CHAPTER-V
PAST SYSTEM OF MANAGEMENT

1.5.1.0 Prior to the year 1943, the forests of Hazaribagh district under the control of Bihar Forest Department were looked after by the Private. Estates Forest Officer attached to the direction division. The Hazaribagh division was created in the year 1943 vide notification no. 4754-VIF-40-43R dated the 14th October 1942. This Division looked after the forests of Hazaribagh and Ranch districts till Ranchi Division was created with effect from April, 1946 vide notification no. 9761 R-VIF-106 dated the 19th December 1945.

1.5.1.1 Consequent upon the enforcement of Bihar Private Protected Forests Act 1947 control of all the Zamindari forests in Hazaribagh, Gaya and Patna districts cam under Hazaribagh Division. The workload of the Division suddenly increased many times the normal workload of a Division. The Division was gradually split into several smaller Divisions. Finally the Hazaribagh East Division and the Hazaribagh West Division were created in March 1961 vide notification no. C/F-I(A)013/16-60R dated the 10th April 1961.

1.5.1.2 The Hazaribagh West Division consists of three categories of forests with different histories of management.

(i) The Ex. Ramgarh Reserves which were under scientific management since long.
(ii) Forests belonging to Zamindar which were offered for management to Bihar Forest Department under section 38 of the Indian Forest Act, 1927.
(iii) Private forests of Zamindars including Ramgarh Estate and Other smaller Zamindars.

1.5.1.3 The forests of categories (i) and (ii) were under scientific management since long. The forests of categories (iii) never had any systematic and scientific management.

1.5.1.4 For the former Ramgarh Reservation the first working scheme was drawn Mr. W.C.C. Breasky, E.A.C.F. The schemes was in operation from 1928-29 to 1934-45. This

prescribed coppice system with a rotation of 40 years. Improvement felling was also carried out to free sal from other miscellaneous species.

MR. GIBSON'S PLAN

1.5.2.0 Mr. Breasky's scheme was revised by Mr. Gibson which cam into operation from 1935-36. The Working Plan prepared by him prescribed the following Working Circle:-

(i) Coppice working circle
(ii) Selection working circle
(iii) Bamboo working circle
(iv) Khair working circle

1.5.2.1 In the coppice working circle certain felling series and a rotation of 40 years while the others had a rotation of 20 years. The inaccessible areas of certain blocks in full and certain blocks in part were managed under selection system. In the Selection Working Circle the exploitable diameter for Sal, Asan, Karam, Salai was 4' that for Paisar was 3 ½' for Semal 6' and for other 3'. For Khair the exploitable girth was 18' and the felling cycle was 5 years. The Bamboo forests were worked on 3 years cutting cycle.

1.5.2.2 The erstwhile private forests of categories (iii) were never managed scientifically prior to 1947-48. They suffered a lot due to unregulated fellings and over exploitation.

1.5.2.3 After assumption of the control of the forests in 1947-48 a skeleton working scheme was introduced. In this schemes coppice felling series were constituted by grouping forests of adjacent villages. Rightholders were allowed to take their requirement on the basis of settlement records and the surplus produce used to be sold by auction. The Government subsequently ordered that in the right-bundened forests the coupes should be laid separately in each villages. Felling of latha, khambha and macha were allowed even outside the coupe if they were not available in the current annual coupe.

Sri Prasad's Working Plan for Ex. R.F. of Ramgarh Raj (1952-53 to 1962-63).

1.5.3.0 Shri B. N. Prasad, I.F.S., retired Dy. Chief Conservator of Forests, Bihar revised the Gibson Plan for Ex.Reserves of Ramgarh Estate. His plan was in operation from 1953-54 to 1962-63. The following working circle were constituted.

COPPICE WORKING CIRCLE

1.5.3.1 The original constitution of felling series as done in Mr. Gibson's Plan was maintained. The forests which were under Selection Working Circle in Mr. Gibson's Plan were also brought under coppice working circle. It is not clearly known if the selection series. The felling series containing selection areas contained all age gradations whereas the areas which were already under coppice working circle in Gibson's Plan had been worked and coppiced upto coppice coupe no. 14.

ROTATION

1.5.3.2 The a rotation of 40 years as in Mr. Gibson's Plan was followed.

SEQUENCE OF FELLING

1.5.3.3 The same sequence of felling as prescribed in Mr. Gibson's Plan was allowed to continue. The C. C. Nos. 15 and on ward till C. C. no. 287 were felled during Mr. Prasad's Plan. The C. C. no. 28 was felling in the year 1963-64.

CLEANNING AND THINNING

1.5.3.4 Cleaning in the 3rd year of felling and thinning at the age of 14 and 27 years were prescribed. Mr. Mishra's Plan is silent on the point whether any thinning or cleaning was carried out during Mr. Prasad's Plan.

