

Chapter -5

Past systems of management

Section -1 general history of the forest

47. Before the implementation of the Bihar Private Forests Act, 1947, all the forests of this division, except Kundri R.F. and 29 K.rR.F.S. were under the management of private owners. There was no management worth the name and fellings were done without any check or hindrance. The owners and the villagers used to fell what ever and where they liked with in their forests. Forest land was also converted in to fields as and when one liked. The K.R.F.' S. were in no better condition.

48. This state of affair was checked with the enforcement of the B.P.F. Act.

The management of the forests was taken over by the Government. They were demarcated on the ground and the boundaries were properly surveyed and mapped on the village cadastral sheets. Forest settlement proceedings were started. Finally the ownership of the Forest was vested in the Government with the enactment of the Bihar Land Reforms Act. The private forests had to be renotified under the Indian Forest Act. 1927 as mentioned in Chapter I, Section VIII.

49. Initially all these forests were forests were placed under the existing Palamu Forest Division and four additional Ranges were created for managing these forests.

These Ranges were : -

- (1) Kundri.
- (2) Patan.
- (3) Chhattapur and
- (4) Mohammadganj.

50. In 1952 the Garhwa forest Division was created and the Chhattarpur and Mohammadganj Ranges were transferred to the Division.

In 1954 when Palamau Forest Division was split up into Daltonganj and Latehar Forest Division the two ranges were brought back again under the administrative control of the Daltonganj forest Division.

51. IN 1961, the Daltonganj North and Daltonganj South Forest Divisions got some forest area from the Latehar forest Division while the former getting all the forests considered under this plan with the following ranges: -

- (1) Chhattarpur
- (2) Mohammadganj
- (3) Kundri and
- (4) Manatu.

52. In 1963, Patan Range was created and the Chhattarpur Afforestation Range was transferred to this division from the Gaya Afforestation Division.

Since 1969 the following Ranges are functioning: -

- (1) Chhattarpur East.
- (2) Chhattarpur West.

- (3) Mohammadganj.
- (4) Manatu.
- (5) Patan and
- (6) Kundri.

SECTION -II PAST SYSTEM OF MANAGEMENT AND THEIR RESULTS

53. As the preparation of working plans would have taken time, some felling series statements and working schemes were prepared hurriedly by the territorial D.F.O. soon after the management of these forests was taken over by the Government under the B.P.F. Act. Thus in 1948 Shri H.D. Singh the then D.F.O. of the Palamau forests Division, prepared schemes for exploiting Khair and bamboo forests of this area. For meeting the demands of timber and firewood felling series statements were prepared which were revised from time to time.

54. Every annual coupe used to be divided in to two parts. One for the right holders and the other for sale to the non-right holders. Later on Government ordered that in the matter of allotment of coupes every effort should be made to allot ad separate coupe for every village or in other words, every village should from a felling series by itself. Coupes were therefore, opened in every village. Better forests in which the produce was in excess of the requirement of the right-holders were termed as "Surplus forests" and these could be grouped suitably into felling series. In the surplus felling series the annual coupes were at forest the own open to the right holders for one year and then surplus material left in them was sold in the following year.

55. This system of coupe in every village did not function satisfactorily. The material left after the right holders had taken cheir requirement was invariably small and could not be sold. Supply to the general population therefore suffered. Moreover, the layout and control of such a large number of coupes proved too heavy a strain on the existing staff.

56. These facts were considered when the first working plans for the area were prepared by J. N. Sinha.

- (1) Working Plan for protected Forest of Garhwa division (1954-55 to 1963-64)
- (2) Working Plan for Protected Forests of Latehar and parts of Palamau Division (1954-55 to 1963-64)

57. As stated above, at that time two of the Ranges were under the Garhwa forest Division and the other two were under the palamau forest Division.

58. For the R.F.S' and K.R.F. "S. P. Mishra's Plan for the Reserved and protected forests of the palamau forest division was operative.

59. The former two plans expired after 1963-64 but were extended upto 1973-74 vide letter no. A/F(IFS) II-098/70-3272 V, dated 24.06.1970 from the Government of Bihar, Forest Department, to the Chief Conservator of Forests, Bihar.

Sinha ' Plans: (1954-55 to 1963-64 extended upto 1973-74)

60. Under these plans the forests were managed under the following working circle.

- (a) Coppice-with-Standards working Circle.

- (b) Khair overlapping working Circle.
- (c) Bamboo overlapping working Circle.
- (d) Salai and Simal overlapping working Circle.

Coppice-with-Standards working Circle.

61. The area allotted to this working circle was 87,709 ha. As is apparent from the name of the working circle, the silvicultural system followed was coppice-with-standards. There rotations were prescribed for this area:-

- (i) 40 Years-

For the forests that were away from human habitations and were subjected to moderate demand and intensity of felling, resulting in better crop.

- (ii) 20 Years

For the forests that were close to thickly populated villages and were subjected to heavy felling resulting in poorer crop.

- (iii) 10" - For the forests situated right in the midst of thickly populated villages and subjected to overfellings and over grazings resulting in a very bad crop.

The idea in having smaller rotations for the poorer forest was to go over the area as quickly as possible for improving the growing stock.

Constitution of Felling series:-

62. Depending on the extent of forests, two or more villages were grouped into felling series. While doing so, convenience of the right-holder had to go more than 5 to 6 Km. to obtain his requirements. As far as possible annual coupe area was limited to 24 ha.

