

CHAPTER -VI

PAST SYSTEM OF MANAGEMENT:-

(I) HISTORY OF THE FORESTS:

All the forests of Garhwa North Division were privately owned till 1946. The Second World War caused enormous damage to these privately owned forests on account of huge demand of timber. Later the local zamindars who were owners of these forests anticipated the interference by State Government in the matter of control over management of privately managed forests because The Bihar Private forest Act, 1947 was passed by the legislature. After this Act the landlords took recourse to indiscriminate cutting for the sale of forest produce as quickly as possible. They also manipulated records for stocking such produce in private land for future use. This resulted not only in heavy felling depleting the forests of large sized trees but also large scale wastage of timber due to cutting at height in their hasteful exploitation. Shoots from these high stumps were mostly defective.

(ii) Thus the easily negotiable forests of Garhwa and Bhawnathpur ranges became the worst sufferers. Later on the zamindars settled their forests with contractors on long term lease which caused immense destruction. After the enactment of the Bihar Private Forest Act, 1947 the Forest Department was forced to get involved in litigations. Settlement of forest land with tenants was taken recourse to for ready cash by issuing back dated rent receipt and parawanas by zamindars particularly to schedule tribes and schedule castes who gained favour and this led to heavy encroachments. Some zamindars donated the forests land to 'Bhoodan' also.

(iii) The provision of section 30 of the Bihar Private Forest Act, 1947 was applied to these forests and therefore control.

and management came under the Bihar Forest Department. The ownership, however, remained intact. It must be noted that the State of Bihar was the pioneer in this direction in India.

(iv) The private protected forests vested ultimately in the state when the Land Reforms Act of 1950 was legislated and brought into effect. As soon as the ownership vested in the State the Bihar Private Forest Act, 1947 ceased to be operative and these forests were notified as protected forests under section 29 of Indian forest act, 1927.

2. ADMINISTRATIVE HISTORY:

Previously Garhwa North Division was part of Garhwa Forest Sub-division created under Revenue Department notification no. VIF- 4-16-48-602 R.dated the 19th March, 1949. The Sub — division had seven Ranges namely Garhwa, Bhanwathpur, Ranka, Bhandaria, Chhatarpur, Mohammadganj and Chainpur under the Palamau Forest Division, Daltonganj. Palamau Forest Division was created in the year 1875 comprising all forests of Palamau District. Later on Garhwa Forest Sub - division was elevated to the status of an independent Division as Garhwa Forest Division with effect from the 1st June, 1952 vide Revenue Department notification no.C/EF-701 1/52-R-23 R.dated the 23rd May, 1952 . As the management became more intensive the parent Palamau Forest Division was once again split up with effect from the 1st November ,1954 and a separate Division namely , Latehar Forest Division was created under Revenue Department notification no.C/F/1 0107/54-41 99-R. dated the 30th November 1954 when two range namely Chhatarpur and Mohammadganj were transferred from Garhwa Division to the parent Palamau Division leaving five ranges namely Bhawnathpur , Garhwa , Ranka , Bhandaria and Chainpur in the Garhwa Forest Division . This Garhwa Forest Division was further divided in to Garhwa North and Garhwa South Division under Revenue Department notification no.C/F-1 (A) 004/62-497-R.dated the 29th March, 1962 by which two Range of Garhwa and Bhawnathpur formed Garhwa North Forest Division. Subsequently Garhwa Range was further divided in to Garhwa and Nagar Range. Thus the present Garhwa North Forest Division consists of Garhwa, Nagar and Bhawnathpur range.

3. Management

- (i) After take over of these forests under the provision of the Bihar Private Forest Act, 1947 a provisional scheme for management was prepared. Felling series were constituted combining two or more villages and the annual coupes were sold after the exercise of rights by the right holders there. But this arrangement could not last long and the Govt. had to agree to lay out village wise coupe as demanded by the right holders.
- (ii) The work load in layout of village wise coupes, marking of standard and supervision of exploitation was too heavy for the then existing staff. So in spite of state control of the forests, the systematic and scientific working could not be possible. The easily accessible forests become the worst sufferer. Selective felling of useful trees was going on all over the forests. Deficit and small forest became perpetual coupes year after year as annual coupes in such village wise felling series had to be very small and the villagers were not interested to lay out such small coupes.
- (iii) As the coupes were scattered over the entire area of original Garhwa forest division, no action to regenerate them could be possible. Similarly cultural operation also could not be undertaken to improve the condition of the crops. This sort of mismanagement reduced most of the forest areas of Garhwa and Bhawnathpur Range either bare or covered with useless species.
- (iv) Unrestricted grazing and uncontrolled forest fire also prevented regeneration to come up properly. Lopping of trees to feed cattle in hot weather and establishment of bathana right in the midst of forests during rainy seasons, when

fields are covered with agricultural crop, caused heavy damage to the forests of Bhawnathpur and Garhwa range. The species of Khair and Arjun suffered most.