BAMBOO WORKING CIRCLE

1.5.3.5 Four bamboo felling series overlapping over coppice working circle were constituted. The total area was 3,141.83 hectare (7,763.77 acres). The cutting cycle was 4 years. A set of bamboo cutting rules were prescribed. The bamboo felling series and their area was as given below :-

Sl. No.	Name of B.F.S.	Area	
		Hectare	Acres
1.	Gardih	1,033.03	2,552.71
2.	Urda	303.83	750.80
3.	Manatu	944.76	2,334.60
4.	Barhi (Part)	860.21	2,125.66

MR. PRASAD'S PLAN FOR P.P.Fs.

1.5.4.0 The first working plan for the erstwhile P.P.Fs were written by Shri B.N. Prasad, IFS, for the period 1957-58 to 1966-67. The following working circle were constituted.

(i) Coppice Working Circle with rotation 30 years and 40 years.
(ii) Protection working circle.
(iii) Afforestation Working Circle
(iv) Bamboo (Overlapping) Working Circle
(v) Khair (Overlapping) Working Circle

1.5.4.1 In the Coppice Working Circle, felling series were constituted by grouping forests from neighbouring villages. This plan could never be brought under proper operation. Coupe continued to be laid out in each village under short rotation 10-20 years. Even the best of right burdened P.Fs were worked on 20 years rotation for 14-15 years. In the coupes worked by contractors, working had been generally satisfactory, but in the area worked by rightholders it was far from satisfactory.

1.5.4.2 The bamboo forests were worked scientifically and systematically as per prescriptions of the Working Plan.

MISHRA'S PLAN (1962-63 to 1971-72)

1.5.5.0 The first comprehensive plan for the entire forest area of Hazaribagh East and West Divisions was prepared by shri P. Mishra, IFS for the period 1962-63 to 1971-72. The plan could not be revised in time and the life of the Plan was extended by the Chief Conservator of Forests, Bihar till 1976. Further extension beyond 1976 was requested but the order of the Chief Conservator of Forests was still awaited till the revision of the Plan was finished.

MR. MISHRA'S PLAN

1.5.5.1 Mr. Mishra prescribed the following working circles.

(i) Coppice Working Circle
    (a) Commercial F.S.
    (b) Community F.S.
(ii) Bamboo Working Circle (Overlapping)
(iii) Rehabilitation Working Circle
(iv) Plantation Working Circle
(v) Protection Working Circle

No Khair Working Circle was constituted. The scheme for exploitation of khair which was already in operation was allowed to continue.

COPPICE WORKING CIRCLE

1.5.5.2 Constitution : All such areas of the forest which could regenerate and establish after coppicing were kept under this working circle. Some areas of degraded sal forest which were fit for allotment to Rehabilitation Working Circle were also kept under Coppice Working Circle with a view to meet fuelwood requirement of the villagers. The total area under this working circle was 1,40,24.05 hectares (3,46,011.80 acres).

1.5.5.3 The felling series of coppice working circle were divided into two categories; commercial and community. The commercial felling series contained the ex. Ramgarh Reserves & such of the P.Fs where surplus was generally available after meeting the demand of rightholders. The community felling series were those where nothing was left for sale after meeting the demand of rightholders.

1.5.5.4 Commercial Felling Series : As stated above it contained the Ex. Ramgarh Reserves and surplus P.Fs. Some of commercial F.S. were constituted by grouping forest of two villages if sufficient forests area was not available in one village to make the annual coupe not available in one village to make the annual coupe are equal to 30 to 50 acre. The felling series of Ex. Reserves of Shri Prasad's Plan in which the annual coupe area was large, were split into two felling series in order to make the annual coupe area equal to 30 to 50 acres. The splitting of the felling series upset the sequence of felling. The sequence of felling had also been upset at the time of the revision of the plan of Ex. Reserves by Mr. Prasad when he had reconstituted the felling series of Mr. Gibson a Plan by amalgamating the area under selection working circle into coppice working circle. In the revised plan by Mr. Prasad felling was continued after coupe no. 13 and in the revised plan of Mr. Mishra it was again continued after coupe no. 28. Though, theoretically the same sequence of felling has been maintained during the lat one rotation but in practice this has been upset due to felling series having been reconstituted twice at the time of revision of the plan by Mr. Prasad and by Mr. Mishra, Though the same sequence in serial number of coupes has been followed but the position, the area and serial number of coupes have been drastically changed twice at the time of last two revisions of the Plan. Due to these changes and also due to lack of information available in Divisional records regarding the year of felling, it is difficult to trace the past history of the forest of Ex. Reserves. Therefore the present serial number of a particular coupe is no indication of the year of felling or the maturing of the crop in the coupe.

1.5.5.5 The same condition holds good for other Commercial Felling Series of P.Fs (erstwhile P.P. Fs) because the felling series of Mr. Prasad's Plan were reconstituted by Mr. Mishra and also the rotation had been changed.

1.5.5.6 Community Felling Series : The Community Felling Series were constituted generally village-wise though a few felling series covered contiguous forests of two or three adjoining villages.

