carried out.

Name of the Range	Village	Thana	Thana No.
Ranchi East	Lakkhatanga	Khijri	305
	Ulatu	-do-	339
	Garhkhatanga	-do-	296
—	Kishi	-do-	292
Tonko	-do-	295	
.	Chatara	Angara	31

Ranchi West	Chutupalu	Ormanjhi	47
Jariaya	Kuihutu	Karra	159
Khunti	Jamuadag	Khunti	92
	Dumgara	-do-	216
	Kalamati	-do-	217
	Murhi	-do-	217
	Dugdugia	-do-	224
	Chalangi	-do-	225
	Kandih	-do-	226

11—7.13 POSITION OF FOREST OFFENCE :-

Position of forest offence of the division from 1993 to 1998 is as follows:
(A) Position in the Division office:-

year	SI no	Item	Jan.	Feb.	Mar	April	May	June	July	Aug.	Sept	Oct	Nov.	Dec.
1993	1	No of cases till previos months	162	144	131	117	99	87	87	86	99	84	-	82
	2	Cases received during the months	11	6	20	5	5	-	5	23	-	2	-	6
	3	Total no. of cases	173	150	151	122	104	87	92	109	9	86	-	88
	4	Cases sent to court	29	19	34	23	17	-	6	10	15	-	-	6
	5	Disposal of cases.	29	19	34	23	17	-	6	10	15	-	-	6
	6	Balance cases.	144	131	117	99	87	87	86	99	84	86	-	88
1994	1	No.of cases till previous months.	88	88	85	81	105	113	111	107	78	83	89	98
	2	Cases received during the months	26	24	3	31	8	11	6	5	5	6	19	34
	3	Total no. of cases	114	112	88	112	113	124	117	112	23	89	108	132
	4	Cases sent court	26	27	7	7	-	13	10	34	•	•	10	12
	5	Disposal of cases.	-	-	-	-	-	-	-	-	•	-	-	-
	6.	Balance cases.	88	85	81	105	113	111	107	78	83	89	98	120
1995	1	No.ofcasestill previous monts.	120	115	117	125	132	126	134	106	110	101	106	111

	2	Cases received during the months.	-	2	11	7	8	10	10	4	3	5	5	6
	3	Total no. of cases	120	117	128	132	140	136	144	110	113	106	111	117
	4	Cases sent to cout	5	-	3	-	13	2	38	-	12	-	-	6
	5	Disposal of	-	-	-	-	1	-	-	-	-	-	-	-

	cases													
6	***Balnacecases.***	***115***	***117***	***12***	*12*	*126*	*134*	*106*	***110***	***101***	*106*	***111***	***111***	
Positlo	-			5										
(B) Position in the trial court :			-											

1 Cases pending till previous months	251	280	299	333	356	371	371	369	370	376	377	380
2 Cases received during the month	29	19	34.	23	17	-.	2	10	15	2	3	6
3 Total no. of cases	280	299	333	356	373	371	373	379	385	378	380	386
4 Disposal by the court	-	-	-	-	2	-	4	9	9	1	-	-
5 Balance cases	280	299	356	333	371	371	369	370	376	377	380	386
1 Cases pending till previous months.	386	411	434	441	448	448	460	470	504	503	503	513
2 Cases received during the	26	24	7	7	-	13	10	34	-	-	10	12

month												
3 Total no. of cases	412	435	441	448	448	461	470	504	504	503	513	525
4 Display by the court	1	1	-	-	-	1	-	-	1	-	-	-

Balances cases.	411	434	44	448	448	460	470	504	503	503	513	525
			1									

From the above table, it is abvious that the number of forest offence is accumulating day by day and the process of disposal at both ends (i.e. by the trial court & by the division) is very slow . Therefore every efforts should be taken up for speedy disposal of the cases.