- (v) The increase in population and liberal policy of the Govt. followed so far sometimes in complete disregard of the main principles of the forest conservancy have caused the deterioration of the forest. Land hunger among the people is increasing day by day and it is causing illegal reclamation of forest land for cultivation or other purposes. A firm date in 1954- 55 was fixed for receiving application for the exclusion of forest land from demarcation but the flow of application continued and the administration entertained them which was detrimental for the forest. This flow of application for the released of land continued till June, 83. Taking advantages of this situation political organization misguided people to reclaim land within demarcation for their exclusion from demarcation in some later date. The result has been that a large area of forest land was brought under cultivation illegally with the hope of release of such land sooner or later.
- (vi) Under orders of the Govt. of Bihar, removal of dry fallen firewood was allowed to the poor people. Identity cards were issued to such poor people who were dependent on sale of firewood for their living which they were to carry with them in forest to enable the forest staff to identify and check them in the forest while removing dry fallen firewood.
- (vii) The identity card was issued with instruction on the back of the card.
- (viii) The neighboring forests became gradually depleted by such removal of so called dry fallen firewood as the removal went on beyond the limit to which dry fallen material could possibly be available in the forests. The result was that living trees were felled and left to dry in the forest and a few days later, the material was removed as dry fallen firewood when this irregularity was pointed out Govt. , by an order in the Revenue Department letter no 67 R dated May, 1954 banned taking axe to the forests by any such person. This gave rise to commotion and political pressure which necessitated lifting of the ban in 1958 by Govt. order contained in the Revenue Department latter no.C/F — 50162/58 -780- R dated the 12th March, 1958. Even now removal of so- called dry fallen firewood is going on and so unrestricted illicit cutting still continues. This has given rise to a serious problem in the administration and management of the national wealth of immense value. Local agriculture also suffers due to engagement of a large number of labourers in firewood sale. While the administration demands the protection of forest by staff of forest department. free removal of firewood prevents effective control to be exercised and the forest staff are discredited for their failure to protect forest under such conflicting demand.

4. WORKING SCHEME AND WORKING PLAN

- (ii) The first working plan for the management of the forests of this division was prepared by Mr. J. N. Sinha for the period 1954-55 to 1963-64. This plan was revised by Mr. S.K. Roy. Mr Roy's plan was prepared for the period 1964-65 to 1973-74 Even after the expiry of Mr.'s Roy working plan the forest of Garhwa North Division continued to be managed under the prescription of the same plan. It is therefore clear that Mr. Roy's plan was in force for both the Garhwa south Division and Garhwa North Divisions: -
Mr. J. N. SINHA'S PLAN: -
- (ii) The forests of Garhwa North Division are protected forests. Prior to the vesting of zamindari under Government these private forests had no scientific management. After enactment of the Bihar Private Forest Act 1947 these forest came under the control of Govt. in the year 1948 Mr. H. D. Singh prepared a scheme for the exploitation of Bamboo and khair in these forests. After enactment of the Bihar Land Reforms Acts 1950 the first scientific management was introduced under Sinha 's plan. Prior to Mr. Shinha's plan each village forest was unit and coupes were laid out in each village to meet the demands of the right -holders. The surplus material left over in the coup was sold by auction,. This laying out of coupes in each village was too difficult and the left over material in the coupe did not attract the contractor for commercial working.
- (iii) To obviate this difficulty Mr. Sinha grouped more than one forests in a felling series keeping in consideration the distance of coupes from the right holders village, nature of the crop and the extent of forest in a village. The reconstitution of felling series was definitely advantageous for forest working.
- (iv) Mr. Sinha constituted the following working circle: -
- (1) Selection working Circle.
 - (2) Coppice with standard working circle.
 - (3) Khair Overlapping working Circle.
 - (4) Salai and Semal Overlapping working circle.
 - (5) Bamboo over—lapping working Circle.

5. SELECTION WORKING CIRCLE

- (i) The inaccessible areas were kept under this working circle .No area of Garhwa North division had been included under this working circle.

6. COPPICE WITH STANDARD WORKING CIRCLE

(i) Even at the time of Mr.Sinha the general condition of the crop was poor. All the forest areas of this division were allotted to the coppice with standard working circle with three different rotation periods of 40,20 and 10 years. The reason for different periods of rotation in the same working circle as per Mr.Sinha is given below:-

- (1) The condition of the forest differs widely from place to place.
- (11) The demands of the local people and the locality factors are not uniform.
- (111) Certain forests are rather too far away from the main centers of consumption.
- (iv) Some of the forest close to the habitation have been reduced almost to rooted waste.

(ii) Mr. sinha concluded on the basis of the above factors that any single rotation will not be applicable to all the forests over though all are to be worked under coppice with standard system with the same object of management.