ROTATION

1.5.5.7 The rotation for all the felling series in Ex. Reserves and certain P.Fs having better crop was kept at 40 years. For others, it was 30 years. It was expected that a rotation of 40 years would yield poles of 15-20 cm. dia, while that of 30 years would yield poles of 10-15 cm. dia.

REGULATION OF YIELD

1.5.5.8 The yield was regulated by area for which annual coupes of equal area from serial number 1 to 30 or 40 were shown on the felling series maps.

1.5.5.0 The coupes in the Commercial Felling Series (Ex. Reserves & surplus P.Fs) were to be laid out Departmentally. In the rightburded Commercial felling series certain areas as prescribed in the planwise to be given to the rightholders through the grampanchayat for distribution of produce. The rightholders carry out felling to in their area and remove the forest produce before June. The balance coupe areawise later sold in public auction along with coppice coupe of Ex. Reserves.

1.5.5.10 In the Community felling series the coupes were to be laid out by the rightholders themselves.

1.5.5.11 15 trees of valuable species like Sal, bija, asan, gamhar, dhaura, karam, siris, panjan, bhurkund of diameter, between 10-12 cm. with well formed crown and straight boleware to be marked as standards. Besides, 15 fruit-bearing trees were also to be marked as standard in order to preserve fruit bearing trees for the local villagers.

RESERVED SPECIES

1.5.5.12 Besides the standards and the fruit bearing trees, the of following species were not to be felled khair, semal, keonji, aunla. By an executive order of the chief conservator of forests, Bihar, bija trees of less than 30" girth are not be felled.

SERIAL NUMBER OF COUPES

1.5.5.13 The serial number of coupe to be felled during 1962-63 in P.F. of 30 years rotation was C.C. no. 14 whereas in E.F.F. of 40 years rotation it was C.C. no. 28. It is not clear whether the same set of coupes as shown on the felling series maps of Shri. Prasad's Plan was adopted. Since Shri. Prasad's Plan could not be put to proper execution so far as it related to righburdened forests, the history of forests of coupes between serial number 1 to 13 in Mr. Mishra's Plan is not definitely known. As mentioned earlier a lot of changes were made in the constitution of felling series (Ex. R.F. & P.F.). The felling series of Mr. Prasad's Plan were not adopted in the same shape, the continuity of sequence of felling of Mr. Prasad's Plan could not be maintained though the serial number of coupes to be felled during the Plan (Mr. Mishra's) were in the same continuity as in Mr. Prasad's Plan. In Mr. Prasad's Plan some of the Coppice felling series were constituted out of areas under selection system (Gibson Plan). The felling in these felling series started from C.C. No. 14 in Mr. Prasad's Plan. Thus C.C. no. 1 to 14 contained crop of mixed age classes. With all these confusions it cannot be definitely said that the crop in C.C. no. 1 to 28 in case of Ex. R.F. & that in C.C. no. 1 to 14 in case of P.F. were in order of maturity at the time when Mr. Mishra's Plan came into operation.

1.5.5.14 SUBSIDIARY SILVICULTURAL OPERATIONS

The following provisions have been made :-

(i) Climber cutting on standards
(ii) Cleanning in the year following main felling and in the 5^{th} year.
(iii) Thinning in the 20^{th} year in selected felling series the list of which had been provided.
(iv) Strict protection against grazing for 8 years after felling.

RESULTS

1.5.5.15 The results of coppice felling are not uniformly satisfactory all over. The outer slopes of the Ranchi Plateau falling in Ramgarh Range which, perhaps contained miscellaneous crop, have failed to regenerate and establish. There sons are, perhaps, inadequate protection against grazing, fire and irregular fellings for fuelwood. Similarly the hill slopes in Barhi range also, now have become bare and devoid of tree cover. Only miscellaneous bushes are found there.

1.5.5.16 The forests generally give a picture of deterioration, which is not always a fact. The people compare the present state of forest with that before the area was felled under coppice system. Previously the forests continued extensive areas having trees and poles of larger size as they were more or less virgin forests. Now the entire area of the Division has been worked over for on rotation under coppice system. The oldest crop in the worked over areas contains poles of maximum 15-20 cm. dia. It is true that due to inadequate protection against biotic factors the density of crop has deteriorated at many places. Some areas situated close to habitations have also failed to restock fully. The irregular fellings have kept down the forests to sapling stage at many places. The forests of Community fellings by villagers. The forests, thus have suffered more due to inadequate protection than due to fault in the system of management and prescriptions of the plan.

1.5.5.17 Cultural operations do not seem to have been carried out any where, atleast no record of such works has been maintained.

1.5.5.18 It is not possible to assess the extent of deviations as the control forms have not been submitted nor records have been maintained in the felling series history files. Certain areas of coppice working circle have been rehabilitated and planted under the soil conservation scheme of the Damodar Valley Corporation also.