63. It was prescribed that the right holders should exercise their rights only within one section constituting half portion of the coupe and therefore take their bonafide personal requirements. Each coupe was to be opened first to the right-holders and in the following year the surplus, if any, along with the other haft of the coupe was to be sold.

MARKETING OF STANDARDS

64. The number of standard per acre and size to be preferred under different rotations were prescribed as below:-

Rotation	No. of standards to be retained	The size to be preferred (in dia class in inches)
40 years	8 to 10	6"-12"
20 years	10 to 15	4"-10"
10 years	6 to 8	4"-10"

65. The sizes mentioned above were for Sal, Bija, Asan, Gamhar, Karam and Siris. Sizes of other species were left at the discretion of the Marking Officer. In addition to standards, all fruit-bearing and lac host trees such as Kend, Mahua, Piar, Mango, Kusum, Palas, Ber etc. were to be retained

provided the number of standards and fruit trees per acre did not exceed 20. Simal, Salai, Bhurkund, Khair, Chhatni, Bamboo, Amla, Hare were prescribed to be retained. Object of retaining standards were to produce large sized tree of selected species. However, no Chhatni *Alstonia scholaris* is found in this division.

66. The above prescription was modified by the chief conservator for forests, Bihar vide his letter no. 8213 dated 26-11-1962, to the following extent:-

(a) 15 trees of valuable non-fruit bearing species like sal and asan should be marked as standards, and

(b) In addition to the standards mentioned in (a) above 20 trees of kend and piar per acre should also be left. In selecting these trees, such trees which produce maximum amount of fruits should be left.

Subsidiary silvicultural operations:-

67. Subsidiary silvicultural operations were prescribed in the year immediately following the main fellings. These were dressing down of high stumps, removal of diseased and malformed unfilled trees and damaged standards.

No cleaning was prescribed in subsequent years.

68. No thinning was prescribed for areas to be worked under 40 years 20 and 10 years rotations. For area worked under 40 years rotation thinning were prescribed as follows:-

- | | | | |
|-----|--------------|---|--|
| (1) | Garhwa plan | - | 14 th and 27 th years. |
| (2) | Palamau plan | - | 15 th and 30 th years. |

69. The prescriptions of the plans were partially implemented in these forests which could be sold in auction. The lay out and sequence of coupes was faithfully implemented in most cases. Marking of standards was satisfactory in the better forests. Subsidiary silvicultural operations remained very much neglected for want of the funds. Consistent improvement of forests is noticeable only in isolated pockets, where site conditions are good. A vast majority of the forests have, however, deteriorated. In some cases the forests have been reduced to scrub with some Salai and Gunjan trees standing guard. Gradually these too are disappearing. The situation is not so due to the failure of the prescriptions of Sinha's plan but is due to widespread theft of forest produce and overgrazing. In fact some areas are practically being worked on annual felling cycle by the villagers and the forest staff appears to be helpless spectator.

70. Of the total of 251 felling series, 22 are worked under 10 year rotation, 132 under 20 years rotation and 97 under 40 year rotation. Only 120 felling series are sold in general auction. In areas prescribed to be worked under 110 year rotation, the crop is so poor that coupes are not laid out. One rotation has been worked over and in the 2nd rotation the crop has been reduced to scrub, requiring plantation and rehabilitation.

71. Forests being worked under 20 year rotation are, however somewhat better but it cannot be said that the crop has improved with working. In

most of the cases deterioration has been noticed both in composition and structure of the crop and it is apprehended that in course will fall considerable when the worked over areas again fall due for felling. However, one redeeming feature is that in some of the areas salai regeneration is coming up and is persisting inspite of no care being taken of them.

72. Conditions are better in area with 40 years rotation primarily because these were the best forests originally. The longer rotation and lack of heavy local demand have helped in the improvement of the crop.

73. Stock mapping of the forests was not done and therefore unproductive areas were also included in the felling series. As a result many coupes remained unsold for a number of years. This led to difficulties in forecasting revenue, and fixation of reserved price of the coupes. Pure salai areas has been included in coppice felling series.

74. Standards do not exist in many coupes. Wherever they appear, they are mostly diseased, malformed and infested with Loranthus. Most of them have completely lost their timber value. In an anxiety to make up the number prescribed in the plan, even malformed, unhealthy trees were marked as standards, they were not uniformly positioned either. Often they are found in groups. All fruit-bearing trees and lac hosts, khair and salai are left in the coupe even when they are of no value. Often their number is more than 20.

75. The right-holders have not met their obligations as envisaged in the plan. They have not helped in marking and laying out of coupes. Nor have they coppiced the coupes satisfactorily. In surplus coupes the coppicing is done by the purchasers, but the deficit coupes remain uncoppiced.

Khair over – lapping working circle.

76. A total area of 89,957,72 hectares was allotted to this working circle in the two plans.

From enumerations carried out in course of preparation of the plans it was assessed that trees below 8" diameter form 96.5% of the total growing stock, while exploitable trees formed only 3.5% of the growing stock. This was due to past maltreatment.

To improve the crop a 10 year felling cycle was adopted and exploitable diameter was fixed at 8".

77. The following marking rules were prescribed: -

- (1) All khair trees of diameter 8" and above were to be marked.
- (2) Marketable khair under 8" in diameter, which were hollow or dying, were to be marked.
- (3) Stumps upto 8' in height were to be marked whereas stumps above 8' were to left.