II —7.14 the above datas throw light on the fact that the number of forest offences are increasing day by day. Part (A) of the above t.ble shows that the disposal of the cases in the divisional office is a little bit slow. Though the process of verification, enquiries and establishment of the offence are time taking it is suggested that the number of cases in divisional office is to be scrutinized properly before sending them to court. This can be gained by increasing the adequate number of staff, forester and forest-guards in court-section of the divisional office. Para (B) of the table regarding the pdsition of forest offences in the trial court shows that the forest offences are accumulating with a high rate in the trial court. Mistakes in the preparation of prosecution report by the concerned staff may be one of the important reasons of that. To solve out this problem, it is suggested that the refresher course training on forest administration and forest-law must be imparted to field staff from time to time. It will help in improving the efficiency of our field staff who are directly engaged in controlling the forest offences. At the Divisional level, the offences can be scrutinised properly and some offences can be dropped by way of compounding. For this purpose disposal of cases can be achieved by organising camp at beat head quarters and Range head-quarter by D.F.O. or A.C.F. The date and place of the camp must be given wide publicity among the concerned villagers and the disposal of the forest cases at the camp-side itself can be set up. This will reduce the balance number of forest cases. In the amendment made in the Indian Forest Act, 1927 the confiscation proceedings has been introduced and the notified D.F.O. is made responsible to carry out the proceeding. To enhance the confiscation proceeding effectively and efficiently field staff should be trained.

II — 7.15 As is pointed out in the above paras regarding the nature and extent of forest offences, following suggestions have been recommended for effective control over illicit felling and related subjects,

Il —7.16 The forests of Ranchi East Division is already denuded. The offenders bring various forest produces from nearby forests namely Porahat, Koihan, etc. to Ranchi which houses a large number of depots, saw-mills etc. through Khunti and Tamar. Murhu which is situated iii between Ranchi and Khunti is a centre of illegal transactions of timbers and other forest produces. Khunti and Murhu are manufacturing furnitures in a large scale and are marketing those to Ranchi and other places.

II — 7.17 Secondly, many saw-pits and depots in the Ranchi Town and in the vicinity are not on the records. These are not registered as per the provisions of rules for the establishment of Saw-pits and depots. Such Type of depots and saw-mills are required to be closed at once and forest offence may be initiated accordingly. Simultaneously the registered depots snd saw-mills are to be checked with effective measures. The rules and regulation of the saw-mills are to be followed strictly to are very much conservative. The existing estimate needs a revision in all items. The new estimate should include stone pitching. Leveling, murrum spreading with a thickness of 2" on an average. The entire lenghth should have side drain. Every effort is to be made to provide funds on new revised estimate for road repairs, because all roads play an important role in the light of protection and management of forest in a

A list of forest roads has been provided herewith.

LIST OF FOREST ROADS:

Range RANCHI EAST	SI. No.	Name of the road	Length in K.M.
	1.	Ara-Horhap.	11.2
	2.	Horhap-Lali-Heslatoli	12.8
	3.	Silli-Losera	9.6
	4.	Losera-Hosera	5.6
	5.	Jonha-Tati-Surus	14.4
	6.	Lati-Kudagara.	6.0

	7.	Silwai-Bongaibera.	10.0
	8.	Hundru-Johna	9.0
RANCHI WEST	9.	Nawagarh-Dokad.	6.0
Bero	1.	Chutupalu-Benlotwa Serra-Latratu.	12.0 16.0
	2.	Nagdi-Lodma.	10.0
	3.	Saher-Chete.	7.0
	4.	Saher-Sugda.	8.0
	5.	Jaratoli-Hulse.	5.0

reduce the illegal transaction of woods from the nearby forests to these depq check and control the depots effectivIy, one special post for this purpose n sanctioned and an officer not below the rank of Asstt. Conservator of Forests, posted thereof. This officer should be equipped with a patrolling squad having Officer as Incharge Officer and a patrolling van.

11—7.18 the special patrolling squad should emphasize its patrollingi around the entry points of Ranchi, Khunti and Tamar. The squad may E conduct periodical raids and enqiiries in the depots, saw-mills, etc. Further suggested that the patrolling squads should be equipped with trained armed f guards. II —7.19 The work and achievements of this special patrolling squad coul reviewed by the superior officer at least every fortnight. In this way the as well as the working of depots etc may be controlled in effective manner.

II — 7.20 FOREST ROAD: - In Ranchi East Division, a number of good r such as National High Ways (N.H.)., State High Ways (S.M.) and P.W.D. roaL1 running through the entire area. Almost all Range head qurters are connected the Divisional, head-quarters by the above mentioned pucca roads.