BAMBOO WORKING CIRCLE (OVERLAPPING)

1.5.5.19 This Bamboo Working Circle comprised workable bamboo bearing areas. The cutting cycle was 4 years. A set of bamboo cutting rules were prescribed. A provision

for supply of green bamboo to TURIES was made. The following bamboo felling series were constituted :-

Name of range	No. of B.F.S.	Total area of forest (hect.)	Bamboo bearing area (hect.)
Ramgarh	2	4,653.31	454.86
Tandwa	-	-	-
Barkagaon	3	4,087.57	375.54
Hazaribagh	2	1,656.44	351.26
National Park	2	4,954.50	1,238.62
Barhi	5	3,058.10	1,957.03

RESULTS

1.5.5.20 The working of the long term lease has been generally good, but the forests have suffered due to unregulated fellings by TURIES.

REHABILITATION WORKING CIRCLE

1.5.5.21 This Working Circle comprised the sal rooted wastes and degraded sal forests. The total area under this Working Circle was 13,870.84 hectares. Certain areas which were fit for allotment to this working circle were retained under coppice working circle with a view to meet the fuelwood demand of righholders. The technique for rehabilitation included cutting back operation, fencing, soil conservation measures in eroded area, planting in blanks and protection of the rehabilitated crop against fire and grazing.

RESULTS

1.5.5.22 The areas allotted to this working circle have not maintained separate identity. These have treated along with areas allotted to Plantation Working Circle. Total area treated so far will be dealt with separately. Some areas of coppice working circle also have been rehabilitated. The overall success of rehabilitation is rather unsatisfactory. The areas respond very well to the treatment in the initial stage, but as the crop grows to utilizable size, it is again subjected to high biotic interference with the result that many of the rehabilitated crop have again degenerated back to the original state. If adequate protection

against irregular fellings is ensured, there is no reason why the crop will not grow to the desired size. So the main cru of the problem in this Working Circle is the protection against grazing and fire in the initial stage and protection against irregular felling in latter stage.

PLANTATION WORKING CIRCLE

1.5.5.23 The Working Circle comprises the blanks and partial blanks. The main object of this working circle was to increase productivity in quantity and quality and to provide forest cover to the blanks with a view to arrest soil erosion.

1.5.5.24 Range-wise allotment of area under this working circle was given below:-

	Area	
Name of Range	Hectares	Acre
Ramgarh	5,833.49	7,001.81
Barkagaon	3,070.04	7,586.34
Tandwa		
Hazaribagh	2,642.93	6,530.93
National Park	1,542.46	3,811.57
Barhi	4,520.03	11,169.41

1.5.5.25 Since almost the entire area of this Division lies within the catchment of Damodar, plantations on large scale have been raised from the fund allotted by the Damodar Valley Corporation for Soil Conservation measures. In Barhi range almost the entire area along the G.T. Road and North of it has been treated under Soil Conservation Scheme.

1.5.5.26 For carrying out Soil Conservation measures no distinction has been kept in the areas allotted either to Rehbailitation working circle or plantation working circle.

1.5.5.27 The total areas treated during the last plan period in various ranges is given below:-

1.5.5.28 The success of plantations is variable depending more upon the effects of biotic factors than upon the technique of plantation and choice of species. The choice of species has also played an important role in the success of plantation. The whole tract is susceptible to intense grazing. Plantation of badly. Plantations raised in deficit localities have suffered due to illicit felling much more than the plantations raised in comparatively better wooded localities. Sissoo, Chakundi, Eucalyptus have genrally done better wherever is has been protected against adverse biotic factors. The plantations in Tandwa range in general are in a better condition while those in the Barhi range are worse.

MISCELLANEOUS REGULATIONS

1.5.5.29 The miscellaneous regulations suggested the following :-

1. Control and regulation of grazing.
2. Exploitation of grass for fodder and creation of fodder reserve.
3. Control and check on unregulated felling or brushwood for ghoran.
4. Exploitation minor forest produce like myrobolans, kurchi and kahua bark.
5. Scheme for fire protection.

1.5.5.30 Inspire of the control and regulations prescribed for grazing, the entire forest area continued to be grazed. The freshly coppiced areas which needed complete rest were no exception. This resulted in blanks partial blanks or reduction in density, specially areas near villages and human habitations.

1.5.5.31 There has been virtually no control on fire. Almost the entire forest gets burnt every year except perhaps the current coupes where felling is in progress during fire season. This has resulted in general deterioration in the site quality and the quality of the existing crop. Control and check on unregulated felling for ghoran (brushwood for fencing) has ever been effective. Due to this the forests of some of the community felling series which are close to villages are not able to grow beyond sapling stage.

NATIONALISATION OF KENDU LEAF TRADE

1.5.6.0 The kendu leaf trade including collection of leaves from the forest and their sale to consumers was in the hands of private persons. The Division had a number of kendu leaf lots which used to be sold to private persons by auction. There was no control on collection of kendu leaves grown over raiyati lands used to be pilfered by these raiyati contractors. Control in the Trade of Kendu leaves was introduce in the year 1973.