Subsidiary silvicultural operations were prescribed as below: -

- (i) All marked trees of stumps not felled by the contractor were to be cut back departmentally.
- (ii) Any khair trees damaged in the course of felling was also to be cut back.

(iii) Shoots per stool were to be reduced to one each provided that such coppice shoots as have reached the diameter of 3" or above would not be cut away even if there be more than one in each stump.

(iv) In the 5th year after felling operations under item (iii) above were to be repeated.

78. Four felling series were constituted, viz. corresponding with the then Range Jurisdictions: -

(1)	Kundri	..	20,981.15 ha.
(2)	Patan	..	34,237.85 "
(3)	Chhatarpur	..	10,728.73 " and
(4)	Mohammadganj	24,010.26 "

Total: - 89,957.72 Ha.

79. The system prescribed was selection-cum improvement. But in effect no improvement work was undertaken, and only exploitation felling of marked trees were done.

80. Annual Yield was regulated by area alone and all trees of 8" diameter and over marked for fellings. Marketable trees of under 8" diameter which were dead, damaged or malformed and all stumps below 8' in height were also marked.

81. As mentioned above, subsidiary cultural operations and been prescribed, but it was not financially possible to carry out the prescriptions.

82. the yield of khair has varied considerably from year to year. In may coupes khair trees were not available while in some others the incidence was very low.

Bamboo over – lapping working circle.

83. There are 46 bamboo Felling Series in the Division of which 25 are under long term lease with M/s R.I. Ltd.

Of the remaining 21 felling series, only a few were regularly worked, the reason being poor potentiality, small area of coupes, and damage by the villagers. Some good bamboo areas were also found left out of the bamboo felling series.

84. The Divisional forest officer, therefore reconstituted the bamboo felling series during 1963-64 vide his memo no. 4779 dated 28.09.1963. Submitted to the Conservator of Forests, Western Circle. In the scheme, the following new bamboo felling series were created, viz: -

- (1) Kisaini in Patan Range (then manatu Range)
- (2) Khapparmanda in Kundri Range
- (3) Manasoti in Kundri Range.

All the coupes were being sold and worked regularly after the reconstitution.

85. Special objects of management were: -

- (i) to restore the ill-treated and congested bamboo clumps to a reasonable state of productivity.

- (ii) To meet the bonafied requirements of the right holders.
- (iii) to devise a compromise silvicultural method of meeting the demand of turees for new shoots.
- (iv) Consistent with the above to obtain the maximum sustained yield of bamboo.

Sinha's plan prescribed a cutting cycle of 3 years mainly to achieve the removal of congestion of clumps as soon as possible. It was, however, suggested that after the clumps were rehabilitated reversion to the usual 4 year cutting cycle may be considered.

87. Felling Series were generally constituted in such a manner that about 500 acres of average bamboo area may fall in one bamboo coupe. Felling rules for bamboo were prescribed as follows:

- 88.
- (i) No culms of the last rains were to cut.
 - (ii) A minimum of six good quality well grown and full length nature culms (not older than 4 years) were to be left in each clump.
 - (iii) The leading exterior culms were not to be cut in any circumstances even if the be malformed.
 - (iv) Digging of rhizomes for manufacture of lathies or for any other purpose was prohibited.
 - (v) Culms were to be cut at a height between 6' and 1' above the ground level and at least one node was to be left.
 - (vi) Only sharp instruments were to be used for cutting.
 - (vii) No culm was to be cut in the year of flowering until after the seed had been shed.
 - (viii) No portion of the cut culms was to be left in culms hanging.
 - (ix) The felling debris were to be collected and stacked at a distance of at least 6' from the clump.
 - (x) No cutting was permitted from the 1st July to 15th October each year, and.
 - (xi) In badly congested clumps half the clump was to be clear felled.

89. In the year following the felling, subsidiary silvicultural operations were to be carried out as below: -

- (1) removal of all dead and dry culms, high stumps and hanging branches of past felling.
- (2) removal of climbers damaging clumps, and
- (3) execution of item (xi) under rules for cutting if not already done.

90. Exercise of rights by right-holders was permitted in the sold coupe of the strength of permit to be issued by the Range Officer after due verification of requirements.

91. In areas under long term lease the main objects of managements have been achieved except in Hat, Chandaigir and Dabra felling series where human interference has undone whatever results could have been achieved. Of the coupe auctioned every year only the following attract buyers intermittently:-

- | | |
|--------------|------------------|
| (1) Burni. | (6) Kasmar |
| (2) Kasaini. | (7) Khapparmanda |
| (3) Bandua | (8) Manasoti. |
| (4) Silda | (9) Korta, and |
| (5) Pundru. | (10) Arapur |

Yield of bamboo :

92. The total outturn of bamboo in the division has been as follows: -
1955-56 lease renewed in 1967 (9 year lease) yield in tones.

	I Cycle.	II Cycle.	III Cycle.	IV Cycle.	V Cycle.
Coupe 'A'	13026.71	11694.54	9946.56	7246.35	-
Coupe 'B'	22769.54	4888.75	8497.79	9467.05	6497.36
Coupe 'C'	10110.61	10844.31	11200.01	8372.85	8961.91

1962 lease - (12 year lease.)