However remote areas of the division are connected either with R.E.O. or with forest-roads. Forest roads are maintained by the forest department condition of theforest roads are not satisfactory due to poor maintenance. Mai the roads are found weathered. There is an unavoidable need of improvE these existing roads by providing pucca bridges, culverts and cause ways, whr needed. Roads on which traffic is heavy, should have soling down on then murrum spreading. The present rate and estimate for road-repair (general /

	6.	Jariya-Nawatoli	8.0
	7.	Patratoli-Purio.	8.0
JARIVA.	1.	Kone-Birda.	10.0
KHUNTI	1.	Chugri-Tapkara.	10.0
	2.	Tapkara-Lohajimi.	8.0
	3.	Tapkara-Husir.	9.6
	4.	Murhu-Birbanki.	36.8
	5.	Taiba-Kendir-Kuira.	14.4
	6.	Keoda-Kuria.	10.0
	7.	Kuria-Kochang.	10.0
	8.	Birbanki-Korwa.	10.0
	9.	Kochang-Birbanki.	10.0
	10.	Rania-Goir.	10.0
TAMAR	1.	Taimara-Dasong fall.	11 .2
	2.	Arki-Dorera.	9.6
	3.	Doreya-Korwa.	5.0
	4.	Korwa-Badami.	8.5
	5.	Padasi-Birbanki	5.0
	6.	Ulidih-Lungtu.	16.5
		Total:	**353.2**

Estimate of Road repair Per annum : At the rate of 63 mandays per Km. That is Rs. 4070/- is required per year. So the total amount per required for repair work is 353.2 x Rs. 4070 = Rs. 14,37,524.00

2-32’.

lI—7.21 BUILDING AND WELLS :- In Ranchi East Division, the Divisional Forest Officer, all Range officers, Foresters and Forest guards are having their office- buildings as well as residential qtarters. All fourth-class emloyees are also having their quarters officially.

It has been observed that due to poor availability of funds, the condition of all buildings in this division is not satisfactory. Some buildings have been constructed under the 8th **&** 9th Finance commission. These buildings also need proper maintenance with adequate funds. A good number of wells and tube-wells have been dug out. These also need proper maintenance. List of existing buildings, wells and ponds are being provided in Appendix.

II— 7.22 SURVEY & DEMARCATION :- At present, survey & demarcation of the forest have been neglected. These should attract more attention. There is a large gap in the demarcated forest list existing in the Division and the notified forest areas. For administrative convenience area according to the list presented by the DFO, Ranchi East is taken up for preparation of this plan. The survey and demarcation are to be completed within coming three years.

II — 7.23 CONVEYANCE & COMMUNICATION:-At present, there is only one jeep and one patrolling Van in Ranchi East Division. The jeep is engaged by the Divisional Forest Officer and, .assistant, Conservator of Forests for general supervision work in the division. The Patrolling Van very often lies idle due to poor maintenance. Two new jeeps and two van is proposed to be supplied to this Division.

At present, traditional works such as thinning, cleaning and laying out of coupes etc. are not in practice. Mainly protection work is going on. Therefore a new thought is to be given in this direction.

These will enable the officials and staff for the efficient and speedy control of forest offences and smooth running of general administration.

All range head-quarters , should be provided with telecommunication as well as Wireless communication. These are to be connected with divisional head-quarters. II — *7.25* Porahat, Kolhna and Saranda forests are adjacent to forests of Khunti and Tamar forests. Therefore wild animals very often come to these forests. Elephant is the frequent visitor of these forests. Consequent to this, direct man-wildlife conflict prevails in Khunti and Tamar areas. Sometimes it is so severe that it attracts the attention of administration for maintenance of law and order. Every year elephant causes damage to crops households and other properties. It causes injury and death to domestic animals and man. Cattle lifting and killings by leopard , hyaena, etc. have been reported in this division. Lifting of human child by wild, hyaena sometimes happened in this division. Injury and death to human beings from wild animals are also reported.

II —7.26 The importance of wild life has remained neglected. It has been consequently vanishing rapidly over the past few decades. The main reasons for this are poor management and illegal poaching. Following are the some of the important points prescribed for the management of wild life.

I. Habitat development :- Habitat development will include:

(a) Development of grass lands.

(b) Development of scrublands.

(c) Plantation of animal and bird loving trees wherever it is required.

(d) Development of water bodies such as waterholes, small dams, anicuts, streams,

etc.,

2. Legal Measures: - The provisions made there of in Indian wild Life Act are to be strictly followed. A Patrolling party consisting of one trained forester and seven forest guards is to be engaged in detecting and controlling.