1.5.6.1 A comprehensive set of rules have been framed to control plucking, collection, storage and transit of kendu leaves from forest to storage godowns and from there to consumers. This monopoly in the trade has brought about very good results so far revenue increased from Rs. 1,09,650/- in the year proceeding nationalization to Rs. 6,46,195/-. At present the kendu leaves are collected by Government agency of the Bihar Forest Department and sold to purchasers at maximum rates received in the tenders.

EXPLOITATION OF PLANTATION SCHEME

1.5.7.0 The Scheme for exploitation of plantations was prepared by Shri L.K. Pandey, IFS. This cme into operation with effect from 1975-76 to 1984-85. The general guide lines fixed for this scheme was to exploit the plantations natural crop at a short rotation of 10 years. The plantations of valuable species like sissoo, gamhar were to be tended.

1.5.7.1 The following felling series were constituted :

Name of Range	Name of F.S.	Total Gross Area	
		Hectare	Acre
Ramgarh	1. Ramgarh Bhurkunda Plantation	756.27	1868.78
	2. Gola North	614.40	1518.23
	3. Gola South	1418.40	3505.15
Hazaribagh	1. Hazaribagh	853.40	2108.80
Tandwa	1. Misrol	1115.60	2756.80
	2. Kumrabg	898.39	2444.80

Barhi	1. Padma	1259.30	3111.92
	2. Jarahia	773.23	1910.70
	3. Goas	1206.82	2982.13
	4. Barsot	1083.34	2677.00
	5. Dapok	881.51	2178.27
	6. Barkatha West	1106.16	2955.78
	7.Barkatha East	948.65	2344.18
	8. Choube	1247.80	3083.40

1.5.7.2 Till the year 1979 total no. of 56 coupes should have been sold. From the Divisional records it has been found that only coupes could be sold. The other could not sell mainly due to non-availability of utilizable material in the coupe. Sale of some of the coupes could not be ratified because the price offered was far less than the probable cost of restocking the plantation area after harvesting.

1.5.7.3 The plantation coupes contained the rehabilitated natural crop. The plantations have been raised generally in right-burdened deficit forests. Felling of the rehabilitated natural crop over the entire forest area of a village by a contractor has been seriously resented by some villagers. A rethinking is, therefore, necessary whether it is proper to sell and cut away the entire forest of a village in one stroke by completely ignoring the rights of the villagers.

SPECIAL WORKS OF IMPROVEMENTS

1.5.8.0 The works of improvement executed during the period 1964-65 to 1974-75 are listed below. The construction of new roads, bridges and culverts have opened up the accessible areas. Construction of residential houses and wells greatly improved the working & living condition of the staff. All these have added to the better management of the forests.

ROADS

1.5.8.1 The following roads (including special repairs to existing roads) bridges and culverts have been constructed :-

Sl. No.	Year of Construction	Name of Road	Length (Mile)	Cost. (Rs.)
1.	1963-64	Completion of Aswariligaria	3	10,931
2.	1963-64	Construction Basadih Dnoreshm	2	6,000
3.	1963-64	Construction Sayal Rajghat	3 ½	8,715
4.	1964-65	Loop road tower no. 5 to 3 road	5½	15,000
5.	1965-66	Part of Niri-Mahudi-Pahar road	2½	10,000
6.	1965-66	Part of Pelwalchopi road	9	10,000
7.	1966-67	Completion Niri-Mahudi Pahar road	9	10,400
8.	1966-67	Pelwal chope road		39,000
9.	1967-68	Construction of Keredari tawan road	3	10,000
10.	1968-69	-	-	-
11.	1967-70	Special repairs to nawatanr –Jarjara road	12	5,000
12.	1970-71	-	-	-
13.	1971-72	Improved Mahudi Pahar Barkagaon Road	2½	15,000
14.	1971-72	Improved Kaladwar Khaira road	7½	8,000
15.	1972-73	-	-	-
16.	1973-74	-	-	-
17.	1974-75	Rajderwa-Haatarmunda	3	8,000
18.	1974-75	Special repairs to new loop road	-	10,000
19.	1975-76	Nil	-	-
20.	1976-77	Nil	-	-
21.	1977-78	Nil	-	-
22.	1978-79	Nil	-	-
23.	1979-80	Nil	-	-