(iii) It was prescribed that the annual coupe shall have two sections. One section was to be annual coupe right holders who shall exercise their rights through the Panchayat. The left over material of the right holder's section and the second section of the coupe would be put to auction in the next year. The number of standard trees per acre was fixed from 10 to 16,810 10 and 6 to 8 for 40 years ,20 years and 10 years rotation respectively. Fruit trees and lac rearing trees were prescribed to be retained. The total number of standard trees including the fruit trees were fixed at 20 trees per acre.

(iv) Thinning was prescribed for felling series of 40 years rotation in 14th and year. Subsidiary cultural operation was also prescribed after the main felling.

7. KHAIR OVER LAPPING WORKING CIRCLE. :-

(i) Khair trees were mostly malformed and high stumps were seen every where. A short felling cycle of 10 years was therefore prescribed which was in nature of conversion cycle .The yield was prescribed by area . The minimum exploitable size was fixed at 8". It was stated that this period of the felling cycle will be raised to 30 years after this conversion period. Lopping of khair trees were prohibited. Each range constituted one felling series with 10 years felling cycle.

8. BAMBOO OVER LAPPING WORKING CYCLE

(i) The main objecting of this working circle was to rehabilitate the dilapidated Bamboo clumps. The other objects were to work the existing bamboos for revenue and to supply to the turees and right holders . Three years cutting cycle was prescribed . Cutting of karils was prohibited . A minimum of 6 culms had to be retained in a clump besides the karils.

9. SALAI AND SEMAL OVER LAPPING WORKING CIRCLE :-

- (i) Salai was in plenty in numbers but Semal was sporadic in the forest. Exploitation of Salai and Semal were prescribed under this working circle. Each range was a felling series with 15 years felling cycle. It was to be worked under selection system . The minimum exploitable diameter for Salai was 12” and that for Semal was fixed at 20”.

10. OTHER REGULATIONS.:

Mr.Sinha prescribed rotational grazing giving full justification for the same. He also prescribed for fire protection giving partial responsibility to the local people. There was provision for rewards for good work in fire protection. He furnished definite prescriptions for removal of firewood, leaves,fruit etc.

11. MR.A. HAIDERY’S SCHEME :-

i) Mr. Sinha had not included some of the bamboo bearing forests in this Bamboo Overlapping Working Circle. Mr. Haidery prepared a scheme in which he reconstituted the bamboo felling series including the left over bamboo bearing areas. This scheme came into effect from 1961-62. All the bamboo felling series under 12 years lease to M/S.R.1 .Ltd.in Sinha’s plan were left intact by Mr.Haidery while reconstituting bamboo felling series .Mr. Haidery in his reconstituted felling series dropped some of the villages included in the Bamboo felling series of Sinha’s Plan which were apparently indicative of not having workable quantity of bamboos. 40 bamboo felling series were reconstituted by Mr.Haidery13 F.S. under 12 year lease one F.S.under 6 year lease and 17 other F.S of Sinha’s plan ,were allowed to remain intact by Mr.Haidery.

12. Mr. S.K. ROY’S Plan

(i) This plan was prepared for the period 1964-65 to 1973- 74 in one volume for the forests of Garhwa South Division and Garhwa North Division.The creation of Garhwa North Division has taken place during 1962 when the plan was under compilation. The name of the forests, felling series area statements etc. for, the two forest divisions have been separately furnished in Roy’s plan. However this plan remained in force till 1988-89.

(ii) THE IMPORTANT OBJECTS OF MANAGEMENT WERE:-

- (i) To improve the condition of the forests.
- (ii) To meet the demands of the right-holders. (iii) To associate the local people in fire protection.
- (iv) To involve the local people in the forest protection and scientific management of the forest.
- (iii) **To achieve the above mentioned objectives Mr. Roy Constituted the following working circle.**

- (1) Coppice with Reserve working circle.
- (2) Rehabilitation working cricle.
- (3) Plantation working circle.
- (4) Bamboo overlapping working circle.
- (5) Khair overlapping working circle.
- (6) Salai overlapping working circle.

13. COPPICE WITH RESERVE WORKING CIRCLE.-

Barring some villages having a large demarcated forest area , Mr.Roy grouped certain villages to constitute felling series under coppice with reserve working circle. The following points were given due consideration while constituting the felling series

(1) The right holders need not go more then five kms to meet their demands from the annual coupes.

(2) The forest areas of a felling series generally fell in one panchayat so that the distribution of forest produce was easy.

3) Right burdened forests and right free forests were grouped in separate felling series.

(4) One portion of each commercial and community CumCommercial felling series was earmarked for the right holders.

(ii) The forests included in the Coppice with Reserve Working circle were classified as

(I) Community forest.