Coupe 'A'	4088.19	1896.20	-	-	-
Coupe 'B'	8317.48	3467.50	-	-	-
Coupe 'C'	6870.86	4382.25	3529.80	-	-

Auction coupes from 1961-92

Coupe 'A'	1203.75	1528.30	-	-	-
Coupe 'B'	6425.90	915.00	915.18	-	-
Coupe 'C'	1128.05	363.25	1310.37	-	-

93. An analysis of yield of each coupe in successding cycles is as follows: -

Year	No of coupe	Under lease or auctioned	Yield in tones @5.27 per diesel & @4.7 per petrol truck
1	2	3	4
1957-58	A	Lease	284
1960-61	A	"	273
1963-64	A	"	252
1966-67	A	"	289
1955-56	B	"	242
1958-59	B	"	526
1961-62	B	"	462
1964-65	B	"	787
1967-68	B	"	1122
1956-57	C	"	975
1959-60	C	"	2434
1962-63	C	"	2560
1965-66	C	"	2225
1968-69	C	"	2366
F.S. ZERO (9 YEAR LEASE)			
1957-58	A	Lease	189
1960-61	A	"	116
1963-64	A	"	125

1966-67	A	"	79
1958-59	B	"	593
1961-62	B	"	483
1964-65	B	"	662
1967-68	B	"	511
1959-60	C	"	174
1962-63	C	"	163
1965-66	C	"	179
1968-69	C	"	200
F.S. TAL (9 YEAR LEASE)			
1957-58	A	Lease	877
1960-61	A	"	736
1963-64	A	"	593
1966-67	A	"	688
F.S. TAL (9 YEAR LEASE)			
1955-56	B	Lease	90
1958-59	B	"	531
1961-62	B	"	179
1964-65	B	"	205
1967-68	B	"	432
1959-60	C	"	347
1962-63	C	"	504
1965-66	C	"	667
1968-69	C	"	912
F.S. CHETMA (9 YEAR LEASE)			
1957-58	A	Lease	1544
1960-61	A	"	909
1963-64	A	"	1260
1966-67	A	"	977
1955-56	B	Lease	851
1958-59	B	"	472
1961-62	B	"	310
1964-65	B	"	395
1967-68	B	"	295
1956-57	C	"	457
1959-60	C	"	520
1962-63	C	"	604
1965-66	C	"	468
P.S. MATNAG (9 YEAR LEASE)			
1957-58	A	Lease	1361
1960-61	A	"	672
1963-64	A	"	462
1966-67	A	"	783
1955-56	B	Lease	253

1958-59	B	"	657
1961-62	B	"	531
1964-65	B	"	936
1967-68	B	"	395

1956-57	C	"	2050
1959-60	C	"	1062
1962-63	C	"	1203
1965-66	C	"	720
1968-69	C	"	1028

P.S. DABRA (9 YEAR LEASE)			

1957-58	A	Lease	163
1960-61	A	"	42
1963-64	A	"	16
1966-67	A	"	100

1955-56	B	Lease	541
1958-59	B	"	126
1961-62	B	"	37
1964-65	B	"	185
1967-68	B	"	395

1956-57	C	"	457
1959-60	C	"	284
1962-63	C	"	541
1965-66	C	"	273
1968-69	C	"	337

F.S. MANATU (9 YEAR LEASE)			

1957-59	A	Lease	868
1960-61	A	"	689
1963-64	A	"	384
1966-67	A	"	615

1955-56	B	Lease	970
1958-59	B	"	410
1961-62	B	"	468
1964-65	B	"	424
1967-68	B	"	632

1956-57	C	"	79
1959-60	C	"	46
1962-63	C	"	47
1965-66	C	"	27
1968-69	C	"	32

F.S. GARHGAON (9 YEAR LEASE)			

1957-58	A	Lease	3754
1960-61	A	"	1980
1963-64	A	"	1329
1966-67	A	"	1817

1955-56	B	Lease	1054

1958-59	B	"	598
1961-62	B	"	526
1964-65	B	"	677
1967-68	B	"	474
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1956-57	C	"	1939
1959-60	C	"	1565
1962-63	C	"	1273
1968-69	C	"	1196

F.S. DARUA (9 YEAR LEASE)

1957-58	A	Lease	163
1960-61	A	"	793
1963-64	A	"	879
1966-67	A	"	452
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1955-56	B	Lease	76
1958-59	B	"	16
1961-62	B	"	41
1964-65	B	"	57
1967-68	B	"	32
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1956-57	C	"	--
1959-60	C	"	116
1962-63	C	"	21
1965-66	C	"	---
1968-69	C	"	26

F.S. TANDWA (9 YEAR LEASE)

1957-58	A	Lease	700
1960-61	A	"	877
1963-64	A	"	777
1966-67	A	"	683
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1955-56	B	Lease	904
1958-59	B	"	1886
1961-62	B	"	1640
1964-65	B	"	1890
1967-68	B	"	1080
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1956-57	C	"	2035
1959-60	C	"	2049
1962-63	C	"	1297
1965-66	C	"	1233
1968-69	C	"	1207

F.S. KARMA (9 YEAR LEASE)

1957-59	A	Lease	447
1960-61	A	"	578
1963-64	A	"	325
1966-67	A	"	505
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1955-56	B	Lease	704
1958-59	B	"	421

1961-62	B	"	457
1964-65	B	"	268
1967-68	B	"	111
1956-57	C	"	168
1959-60	C	"	174
1962-63	C	"	216
1965-66	C	"	200

F.S. DUMRI (9 YEAR LEASE)