BUILDING

1.5.8.2 The list of buildings constructed during the period is given below:-

Sl. No.	Year of Construction	Name of Buildings	Place	Cost. (Rs.)
1.	1963-64	Part of combined office building	Hazaribagh	36,378
2.	1964-65	Tourist Bunglow	Rajderwa	10,000
		2 Sweeper Quarter Cycle stand cum garage cum canteen	Hazaribagh	3,000
		Urinal	Hazaribagh	7,500
		Forest guard quarter	Jarjara	2,600
		One F.G. quarter	Kaladwar	2,600
		One F.G. quarter	Kaladwar	2,600
		One F.G. quarter	Dhobghat	2,600
3.	1965-66	2nd class forest rest house	Brinda	10,000
		Out house	Brinda	5,000
4.	1966-67	-	-	-
5.	1967-68	-	-	-
6.	1968-69	One F.G. quarter National Park, Tiger fal	National Park	2,600
		Latrine in Office building	Hazariabgh	1,000
		Completion of two tourist cottage	Rajderwa	5,000
		One shed	Rajderwa	3,200
		One dormitory of 1st floor of canteen	Rajderwa	4,700
7.	1969-70	One forester quarter	Manatu	7,801
		One F.G. quarter	Khaira	3,000
		One F.G. quarter	Surajpura	3,000
		One F.G. quarter	Badam	3,000
		Two clerks quarter (part)	Hazaribagh	15,600
		Three Dormatory in National Park	Pokharia	20,330
8.	1970-71	Two clerks quarter completion	Hazaribagh	4,410
		One rest room	Pokharia	1,400
		One bathroom		
		One canteen	Rajderwa	1,700
9.	1971-72	One R.I. hut (part)	Kaladwar	5,700
		One F.G. quarter	Gardih	3,000
		One underground tower	National Park	2,800
10.	1972-73	One store to open canteen	Rajderwa	3,500

		One public lavatory	Rajderwa	3,000
		One R.I. hut	Kaladwar	1,200
		Completion of F.G. quarter	Kaladwar	1,000
		Garrage in D.F.Os compound	Hazaribagh	4,000
11.	1973-74	One out house (part)	Rajderwa	3,000
		FRH (National Park)		
		One garage cum R.I. hut (National Park)	Rajderwa	2,000
		One F.G. quarter	Rajderwa	3,000
		One kitchen	Rajderwa	4,400
		Tourist Lodge one near dam no. 1	Rajderwa	11,000
12.	1974-75	Completion of F. G. or part construction of three garage	Salparni	3,500
		Part construction of three garage	Salparni	4,600
		Part construction of R.I. hut cum garage	Salparni	3,500
		Part construction of canteen	Salparni	4,500
		Completion of outhouse	Rajderwa	3,000
		Completion of kitchen of cottage	Rajderwa	4,325
		Completion of Kitchen of Dormatory	Rajderwa	4,275
		Hide out	Rajderwa	2,400
13.	1975-76	Construction of one Tourist lodge	Salparni	25,000
		Construction of canteen	Salparni	20,000
		Construction of garage two	Rajderwa	7,500
14.	1976-77	Part construction of tourist lodge	Salparni	7,000
		Part construction of canteen	Salparni	5,000
15.	1977-78	-	-	-
16.	1978-79	-	-	-
17.	1979-80	Completion of tourist lodge	Salparni	1,18,900
		Completion of canteen	Salparni	37,500

WELLS

1.5.8.3 The list of wells construction during the period is given below:-

Sl. No.	Year of Construction	Place	Number	Cost. (Rs.)
1.	1963-64	Completion of well at Eda village	One	1,000
2.	1964-65	Completion of well at Barkagaon	One	1,000
3.	1965-66	Part construction of well at Brinda	One	1,000
4.	1966-67	Completion of well at Brinda	One	1,500
5.	1967-68	-	-	-
6.	1968-69	-	-	-
7.	1969-70	Part construction of well at Manatu and Pokharia	Two	4,000
8.	1970-71	-	-	-
9.	1971-72	-	-	-
10.	1972-73	Part construction of well at Fataha	One	2,000
11.	1973-74	Part construction of well at Kaladwar	One	2,000
		Part construction of well near Dam. No.1 at National Park	One	2,000
		Part construction of well at Bahimar	One	2,000
		Part construction of well at Hadari-National Park	One	1,800
		Completion of well at Kaladwar	One	1,300
		Completion of well at Fataha	One	1,500
		Part construction of well at Hudu	One	2,000
		Part construction of well at Kundru	One	2,000
12.	1974-75	-	-	-
13.	1975-76	Construction of well at Barhi	One	1,500
14.	1976-77	-	-	-
15.	1977-78	-	-	-
16.	1978-79	Construction of Well at Barhi	One	5,000
17.	1979-80	Construction of well of at combined office building at Hazaribagh	One	5,842
		Part construction of well in National Part at Danr.	One	5,000

FIRE CONTROL

1.5.9.0 It has not been possible to protect the forests against fire. The annual coppice coupes are generally protected during the year of felling. The plantations are also protected. The rest of the area generally gets burnt every year.