(II) Community Cum-Commercial forest and

(III) Commercial forest depending on the nature of the forest crop and the prevailing rights there in. The Community forests are heavily right burdened and the Commercial forests are comparatively right free. The Forest crop in the community forests was very poor and so there was little expectation of any revenue from them. The commercial forests had good forest crop which yielded revenue. Thus there are three types of felling series under this Working Circle namely community or Right holders felling series, Community Cum-Cornmercial felling series and commercial felling series. Range wise allotment of area to the different types of felling series and annual coupes are given below:

Range.	Nature of forest.	No. of f.s	Area allotted to the felling series.	Area of annual

			(Acres.)	coupes. (Acres).
1	2	3	4	5
Garhwa	Community	1	40.00	2.00
Nagar	“	16	3930.00	196.50
Bhawnathpur	“	9	4520.00	266.00
Garhwa	Community CumCommercial	32	32950.91	820.35
Nagar	“	20	20258.00	506.26
Bhawnathpur	“	17	12235.73	305.41
Garhwa	Commercial	1	2625.74	65.64
Nagar	“	16	29066.46	724.09
Bhawnathpur	“	9	22562.01	564.01
		120	1,28,188.85	3,450.24

(iii) **DEMARCATIION OF COUPES:**

The demarcation of coupes for right - holders and the marking of standards were to be done by the right holders themselves on alternate year. Coal tar, however was to be supplied by the forest department. 50% of the coupes under the Community Cum-Commercial Felling series were prescribed to be given to the right holders. The forest panchayat had to manage the entire work of coupe lay out and the distribution of forest produce to the right holder under the general supervision of the Range officer of forests.

(iv) **ROTATION:**

Rotation for commercial and Community Cum Commercial felling series was fixed at 40 years and for the right holders felling series it was fixed at 20 years.

(v) **STANDARDS NAMED AS RESERVED TREES.**

It was further prescribed to retain 20 reserve trees (of Sal, Bija, Asan , Sandan, Gamhar, Karam, Sins, Dhautha etc.)

per acre including fruit trees of Mahua, Kend and Char of 6” to 12” diameter at breast height in Commercial and Commercial Cum-Community felling series and 4”-8” diameter trees in respect of Community felling series .It was also prescribed to preserve sapling crops of valuable species occurring over an area of 0.25 acres or more for future crop.

(vi) Subsidiary cultural operation for Commercial and Community Cum-Commercial felling series were prescribed as below:

(I) All damaged large trees to be cut.

(II) Young coppice shoots of Sal, Bija, Asan, Gamhar to be freed from climbers.

(III) All climbers to be cut.

(vii) In the coupes entirely for the community, no cultural operation was prescribed.

(viii) [THINNING: 54](#)

Thinnings in the Community and Community CumCommercial felling series were left at the discretions of the Division Forest officer. In Commercial coupes thinning in the 3rd year of the main felling followed in 15th year was prescribed.

(ix) [TREATMENT OF BLANK AREAS FALLING IN A COUPE:](#)

It was also prescribed that the blank areas in the coupes will be stock mapped at the time of coupe layout and planting will be done in these blanks preferably with the indigenous species along with the operation of the plantation working Circle.

(x) [MISCELLANEOUS REGULATIONS.](#)

The felled areas shall be protected from fire for five years. Rotational grazing had been prescribed in the interest of the forest. Lopping of branches was prohibited.

14. [REHABILITATION WORKING CIRCLE:](#)

(i) This working circle includes forests which are degraded to the extent of rooted wastes and scrub forests. The eroded blanks owe its origin as a result of exposure of soil to the denuding action of rain and storm. These forests have suffered due to repeated high cutting of trees and lopping, aggravated by fire and heavy grazing. The forest growth has been stagnated and the form has been distorted to such an extent as to render it incapable of yielding straight sound timber of value if left as such. Those rooted wastes where sal occurs more than 25% in the composition of the crop have been named as sal rooted waste and the rest are the miscellaneous rooted waste. The extent of miscellaneous rooted waste is about 15 times more than that of the sat rooted waste.

(ii) 19.71 % of the forest area of this division constitutes the rooted waste. Sal rooted waste comprises of 3253 acres and miscellaneous rooted waste 47788 acres. The plan prescribed for the treatment of the sat rooted waste area in 10 years and miscellaneous rooted waste area in 40 years .It has been suggested that the treatment of the area should be done felling series wise and the cut back materials should be utilized to meet the demands of the right — holders to the extent necessary and to sell the surplus in any.

(iii) Cut back of old, pollarded, malformed and crooked stems have been prescribed. The rehabilitation areas have to be fenced and blank areas of 0.1 acres and above have to be planted with suitable species. Selection of species and plantation techniques has also been suggested. The areas have to be closed for grazing for five years. Cutting of grasses by the right holders have been allowed from the fenced rehabilitation areas.

(iv) In denuded miscellaneous rooted waste areas the plan prescribed gully plugging from the top downwards, reasoning of slopes in steep eroded sites and continuous contour trenching at intervals.