1957-58	A	Lease	688
1960-61	A	"	472
1963-64	A	"	316
1966-67	A	"	232
1955-56	B	Lease	1575
1958-59	B	"	771
1961-62	B	"	893
1964-65	B	"	1313
1967-68	B	"	733
1956-57	C	"	595
1959-60	C	"	526
1962-63	C	"	763
1965-66	C	"	252
1968-69	C	"	190

F.S. MORWAI KALAN (9 YEAR LEASE)

1957-58	A	Lease	1509
1960-61	A	"	1198
1963-64	A	"	1119
1966-67	A	"	1020
1955-56	B	Lease	--
1958-59	B	"	64
1961-62	B	"	64
1964-65	B	"	90
1967-68	B	"	37
1956-57	C	"	515
1959-60	C	"	--
1962-63	C	"	404
1965-66	C	"	250
1968-69	C	"	206

F.S. GORHO (12 YEAR LEASE)

1964-65	A	Lease	2850
1967-68	A	"	1137
1962-63	B	Lease	2027
1965-66	B	"	1867
1967-68	B	"	1640
1963-64	C	"	390

1966-67	C	"	336
1964-65	A	"	1032
1967-68	A	"	585
1962-63	B	"	5
1965-66	B	"	32
1967-68	B	"	-
1963-64	C	"	987
1966-67	C	"	742
F.S. KUNDILPUR (12 YEAR LEASE)			
1963-64	A	Lease	227
1966-67	A	"	105
1964-65	B	"	1262
1967-68	B	"	760
1962-63	C	"	426
1965-66	C	"	382
1968-69	C	"	331
F.S. TETARRIADIH (12 YEAR LEASE)			
1963-64	A	Lease	79
1966-67	A	"	78
1964-65	B	"	182
1967-68	B	"	97
1962-63	C	"	73
1965-66	C	"	126
1968-69	C	"	105
F.S. SCHURANDAG (12 YEAR LEASE)			
1963-64	A	Lease	55
1966-67	A	"	105
1964-65	B	"	239
1967-68	B	"	203
1962-63	C	"	152
1965-66	C	"	191
1968-69	C	"	171
F.S. AUKA (12 YEAR LEASE)			
1963-64	A	Lease	146
1966-67	A	"	84
1964-65	B	"	172
1967-68	B	"	275
1962-63	C	"	441
1965-66	C	"	394
1968-69	C	"	369
F.S. GARHAKA (12 YEAR LEASE)			
1963-64	A	Lease	106
1966-67	A	"	119
1964-65	B	"	119

1967-68	B	"	142
1962-63	C	"	151
1965-66	C	"	169
1968-69	C	"	102
F.S. GOINDI (12 YEAR LEASE)			
1963-64	A	Lease	115
1966-67	A	"	84
1964-65	B	"	122
1967-68	B	"	92
1962-63	C	"	452
1968-69	C	"	367
1965-66	D	"	267
F.S. HATAI (12 YEAR LEASE)			
1964-65	A	Lease	179
1967-68	A	"	69
1962-63	B	"	589
1965-66	B	"	362
1968-69	B	"	242
1963-64	C	"	79
F.S. HULISAM (12 YEAR LEASE)			
1964-65	A	Lease	342
1967-68	A	"	457
1962-63	B	"	1051
1965-66	B	"	569
1968-69	B	"	326
1963-64	C	"	---
1966-67	C	"	---
F.S. TARUDAG (12 YEAR LEASE)			
1964-65	A	Lease	209
1967-68	A	"	116
1962-63	B	"	288
1965-66	B	"	364
1968-69	B	"	321
1963-64	C	"	40
1966-67	C	"	153
F.S. BARAKHAR (12 YEAR LEASE)			
1964-65	A	Lease	775
1967-68	A	"	419
1962-63	B	"	835
1965-66	B	"	704
1968-69	B	"	704
1963-64	C	"	1265
1966-67	C	"	634

94. There can not be nay doubt what so ever that the gradual fall in the yield of bamboo in primarily due to severs illicit Fellings. The Saraidh, manatu area joins a highly populous belt to Gaya district. Raniganj, in Gaya has been a big market for bamboo poles and the demands are almost insatiable. Hundreds of carters carry bamboos from this region to Raniganj and are fed by the so called raiyati contractors. No doubt some bamboos do occur in raiyati areas also but they appear only to be the thin end of the wedge.

95. Salai and Semal Working Circle.

Semal is not being worked. Salai is being managed under selection system. There are 4 fellings series coinciding with the then Range areas.

96. Selection fellings were prescribed on a felling cycle of 15 years. The minimum exploitable diameter was 12". Yield was controlled by area.

The marking rules were:-

- (i) All salai trees of over 12" diameter were to be marked.
- (ii) Marketable salai trees below 12" diameter if hollow or moribund were also to be marked.

No measures were contemplated to encourage regeneration or to tend it wherever it occurred.

97. The prescriptions were implemented. Difficulties arose, however, due to the fact that coupe were not equiproductive.

Working Plan for Reserved and Khalase Reserved Forests:

98. There is only one Reserved Forest i.e. Kundri reserved in 1923 partially with a view to cultivate lac on the Palas trees which constitute the chief crop. It is being worked under a scheme prepared by the Indian Lac Research Institute Namkum, for experiment and training purpose. Some work of improvement needs to be carried out.