3. Measures **for reducing man-wild life conflict: -** Electric fences using energizers. Effective against elephants can be installed wherever the man animal conflict is a serious problem. Trenches are also effective in controlling the wild animals. Use of crackers, torches, shouting from machines, etc. are the methods to chase the animals from crop field and villages. Proper education of the local villagers about the behaviour of animals will also reduce the conflict.

11-7.28 DEER PARK: - At present there is no sanctuary in the division. Birsa Biological Park at Ormanjhi and Birsa deer park at Kalamati are established in this division. These parks are maintained by the wild life divisions.

11-7.29 PETTY FELLINGS: - Few trees outside the prescribed areas may be felled by the order of Divisional Forest Officer for the following purpose.
1. For use in departmental works.

2. For supply of simple timber to Forest Research Institute, Dehradun.

3. For meeting free grants.

Few trees may be felled by the order of Divisional Forest Officer in J.F.M. areas through the recommendation of the V.F.M.P. committees for the purpose of social function such as birth, death and marriage etc. Such felling will be incorporated in Manual form no.2.

11-7.30 FORCES: - Protection is the main need of all forests at present. The administrative set up of the division is very old. The traditional forestry works, such as silvicultural operations-cleaning, thinning, prunning etc. coupes laying out are now not in practice. This makes forest guards, beat officer etc. to be involved only in protection works. Hence it is suggested that forest guards, beat-officer must be selected for arms-training and complete arms training should be provided to them.. To meet these challenge of forest protection, the forest staff with arms is the need of time.

There should be a refresher-course training programme for the staffs involved in forest protection work.

Time to time, seminars may be organised in this aspect also to invite an open discussion on the forth coming problem and related subject.

11-7.31 ESTABLISHMENT AND STAFF:-

(A) EXECUTIVE STAFF :- At present the number of staff deployed in this division is adequade, it does need any change. Only the vacancies are to be fulfilled as per the sanctiqped strength.

(**B) GAZETTED OFFICER :-** At present, the Ranchi East Division is having sufficient number of Assistant Conservator of Forest to assist the Divisional Forest Officer in various works and smooth administration of the division.

(C) MINISTERIAL STAFF: - Similarly as above, also the strength of Ministerial staff is adequate.

(D) RANGE OFFICERS :- Each Range is having one range officer. Each Range Officer must provided with one matriculate and experienced ministerial staff for office work.

11-7.32 CONTROL AND RECORDS:

MAP: - The following maps have been prepared.

(A) Stock map on 2.5” or 4” = 1 mile scale has been prepared in duplicate and kept in F.S. Histories. This shows the density, age and type of forests.
(B) Management map on 2.5” = 1 mile scale and on 4” = 1 mile scale have been prepared and are kept in F.S. histories.

The stock map as well as the management map should be checked at the time of working of the forest. If any discrepancy occurs, it should incorporated at the time of the revision of the plan.

(D) A complete set of map in the scale 4" — mile should be kept in divisional office as **"master copy"** and maintained upto date indication the following facts. (I) All boundaries will be checked periodically and changes should be incorporated. All the roads, buildings, wells, hand-pumps (old and newly constructed). Plantations and other items of permanent nature will be entered. (ii) The Range and Divisional set of maps will be periodically brought upto date from the Divisional Master copy. Range Officers and other staffs must be warned against misuse of maps.

(1-7.33 FELLING SERIES HISTORIES: - Two sets of Felling Series histories have been prepared. One set is to be kept in the Divisional Office and one copy is to be kept in the respective Range office Felling series histories are provided with standard forms as specified in working plan code along with stock maps and management map. The forms are to be checked every year and entries thereof be made and are to be submitted to working plan officer, for checking. The period from 1st September to 30th October will be reckoned as the control year (Period). II7.34 FOREST JOURNAL: - This will be maintained as per the standing instructions! orders of the Principal Chief Conservator of Forests, Jharkhand 11-7.35 PLANTATION **JOURNAL:-** A Plantation journal for each plantation should be maintained as per the standing orders of the Chief Conservator of Forest (Development), Jharkhand

11-7.36 NURSERY JOURNAL: - A Nursery journal shall also be maintained on the lines of plantation journal.