(v) In the third year after the operations of cut back, sowing and planting the plan prescribes one thinning to provide an average spacement of 5' x 5' in the crop of coppice and seed origin.

15. PLANTATION WORKING CIRCLE:

This working circle includes open forests with poor growth and numerous blanks scattered here and there. The following area has been allotted in this working circle.

Existing Plantation.

Proposed Plantation

Bhawnathpur Range	642.22	14,666.79
Nager Range	-	4,432.43
Garhwa Range	100.00	4,928.96
	Total 742.22	23,028.18

ii) Planting of blanks in the felled coupes of coppice with Reserve Working Circle have also been prescribed . Besides these blanks regular Plantation over 600 acres annually have been prescribed for Garhwa North Division.

(iii) The plan has described the nursery and plantation techniques and the species to be

planted. Maintenance of Plantation journal felling series wise and closure of plantation for five years have been stressed in the plan.

(iv) The object of the Working Circle is to (i) restock the area as quickly as possible with suitable tree crops of value for a sustained yield of timber and fuel, (ii) to stop denudation by a vegetative cover and (iii) to supplement the stock in the blank areas of coupes by sowing and planting.

(v) Free grass cutting from the plantation areas under permit has been allowed to the right holders. A 15 wide strip around the plantation has to be cleared as a measure of fire protection.

16. Bamboo overlapping Working Circle:

(i) This Working Circle overlaps other working circle and comprises of all the areas containing workable quantity of Bamboos (*Dandrocalthus strictus*). The condition of bamboo forests were poor and therefore the main object of management was to improve its growth and productivity.. Other object of management was to meet bonafide demands of the right holders and to secure sustained annual yield.

(ii) This working circle covers an area of 36559.90 acres Mr. Roy reconstituted the felling series by including certain bamboo bearing forests which were left outside this working circle in Sinha's plan and also in Mr. Heidary's scheme. 13 Bamboo felling series have been constituted for Garhwa North Division. Three year's felling cycle has been prescribed. He has prescribed for three sections in each bamboo coupe excluding the area set apart for the right- holders. The plan states that the cutting operations shall proceed from section to section systematically.

(iii) The bamboo cutting rules prescribe retaining all Karils and as many older, healthy, green culms as there are Karils subject to a minimum of six. Clumps containing less than 8 bamboos shall be not worked except for cleaning purposes. All dead, dying and damaged cuims have been prescribed to be cut, Removal of rhizomes and karils of bamboos have been strictly prohibited . No felling has been permitted from 1st July to j5th October. Efforts shall be made to clean the available bamboo clumps falling outside the area of this working circle.

(iv) To meet the requirement of the Right-holders it has been prescribed that they will work in one fifth area of the coupe till April of the year strictly as per cutting rules. Tunes and Doms shall get bamboos from the contractor's depot as per agreement. During rainy season the Range Officer will issue them permits for 8 to 16 bamboos per tangi per week.

(v) This Working Circle shall be protected from fire. Lopping of bamboos, for the purposes of feeding cattle has been prohibited.

16. KHAIR OVERLAPPING WORKING CIRCLE:

This is also an overlapping working circle with three felling series i.e. one felling series for each of the three ranges. Khair bearing areas to the extent of 43.262. Acres have been allotted under this working circle. The object of management was to improve Khair bearing areas and to obtain the maximum sustained yield of khair trees of economic size for katha manufacture. The states of khair trees were very poor due to grazing and pollarding.

(i) The system prescribed is Selection Cum Improvement felling. The minimum exploitable diameter has been fixed at 6" at breast height. A felling circle of 15 years has been prescribed. Marking of all dead, dying, cracked and pollarded khair trees has been prescribed. It had also stated that khair trees of exploitable size not falling within limits of khair Working Circle but outside it and within the P.F. wholly allotted to a coupe shall be marked for felling.

(ii) Lopping of khair trees for buffalo feeding has been prohibited. Grazing regulations as applicable to that of Coppice with Reserve Working Circle has been prescribed to be followed in this working circle also..

1. **SALAI OVERLAPPING WORKING CIRCLE:**

(i) This working circle includes forests having exploitable Salal trees These Felling Series one for each range has been constituted under this working circle. Salai occurs both in Sal forests and in miscellaneous forests. The object of management is to improve the health of the Salal forest and to get sustained yield.

(ii) The System prescribed is Selection with Improvement Felling. A felling cycle of 15 year has been prescribed with exploitable diameter of Salai between 12" to 16". One tree out of 6 available trees of 3' to 4" girth has been prescribed to be cut to safeguard future yield. All dead, dying, hollow and defective trees were to be marked for felling irrespective of the girth. The yield has been prescribed by the area.

(iii) Mr. Roy has suggested for the following items of work under the miscellaneous regulations.

(i) Kendu leaves:- Pruning of branches of kendu trees to be done for improvement of the quality of kendu leaves and long term lease be given to the purchasers who may invest money for improving the lots.