PAST YIELD

1.5.10.0 The figures of past yield as obtained from Divisional Forest Officer, Hazaribagh West Division vide his letter no. 4346 dated 11.10.80 is reproduced below :-

OUT TURN

Year	Timber & Poles (in cft)	Firewood (in cft)	Bamboo (in nos.)	Kendu leaf (std. bags)	Others
1	2	3	4	5	6
1963-64	2,70,086	1,46,658	3,10,966	-	Sabai 7668 mds Khajur 21,318
1964-65	2,64,880	1,43,038	2,66,879	-	Sabai 8,125 mds Khajur 23,027
1965-66	2,72,129	1,48,001	3,18,925	-	Sabai 9215 mds Khajur 20,515
1966-67	2,74,238	1,46,186	3,43,009	-	Sabai 8,055 mds Khajur 21,225
1967-68	2,74,238	1,48,914	3,51,037	-	Sabai 7,525 mds Khajur 26,615
1968-69	2,58,750	1,39,010	2,40,000	13,121	Sabai 8,369 mds Khajur 22,284
1969-70	2,65,704	1,43,445	2,49,673	14,831	Sabai 9,062 mds Boulder 27,000 cft Metal 20,000 cft
1970-71	2,85,704	1,57,520	4,43,224	4,515	Sabai 10,215 mds Boulder 27,000 Chips 1,500

					Metal 20,000
1971-72	3,27,718	1,66,868	3,96,911	30,650	Sabai 10,215 mds
					Boulder 27,000
					Chips 1,500
					Metal 20,000
1972-73	3,87,485	1,75,340	4,65,090	23,500	Sabai 2,565 mds
					Boulder 2,82,600
					Chips 14,100 cft
					Metal 4,29,200
					Khajur 2,685 mds
1973-74	4,17,502	2,08,695	5,85,316	25,678	Sabai 2,370 mds
					Boulder 1,88,600
					Chips 3,000 cft
					Metal 2,91,200
					Khajur 2,505 mds
1974-75	5,72,993	5,19,795	6,65,100	31,204	Sabai 2,542 mds
					Boulder 36,000
					Metal 45,000
					Khajur 2,509 mds
1975-76	5,70,895	5,23,690	5,56,120	26,774	Sabai 491 mds
					Khajur 4,272
					Chips 55,000 cft
					Boulder 78,000
1976-77	5,63,831	4,15,735	9,51,700	32,304	Sabai 400 mds
					Khajur 3,125
					Stone 9,000 cft
					Boulder 65,000
1977-78	3,87,485	5,02,776	3,46,522	19,546	Sabai 400 mds
					Khajur 3,125
					Chips 39,000 cft
					Boulder 55,000
1978-79	4,75,585	3,98,425	5,32,587	32,128	Sabai 2,370 mds
					Khajur 2,115
					Chips 61,000 cft

1979-80	5,20,465	4,17,393	4,48,066	20,593	Boulder 75,000 Sabai 2,370 mds Stone 47,000 cft Boulder Metal 29,000

1.5.11.0 The figures of revenue and expenditure as obtained from the Divisional Forest Officer, Hazaribagh West Division vide his letter no. 4346 dated 11.10.1980 is given below :-

Sl. No.	Year	Revenue	Plan	Non Plan	Total	Surplus deficit
1.	1963-64	8,40,762	4,96,458	3,40,450	8,36,908	Surplus
2.	1964-65	5,84,320	6,14,032	3,44,300	9,58,332	Deficit
3.	1965-66	6,02,765	3,21,098	4,18,415	7,39,513	Deficit
4.	1966-67	5,03,615	2,03,220	5,37,063	7,40,283	Deficit
5.	1967-68	6,57,524	1,74,097	5,60,482	7,34,578	Deficit
6.	1968-69	7,42,505	85,225	6,51,414	7,36,639	Surplus
7.	1969-70	10,70,031	1,80,786	7,73,863	9,64,649	Surplus
8.	1970-71	9,86,519	1,69,208	7,17,510	8,86,718	Surplus
9.	1971-72	19,58,985	1,33,259	8,88,961	10,22,220	Surplus
10.	1972-73	14,01,758	2,94,665	11,13,563	14,18,228	Deficit
11.	1973-74	21,70,610	7,09,093	11,51,476	18,60,569	Surplus
12.	1974-75	27,86,229	2,51,364	18,65,004	21,16,368	Surplus
13.	1975-76	29,97,082	3,43,079	18,35,530	21,78,609	Surplus
14.	1976-77	30,35,232	3,95,202	22,25,872	26,22,074	Surplus
15.	1977-78	47,83,308	3,47,524	23,04,757	26,52,281	Surplus
16.	1978-79	47,96,217	2,63,468	21,11,778	23,75,246	Surplus
17.	1979-80	41,24,816	4,57,230	23,98,680	28,55,910	Surplus

CHAPTER – VI

STATISTICS OF GROWTH AND YIELD

1.6.1.0 No statics of growth was collected. Though the entire forest has been worked for one full rotation and it should have been possible to collect the growth figures of crop for the whole rotation, this could not be done as it was not possible to locate crops of definite ages on the ground ad the year of felling could not be definitely known from available records.