11-7.37 RAIN FALL RECORDS: - At present no rain gause is maintained in the division. It is necessary to install rain gauge at the follwoing places.
(1) Mahilorig. (5) Bero.
(2) Kanke. (6) Jariya
(3) Murhu. (7) tamar.
(4) Rania. (8) Bundu.

Meteorological records of Ranchi from 1987 to 1998 is given below.This data has been obtained from the Birsa Agricultural University, Ranchi.

11-7.38 FIRE RECORDS AND MAPS:- A fire map of the divisionon 1" = 1 mile scale should be prepared and areas burnt will be indicated by the standard symbols as prescribed in the working plan code. The following symbols may be used for the purpose. The fire map will be maintained for 5 years. After that the

fresh set of map should be prepared.

Year	Symbol
1997-.8	- - - -
1998-99	====
1999-2000	++++
2000-2001	x x x x
2001-2002	****

11-7.39 MUNDARI KHUTKATTI FORESTS :- In Ranchi East Division, specially in Khunti and Tamar ranges, some individuals and villagers have forest of their own. These forests are Known as Mundari Khutkatti forests as specified in the order of the Revenue Department Govt. of Bihar, letter no. C/P/F. 1027/51-5999-R dated the 1 1th December, 1951 read with letter no. Vl-F: 79/50-736-R dated the February 1951. A list of such forests is given in appendix provided in the plan itself. In the past, forest department could not lay down specific guide line for scientific management of these forests. In this revised plan, attempts were made to carry out field work, but could not be done and hence prescriptions or guidelines in this regrd could not be laid down for the scientific management and improvement of these forests. These facts may be taken into consideration and may be incorporated in the revision period of the next plan.

Monthly Rainfall 1998 (mm)

Jan—116.4	Feb—25.9
March — 58.5	April — 40.5
May—43.4	June— 146.4
July — 296.9	Aug — 341.7
Sept — 497.7	Oct — 153.3
Nov — 9.2	Dec — 0.0
Total	**1731.3 mm**

COST ON FIRE CONTROL

Year	Firleline creation		Fireline Maintenance		Watchers	
	k m	cost (Rs. In Iacs)	k m	cost (Rs in lacs)	No. of Watchers	cost (Rs in lacs)
2003-2204	50	1.95	100	1.95	60	3.5
2004-2005	50	1.95	150	2.93	60	3.5
2005-2006 2006-2007	50 50	1.95	200 250	3.9 4.88	60 60	3.5 3.5
2007-2008	50	1.95	300	5.85	60	3.5
2008-2009	50	1.95	350	6.83	60	3.5
2009-2010	50	1.95	400	7.8	60	3.5
2010-2011	50	1.95	450	8.78	60	3.5
2011-2012	50	1.95	500	9.75	60	3.5
2012-2013	50	1.95	550	10.73	60	3.5
Total	**500**	**19.50**	**3250.00**	**63.40**	**600.00**	**35.00**

Note: - Watchers wilt be kept for 90 days/year

	Cost on Consolidation of Boundary Pilars					
Year	**Construction of Boundary Pillsar**		**Repair of Boundary Pillars**		**Total**	
	No.	Amount (Rs. in lacs)	No.	Amount (Rs. in lacs)	No.	Amount (Rs. in lacs)
2003-04	5359	16.07	1787	1.79	7146	17.86
2004-05	do	do	do	do	do	do
2005-06	do	do	do	do	do	do
2006-07	do	do	do	do	do	do
2007-08	do	do	do	do	do	do
2008-09	do	do	do	do	do	do
2009-10	do	do	do	do	do	do
2010-11	do	do	do	do	do	do
2011-12	do	do	do	do	do	do
2012-13	do	do	do	do	do	do
Total	**5359**	**16.07**	**1787**	**1.79**	**7146**	**17.86**
	Cost of raod repirs.					
	The cost of repair road per year is given as below:-					
	Manday/km	Amount/km	Total length	Total amount (Rs.)		
	63	**4070.43**	**353.2**	**14.38 lacs**		
cost of maintenance of building per year is given as follows						
Type of Building		No.	Cost(Rs.)			
D.f.O. Office		1	8000/-			
D.F.O. Residence		1	8000/-			
R.O.F. Office Residence		6	48000/-			
Beat Officer Residece		12	48000/-			
F.G. Quarters		100	300000/-			
Mise. Buildings		20	40000/-			
	Total :-	**140**	**452000/-**			