(ii) Myrabolans:- Long term lease of the forest may be given.

(iii) Grasses:- Settlement of grasses available in the plantation in excess of the requirements of the requirements of the right-holders.

(iv) Roads:- Development of existing roads and construction of 15 miles of new forest annually for improving communication.

(v) Buildinci:- Construction of new building as per the requirement

(vi) Fire map:- Fire map of the division to be prepared for five years.

- (vii) Control forms:- It should be maintained properly in the divisional office. The flying set to, be sent to the working plans office by the end of August every year for record in the working plan copy and for sanction of the deviations.
- (viii) Boundaries:- Boundary lines to be checked and boundary pillars to be properly numbered.
- (ix) Grazinci:- It should be regulated in the periodical grazing blocks.
- (x) Fire Protection:- Right-holders to be involved in the fire protection as their duty. Reward to be given for good work both to community.

Mr Roy has prescribed the following rights and concession in his plan.

- (i) Mochis and right holders to get tan bark of asan from the current coupe.
- (ii) Right holders will have full liberties to collect fruits, Khajur, and Mahulan leaves, Genti and Mohulan chope for their own use for sale, they may also collect sabai grass for their own use.
- (iii) Naturally dry fallen wood may be removed from any part of forest for bonafide use of right-holders. This concession is not for sale or barter.
- (iv) No right-holders may also remove fire wood from current coupe on permit and payment.
- (v) Requirement of the non right-holders may be met by contractor's depots or by the departmental depots. The contractor's depots shall realize marginal profit but the government depots shall be run on no profit no loss basis. The depots shall be fed by the coupe purchasers as per the stipulation.

18. Mr Roy has given much stress to preserve the decreasing fauna of the area. He has suggested for the creation of China sanctuary. For shooting purposes nine shooting blocks have also been created and for each of them he has clearly mentioned the names of the villages therein. The Divisional Forest Officer has been authorized to fix the number of various games that may be shot in a season in shooting block before the start of the shooting seasons.

19. MR B.N.Sinha Plan:- This plan was first working plan for Garhwa North Forest Division exclusively, and remained in force from 1989-90 to 1998-99 for ten years. The main objects of management were as follows.

- (i) To protect, maintain and improve the existing forests of the division.
- (ii) To protect the hill tops and steep slopes of the forest areas to minimize soil erosion.
- (iii) To regulate the local water supply by conservation of rain water in forest areas.

- (iv) To improve the degraded forests by suitable measures and to rehabilitate the Sal and Miscellaneous rooted wastes of the division in the shortest possible time
- (v) To meet the bonafide requirements of the right holders timber, fuel, fodder and other forest produce to the extent possible and to market the surplus for consumption of non- right holders and export if possible
- (vi) To associate the local population in the protection and scientific management of forests and to promote a sense of community ownership.
- (vii) Consistent with the above , to have sustained yield of timber, fuel and other forest produce in future. To achieve the above objectives the following working circles were constituted:

- (1) Coppice Selection Working Circle.
 - (2) Rehabilitation Working Circle.
 - (3) Plantation Working Circle.
 - (4) Khair overlapping Working Circle.
 - (5) Salai overlapping Working Circle.
 - (6) Bamboo overlapping Working Circle.
20. Coppice Selection Working Circle:

In Roys's plan coppice forests were worked under coppice Reserve system. The result of working was that forests had further deteriorated due to failure of coppice regeneration or natural. regeneration. To maintain and improve the forests which are available for coppice Working were included in this Working Circle. It was prescribed to remove reserve trees and only such trees which could not create permanent gaps in canopy. Minimum exploitable diameter was also recommended.

21. **Rehabilitation Working circle:-**

Bulk of forests of Garhwa North Division which had become degraded due to ruthless and rampant felling, uncontrolled grazing and frequent fires were incorporated in this Working Circle. The approach was to treat them by coppicing of high stumps and fencing of areas to stimulate growth of new shoots free from grazing and trampling. The blank areas in such forests were to be planted from nursery raised stocks of seedlings. Preference was to be give to the local indigenous species. Soil and water conservation measures were also prescribed to check soil erosion in these forest areas.

22. **Plantation Working Circle:**

Pure blank or semi blank areas for which simple closure and protection was not sufficient to bring them under vegetation were prescribed to be restocked by artificial regeneration. The existing plantations were also covered in this working circle.

23. **Khair overlapping working circle:**

As Khair trees were found every where in the forests of the Division, it was decided to work khair trees in an overlapping working circle.

24. Salai overlapping working circle:-

As Salai is used extensively in paper, pulp and packing case Industry and its occurrence in the forests of Garhwa North Division is quite good. It was thought necessary to work salai trees in a separate overlapping working circle.