99. Khalsa Reserved Forests are 29 in number extending over 14.73 sq miles, and are being worked under Mishra's Plan. Only 4 felling series out of 8 in Patan Range are being worked, and of the 5 in Kundri Range only 2 are worked. The rest have scrub by growth.

100. The system adopted is coppice-with-standards on a 40 year rotation. Bamboo is being worked only in Goindi, Kasmar and Banshi Khurd Felling series on a 4 year cutting cycle. In Hurmur Felling series the crop is o poor that it has not been possible to sell it.

B.N. Sinha's Plan of 1974-75 to 1983-84

101. Shri Sinha prepared his plan for only 10 years but it remained in force till 1997-98. It covered the whole forest area of the present Dalonganj North Division. The main features of his plan were as follow:-

He advocated that those Forests had grated potentialities and a sound management technique could increase the revenue manifold. The forest was to be managed to protect and improve growing stock, wild life and maximize the yield.

102. Due to thick population, demand of forest produce was more greater portion of forest was to be worked under coppice-with-standards system but Salai and Khair was to be worked under selection system and degraded area under clear felling system to raise plantation and adopt soil conservation measures.

103. To meet the objectives of his plan, Mr. Sinha Constituted the following Working Circle:-

- (i) Salai Selection Working Circle
- (ii) Coppice Working Circle
- (iii) Khair Working Circle
- (iv) Bamboo Working Circle
- (v) Bamboo Rehabilitation Working Circle
- (vi) Rehabilitation cum Plantation Working Circle
- (vii) Wild Life Working Circle
- (viii) Resin and Gum Working Circle

Salai Selection Working Circle

104. This Working Circle included those areas which had 50% or more salai crop. Area of this Working Circle was 58,489 acres or 23,688-05 hectares. Salai was to be used in packing industry and paper pulp. Area of this Working Circle was usually on hills having degraded sited. Therefore, main object of this working Circle was to improve existing stock by removing unhealthy and overmature three and to protect area from erosion. The principal species was Salai. There were six felling series each confined to the boundaries of range. They were as below:-

Sl no.	Name of F.S.	Total area (in acres)	Rotation	Annual Reviies Coupe (no of trees)
1.	Mohammadganj	12,025	10	3800
2.	Chhatarpur West	13,985	10	2600
3.	Chhatarpur East	7,239	10	600
4.	Patan	9,612	10	1200
5.	Manatu	12,478	10	1500
6.	Kundri	3,150	10	---

105. The felling cycle was of 10 years and one tenth (1/10th) felling series was to be taken as coupe area with slight deviation upto 10. The silvicultural system was selection system. The exploitation girth was 125 cm seedlings and saplings were to be kept free from climbers. Cleaning operation was to be done in 5th year. Area was advocated to be protected from grazing. Yield in this working circle was prescribed by number of trees. Right was to be met from coppice working circle allotted to them. The post silvicultural operation was to plant salai in open areas to supplement the natural regeneration.

Coppice Working Circle

106. The area of this working circle was 78,220.40 acres with 85 felling series. The main crop was Sal and miscellaneous species and salai consisted less than 50%. This forest wealth was not good. Hence the main object of management of this working circle was to improve growing stock by regulation cutting. The coppice with standard system was to be followed:-

Coppice Felling Series :-

TABLE- 13

Sl no.	Name of Felling	Total area (Acres)	Rotation	Annual	Remarks
1	2	3	4	5	6
1.	serandang	170.00	30	5.66	
2.	Matuli	216.64	30	7.22	
3.	Abun	882.00	30	29.40	
4.	Pundru	912.03	30	30.40	
5.	Tal	579.09	30	19.30	
6.	Garihara	700.03	30	13.33	
7.	Herum	287.22	30	9.97	
8.	Matang	1091.73	30	36.39	
9.	Kakargarh	1265.21	30	42.17	
10.	Janjo	930.43	30	31.03	
11.	Mukta Khurd	44.00	30	1.46	
12.	Khamdhi	40.00	30	1.33	
13.	Jagissohri	200.00	30	6.66	
14.	Hutai	952.00	30	31.74	
15.	Kusri	217.00	30	7.23	
16.	Manhepipra	1035.43	30	34.50	
17.	Sons	992.32	30	33.07	
18.	Angarah	842.59	30	28.03	
19.	Khaparmanda	283.00	30	9.45	
20.	Hatai	1889.00	30	62.96	
21.	Sohdag	1004.00	30	33.46	
22.	Ghasida	698.00	30	23.26	
23.	Arapur	871.00	30	29.00	
24.	Solonga	362.36	30	12.08	
25.	Dundur	297.40	30	9.91	
26.	Lahanga	624.00	30	20.80	
27.	Bhadwa	730.00	30	24.33	
28.	Rajderwa	137.56	30	4.58	
29.	Pachkheria	20.00	30	0.66	
30.	Tilaiya	92.00	30	3.06	