1.6.1.1 The forests of Khurchutta Reserves are being worked in the second rotation. There has been no change in the constitution of Felling series and sequence of felling. Hence the yield figures of Khurchutta Reserves Forests coupes will give a correct picture of the size of timber which a coupe of 40 years age is expected to produce.

1.6.1.2 The actual yield of poles of 10 coupes of 40 years age of Khurchutta Reserve Forests is given below:-

Name of	Coupe	Dia under bark at stump height									
F.S.	No.	3”	4”	5”	6”	7”	8”	9”	10”	11”	12”
East F.S.	7	2102	2293	2406	2240	1871	1403	748	311	112	36
West F.S.	7	2462	2704	2431	2116	1293	1009	480	179	71	22
East F.S.	8	3429	4337	3314	2238	1565	1160	468	200	35	15
West F.S.	8	2670	2278	2332	2129	1814	1412	1002	660	225	98
East F.S.	9	2015	3341	3295	3082	2036	1925	1224	675	75	35
West F.S.	9	3725	4041	3711	3809	2640	2715	1525	545	112	148
East F.S.	10	2715	2625	2511	3315	1475	1270	1020	351	60	65
West F.S.	10	1837	2359	3255	2105	1643	675	504	605	236	175
East F.S.	11	825	1976	1347	1175	596	305	109	42	8	12
West F.S.	11	1127	1897	1322	1054	1143	909	584	373	275	70
Grand Total		22907	27851	25924	23263	16046	12783	7684	3850	1209	676

1.6.1.3 The average dia of crop which will be produced in a 40 years rotation on the basis of yield figures mentioned above comes to 5.57 inches under bark at stump height. The maximum numbers of poles are of 4” and 5” dia. The poles above 8” dia are all form

standards left at the time of last coppicing. The average for the poles from 3” to 8” dia works out to 5.15 inches.

1.6.1.4 The composition of crop at maturity (40 years-roation) including the standards of the previous fellings is as follows:-

3” dia	16.10	Percent
4” dia	19.57	Percent
5” dia	18.22	Percent
6” dia	16.35	Percent
7” dia	11.28	Percent
8” dia	8.98	Percent
9” dia	5.40	Percent
10” dia	2.70	Percent
11” dia	0.85	Percent
12” dia	0.47	Percent

1.6.1.5 In Mr. Prasad’s Plan for Ex. R.Fs. of Ramgarh Raj the age-dia graph shows that, sal will grow to a dia of 6” over bark at the age of 40 years. This very much tallies with figures obtained from actual fellings of 40 years old crop of Khurchutta Range. Hence for all practical purposes the age-dia, graph of Mr. Prasad’s Plan will hold good for Hazaribagh West Division also.

1.6.1.6 The age-dia graph for sal and asan from Mr. Prasad’s plan is reproduced below for ready reference.

ESTIMATE OF FUTURE OUTTURN

1.6.2.0 The Forest Resources Survey Division, Bihar, in his report for Hazaribagh, Giridih and Dhanbad Districts has estimated the outturn of various types of forest produce from Hazaribagh West Division. The following figures are reproduced from this report :-

Timber	Pole	T.L. & coggins	Other timber	Firewood
1.850	1.630	1.341	1.469	2.680
0.505	0.185	0.241	0.155	0.324

3691.55 to 988.71	6073.38 to 8892.01	3256.56 to 6054.84	2479.08 to 3550.34	11655.69 to 17497.13
3882.40 to 10495.85	5802.53 to 9162.06	2982.28 to 6329.11	2372.37 to 3657.08	11081.60 to 18068.22

1.6.2.1 On this basis the total outturn of all types of produce is 6.770 cu.m. per acre or 16.73 cu. m. per hectare. The total estimated outturn of the Division on the basis of the above figures at 10% probability of error works out to as given below:-

Estimated outturn (cu.M)
(at 5% level) at 10% level)

Timber	3,699.55	to	9,885.71
Pole	6,073.83	to	8,892.01
T.L. Coggins	3,255.56	to	6,054.84
Other Timber	2,479.08	to	3,550.34
Firewood	11,655.69	to	17,497.13

GROWING STOCK

1.6.2.2 The conventional formulae for computing the value of growing stock is:

In Hazaribagh West Division the rotation for coppice working circle is 30 and 40 years rotation it is about 20% of the total area. Hence the average rotation is 32 years.

The ‘K’ represents the volume of unfelled trees. The number of standards and fruit trees is about 35 and if the number of unfelled reserved trees is another 10 then total number of unfelled trees is 45. If the volume of one trees on average is half cu.ft. the total volume of such unfelled trees is 22.5 cft i.e. 0.63 cu.m. Thus ‘K’ workout to .093 or 0.1 approximately. On this basis the volume of growing stock on total area under coppice working circle only lies between:

The estimation of the volume of the growing stock of other working circles the rehabilitation working circle and plantation working circle could not be possible since sufficient date were not available.