25. Bamboo overlapping working circle:

Although the condition of bamboo forests were not good, the root stock of bamboos were however present in many forests and the available malformed, congested and bad clumps if properly treated can yield bamboos in commercial quantities in near future. It had therefore been decided to group all such bamboo bearing areas under the bamboo overlapping working circle.

26. RESULTS OF MANAGEMENT OF THE OUT GOING WORKING PLANS.

As described in the fore going paragraphs the main objects of management were

- (i) to maintain soil productivity
- (ii) protect and foster the existing forests crop.
- (iii) to meet the bonfide local requirements of right holders and.
- (iv) by silvicultural means to bring about a state as nearly approaching the ideal forest as possible.
- (v) to restock the blank areas by artificial regeneration

27. Close study of state of the forests revealed that most of forests of coppice selection working circle deteriorated resulting in the present rooted waste stage and blanks. No conventional silvicultural system, it seems, can restore the past quality of the crop. The forests of Arsali, Phuiwar, and Kailan which are holding the ground against all the adversities till today, if not well protected, will also be reduced to unproductive denuded hills. The object to achieve the ideal (normal) forests thus stands completely frustrated.

28. This situation is arisen because of the following reasons:-

- (1) The plan prescriptions were not implemented strictly.
- (2) The most important prescription in regard to the retention of young sapling and appropriate number of commercially valuable species had not been taken care of during the past years.
- (3) Local people resortedto illicit removal of trees, poles and saplings not only for meeting their own demands but for sale and barter also.

29. Most of forests under different felling series have suffered due to biotic factors and failure of regeneration has pushed them to the brink of degradation and denudation.

30. **KHAIR:-** This has been worked under the selection system. Exploitable trees which were present in large numbers during the last plan have drastically been reduced during the past few years. High ,s and pollarded Khair are however present in large numbers. Khair is seen in sapling stage almost every where. The future of Khair is good 'provided proper protection is given to it.

31. **SALAI:-** On perusal of the forests of Kalian, Saro, Phulwar etc. it is clear that the number of salai trees of exploitable diameter is much less than the expectations. Similar is the case in the forests of Jaharsaral, Sikni, Ranital and Banduwa where salal trees are scattered on the hill tops. The regeneration of salai is poor every where. It is therefore clear that the number of exploitable trees will have to be reduced in the revised plan. It appears that subsidiary silvicultural operation had not been done in Salai coupes in the, past years.

32. **BAMBOO:-** Bamboo an industrially important species has closely been examined during the field inspection. Study of the out turn of bamboos in different felling series clearly indicates deterioration of bamboo forests. The bamboo forests of Saro, Lolki, Bhumphore and Mahudand which had a good no. of bamboos have practically no bamboo at present. It is because the prescription as envisaged in the working plan has not been followed so far. To say the truth it is in the rooted waste condition now. Even dead clumps are found in significant numbers in these forests.

33. Bamboo bearings forests such as Ohrs, Jahararsari, and Barware which were not included in the plan under revision have no bamboos left now. No bamboo forest of this Division is now available for working.

32. REHABILITATION AND PLANTATION WORKING CIRCLE. :-

34. More than 50% of total forest area of this division was placed under these working circles. Success of plantation and rehabilitation areas is variable.

35. Prescriptions were given to rehabilitate Sal and miscellaneous rooted wastes annually, All rooted waste areas of this division were proposed to be treated in 10 years but till 1982 an area of 5602.38 hac was planted up and rehabilitated. Thus we find that an area of 2344.68 hc. has been treated in excess of the prescriptions. This is good effort. But the work of rehabilitation and plantation has been increased over the years rather than being over. It is clear from the stock maps that a large area of the forests of this division will have to be allotted to the rehabilitation and plantation Working Circle.

36. The results of the plantations raised by Bihar Forest Development Corporation in Dhurki beat of Nagar Range were also examined during the field inspection. Area of 3272.75 hac of plantations have so far been raised with Eucalyptus, Sissoo & Bamboo. Some of the plantations raised by the Bihar State Forest Development Corporation are very good. These plantations need tending & protection.

37. **EXPLOITATION OF OLD PLANTATIONS:-** There is a scheme for the exploitation of old plantations covering all the plantation till the year 1973 prepared by Sri B.N.Prasad which is still in force. The plantations so far raised do not have uniform success probably due to the wrong selection of site & species & lack of its post care. The

species generally raised in these plantation are Eucalyptus, Acacia, Sisso, Khair & Bamboo. The operation required to be done after felling in these plantation have not been seriously executed. This has resulted in partial regeneration & therefore need restocking.

38. **KENDU LEAVES:** - The production of kendu leaves too is decreasing. The number of standard bags which were available in 1989-90 has gone down in 1998-99. Proper tending, pruning etc. of the Kendu trees will have to be done to augment the production of Kendu leaves. 39. **GRAZING:-** Grazing rules as prescribed in the working plan was also not at all implemented. It has resulted in heavy grazing not only in the felled areas but also all over the forest.