31.	Katri	428.29	30	14.27	
32.	Kanwal	1232.54	30	41.08	
33.	Sahi	822.75	30	17.40	
34.	Kangaldih	522.07	30	17.40	
35.	Kerkikalan	511.86	30	17.06	
36.	Hulsam	1712.74	30	57.09	
37.	Turidag	1315.13	30	43.83	
38.	Salaya Khurd	17.00	30	0.56	
39.	Barakhanr	1255.45	30	41.84	
40.	Silda Khurd	120.00	30	4.00	
41.	Hulsi Khurd	134.59	30	4.48	
42.	Dabnar	15.18	30	0.50	
43.	Karma	597.00	30	19.90	
44.	Reaebar	7.00	30	0.23	
45.	Salwe	514.00	30	17.13	
46.	Nawa	665.00	30	22.16	
47.	Kaamar	1779.00	30	59.30	
48.	Balga	266.00	30	8.86	
49.	Tal	326.00	30	10.89	
50.	Jaspur	592.00	30	19.73	
51.	Sohe	1067.34	30	35.57	
52.	Karma	136.00	30	4.53	
53.	Jhauti	653.75	30	21.79	
54.	Goindi	2408.00	30	80.28	
55.	Arra	763.18	30	25.44	
56.	Nawadhi	1101.00	30	36.72	
57.	Surguja	1414.31	30	47.14	
58.	Tetar	773.01	30	25.72	
59.	Mukta	164.94	30	5.50	
60.	Turiadih	1014.33	30	33.81	
61.	Kekrahi	730.39	30	24.35	
62.	Champi	100.00	30	3.33	
63.	Adhautia	1066.91	30	35.56	
64.	Kundilpur	40.00	30	1.33	
65.	Chak.	29.50	30	1.00	
66.	Bansi Khurd	936.00	30	31.20	
67.	Kasha	264.00	30	8.80	
68.	Sildiliya Khurd	1333.00	30	44.43	

69.	Ghufwa	1364.51	30	34.11	
70.	Teledih	1464.01	30	36.60	
71.	Churra	1641.75	30	41.04	
72.	Jotang	2131.94	30	53.30	
73.	Konwei	1948.00	30	48.70	
74.	Dema	1291.83	30	32.29	
75.	Nagari	1681.16	30	42.03	
76.	Bihra	1426.10	30	35.60	
77.	Loto	2144.00	30	53.60	
78.	Bisrahw	2805.00	30	70.13	
79.	Tanrwa	2472.00	30	61.80	
80.	Urur	2845.56	30	71.15	
81.	Manatu	1606.34	30	40.10	
82.	Kedal	2382.00	30	79.40	
83.	Sikni	3475.60	30	86.90	

107. Rotation of 30 and 40 years was fixed for the different felling series. Annual coupes were demarcated and divided into section. Standards were marked with serial number at base and at breast height. Healthy sal of 45 cm. in girth at breast height was to be selected as operation such as to remove climbers and to cut back damaged standards and defective species was to be carried out. Cleaning was to be executed in 5th year. Thinning was not required. It was prescribed to close area for grazing for 5 years after mass felling. Sowing and plantation work was to be done in the blank area.

Khair Working Circle

108. This working circle was overlapped with other working circle. According to this plan regeneration of Khair was good in this area but was affected by biotic factors. Therefore main object of management of this working circle was to maximize sustained yield. For that system of selection felling was to be practiced. Working circle was divided into 4 felling series and was again divided into 10 annual coupes. Felling Cycle of 10 year was prescribe.

109. The list of the felling series was as follow:-

Sl no.	Name of F.S	Total area	Annual no of trees to be felled
1	2	3	4
1.	Chhattarpur East		
2.	Chhattarpur West		
3.	Patan		
4.	Manatu		

5.	Kundri		
6.	Mohammadganj		

Demarcation of annual coupe necessary where two forests merge. For felling, minimum exploitation girth was 50 cm. Normal Khair trees at 50 cm. gbn. defective trees even below 50 cm. stump below 2-4 meter in height and girth below 50 cm was to be marked for felling. In case of sufficient cultural operations such as cutting of damaged trees climbers etc. were to be carried out. Cleaning was to be done in 5th year after main felling. Miscellaneous regulations such as prohibition of lopping and protection from fire was also prescribed. Provision for right holders was maintained in this plan. As post cultural operation blank area in Khair forest was to be planted.

Bamboo Working Circle

Bamboo Working Circle was an overlapping working circle. The area of this working circle was 70,912.5 acres or 28,581.71 ha. Dendrocalamus strictus was the only species of bamboo found in the area. The main object of management of this working circle was to improve the growing stock, to meet the requirement of peppermill and to meet the demand for right holders.

111. The plan prescribed 19 felling series and 4 year felling cycle was proposed.

Felling Series of Bamboo Working Circle:-

Sl no.	Name of F.S.	Gross Total area (Acres)	Net total (in Acres)	Rotation	Annual Coupe	Remarks
1	2	3	4	5	6	7
1	Taradung	2489.74	2320.31			
2	Chippo	2402.11	1866.94			
3	Cheltma	4247.42	3577.65			
4	Larbandhwa	3055.39	2775.28			
5	Hulsen	3842.62	3075.00			
6	Karma	4446.14	3891.33			
7	Dagra	4579.49	2460.26			
8	Hatal	3740.00	3716.00			
9	Salamdiri	4262.42	14843.65			
10	Jero	2420.51	2255.59			
11	Lawabar	4361.05	3462.48			
12	Jatang	2363.94	2551.00			
13	Chura	2794.50	1939.00			

14	Matnag	4477.78	2852.95			
15	Keargarh	2816.64	2204.80			
16	Tandawa	4616.09	4616.09			
17	Dumri	5600.00	1012.00			
18	Manatu	3458.49	2735.00			
19	Ghargarh	4705.13	3432.24			

112. The silvicultural system to be followed was selection system. There were 4 coupes in each felling series. The bamboo coupes were to be demarcated on the ground by 1.5 clear lines and at suitable intervals trees on the coupe side of the lines will be given +(plus) mark with coaltar at breast height. To regulate felling coupe was to be divided in to a number of sections. In exploiting any clump the first to cut was damaged, malformed, dead or dying culms. Only there after straight and healthy culms were to be cut leaving the prescribed number.