40. **GRAM PANCHAYAT :-** The association of gram panchayat & local people to provide collective management of community forests has miserably failed. No where in the right holder felling series the prescription as envisaged in the working plan was faithfully implemented. It seems that the collective management is not conducive to improve the community forest.

41. **CONDITION OF FOREST :-**

On general perusal of the areas of Garhwa & Bhanwathpur Range it appears that the forests bear a poor & barren look. Some of the large chunks of forest on hills have been reduced to the rooted waste stage. Isolated blank hills & hillocks are also seen here & there. This is largely the effect of illicit cutting, grazing & fire.

CHAPTER VII

1. STATISTICS OF GROWTH & YIELD:

No local statistics of growth or yield either of Sal or other species are available. The figures of stump analysis available in Roy's plan have been used for calculating the minimum exploitable diameter of Khair & determining its felling cycle. For the regulation of yield of Salai use has been made of the paper "Determination of 't' & 'Z' of Smythies Safeguarding Formula to regulate yield of *Boswellia serrata* in Daltonganj South Forest Division by Sri Prasad & Tribedi 1989 which is reproduced below.

2 **BOSWELLIA SERRATA:-** will be presently managed under Selection System & its yield is determined through Smythies Safeguarding Formula which defines the yield available during the felling cycle as the number of trees of the diameter class (Class-II) just below the exploitable diameter that may be expected to pass into the exploitable diameter class (Class-I) during the felling cycle.

According to the Smythies Safeguarding Formula, the yield is given by $Y = f/t(II - Z\% \text{ of } II)$ where Y is the yield in terms of number of trees, f is the felling cycle in the years, t is the time taken by class II trees to move into class I & Z is the mortality percentage during this period. In order to fix yield, it is thus necessary to estimate 'T' and 'Z'

No estimate of 'T' and Z for Salai trees has been scientifically made so far anywhere in Jharkhand or in any other state of India (Troup reprint 1986). The working plans

prepared so far in Jhrkhand have prescribed yield taking guess estimate of 't' & 'Z' for Salai trees on the basis of measurements recorded in research plots in Daltonganj South Forest Division

3. DESCRIPTION OF THE RESEARCH PLOT:-

For the diameter increment study of Salai (*Boswel)ia serrata*) trees a single tree increment plot was laid out in 1955 over an area of 0.15 hectares in Merwai Kala P.F in Chhipadohar range of Daltongang South Forest Division . The plot area falls under the category of Northern Tropical Dry Deciduous Forests Type according to Champion & Seth'a classification.59 Salai trees were marked in the plot & their diameters were recorded initially as well as after every five years . Trees that died during every 5 year interval were also recorded.

Regression Analysis

Considering dbh as an independent variable & the five yearly diameter increment as a dependent variable a second degree quadratic equation of the following form was fitted:

$$Y=a+bx+cX^2$$

Where Y is the five-yearly diameter increment in cm.x is the diameter cm . & a,b and c are constant.

The equation obtained was:

$$Y = 5.12719 - 25638*x - 0.004700* X^2$$

An age — diameter table can be built up from the above specified regression equation. At X = 0, Y = 5. 012719. Say 5.01cm. Putting this as X in the specified regression equation, we can calculate 'Y'. Adding this value of 'Y' to 'X' we get the diameter at the age years. This procedure can be repeated to generate 'age — diameter' table. The table so generated is reproduced below:

Age. (yrs.)	Diameter. (cm.)
5	5.01
10	8.86
15	11.97
20	14.58
25	16.86
30	18.90
35	20.75
40	22.49
45	24.13
50	25.12
55	27.28
60	28.84

CALCULATION OF 'T' AND 'Z'

The age diameter table (*Boswellia serrata*) show that at the of 35 and 65 years, it attains the diameter of 20.75cm. and 30.41cm. respectively. It can therefore be said that Salai tree of 20cm. diameter would approximately reach 30 cm. diameters within a period of $65-35 = [30 \text{ years}]$.

This study shows that the time taken by Salal trees to move from class II (diameter 20cm.) to class I (diameter 30cm.) is 30 years. Hence, this is value of 't' for Salai trees in Daltonganj South Forest Division.

The primary data of the research plot also shows that during the first five-year interval 3 out of 20 Salai trees in 20-30cm. diameter class died. At the end of this period only 12 Salai trees were in the 20cm.- 30cm diameter class. Among these trees the mortality was nih during the next five year interval. This means that out of a total of 32 class hi saiai trees , only 3 died while reaching class I . This gives the mortality percent $z = 9.38\%$ or, say 9%.

The forest areas of Daltonganj South Division and Garhwa North Division are situated in the same old district of Palamau and the physical features are also identical therein. Hence the inference drawn in this paper have been used for Salai exploitation in Garhwa North Division.

However partial enumeration of some forest of Garhwa North Division has been carried out. The data so obtained is furnished. below.