Haphazard selective felling was not allowed. When two clusters of culms were at a distance of 2 meter or more, they were to be treated as own separate clumps for enforcing the felling rules. If however, two clusters were less than one meter apart, they were to be taken as part to same stump. The demand of right holders was to be met from 1/5th of the total coupe area. The provision to supply bamboo to turries was maintained in his plan.

Bamboo Rehabilitation Working Circle

113. Degraded bamboo forest come under this working circle, which was overlapping area of this working circle was 63,645.82 acre or 25,776.57 ha. and bamboo bearing area was 27,527.62 acres or 11,148.69 ha. Dendrocalamus strictus was the only species of bamboo found in the area. Bamboo was great demand for paper pulp and at the same time required by villagers for various agricultural and domestic purposes. Hence bamboo forest near villages were ruined and they needed rehabilitation. Therefore, main object of management of this working circle was to improve growing stock by cleaning the clumps to improve density by planting and protecting from grazing. There were 23 felling series which cover all the 6 ranges.

Felling Series of Bamboo Rehabilitation Working Circle:-

Sl no.	Name of F.S.	Gross Total area	Net total	Rotation	Annual Coupe	Remarks
1	2	3	4	5	6	7
1	Homiya	657.52	340.00			
2	Kolhuwa	2872.49	894.00			
3	Damura	268.00	268.00			
4	Bachkoma	2635.53	1080.00			

5	Raibar	5978.18	3254.34			
6	Barwadih	1789.86	755.23			
7	Obra	1282.89	864.32			
8	Bisrawan	2989.24	306.00			
9	Karma	1137.95	1137.95			
10	Chukka	212.00	212.00			
11	Daldali	271.00	80.00			
12	Kundlipur	6852.39	3122.93			
13	Goindi	6473.72	3579.00			
14	Sildanga	1907.05	1879.00			
15	Dabara	2292.39	1251.33			
16	hatai	7367.96	1163.00			
17	Kanar	2674.40	1133.67			
18	Masoli	687.80	687.80			
19	Champi	3584.50	1533.62			
20	Rajhar	915.60	625.00			
21	Sildili	1990.86	822.00			
22	Chhipadohar	2712.96	1677.00			
23	Chutia	9816.13	838.00			

Felling cycle was of 4 years. Plantation of bamboo in blank area was to be carried out. For protection from grazing arrangement of fencing was necessary. 1/5th of the coupe area was to be kept for right holders.

Rehabilitation cum plantation Working Circle

115. Degraded rooted waste blank, old plantation area and area of low density was placed under this working circle. The working circle was to be managed to rehabilitate degraded and rooted waste forest and to plant up blanks to check soil erosion and to provide employment opportunity. Practice of coppice system supplement by artificial regeneration and plantation of blank as well as degraded are by fast growing species was to be done. Exploited size of Eucalyptus and Acacia auriculiformis was 40.45 cm at gbh for bamboo culms it was 2.5 cm. diameters.

For other species if was to be fixed after observing their growth and local condition. To complete massive plantation work, recommendation of an independent afforestation division was suggested. Worth sale crop was to be sold by auction. Plantation operation was to be carried out according to planting technique method and procedure. Soil conservation measures were also to be taken. Cleaning was required in 5th year to remove old dying species. Hoeing and fertilizer application was to be done along with cleaning. Thinning was to be done every tenth year upto 40 years.

Wildlife Working Circle

116. All area of this division was under this working circle to protect, preserve and develop wild life and improve the carrying capacity and habitat. For management purpose wild life division was divided into shooting blocks, sanctuary and closed areas. Importance of habitat improvement was also there. For that water hole was to be created in sufficient number. Artificial salt lick was to be provided. Fruit bearing trees, fodder and shrubs were to be planted in blanks on a spacing of 6m * 6m. Dens of tiger, leopard and bears were to be located and listed. The sanctuary was to be rigidly protected from fire and check posts were to be constructed on all roads leading to sanctuary.

Resin and Gum Working Circle

117. Gum and resin was to be tapped in Salai selection working circle from mature trees that this working circle was proposed. The objective of this working circle was to tap gum and resin on a scientific basis to increase revenue from standing gainful employment. Gum and Resin was to be tapped from standing tree in a manner so as not to damage them permanently. Tapping was to be done on a tree which were to be felled after 3 years.

The exploitable trees were to be tapped for 3 consecutive years.

The tapping series was maintained same as the salai felling series. The annual coupe synchronized with the area of the three consecutive coupes of salai working circle. Roughly the three tenth of the area under salai felling series were to be kept in one tapping coupe. All salai trees of and over 125 cms. Gbn. were to be tapped. For other species, much as *Anogeissus latifolia* *sterculia utens* etc. The minimum girth limit for tapping was also prescribed in the plan. For purpose of tapping the hole of a tree was divided into three zones. First zone from ground level to a height of 80 cms. Second from 80 cms upto 140 cms and third zone 140 cms to 200 cms No blazing has to be done from 1st July to 15th October.

Irregular Exploitation.

118. Irregular felling of green timber except for department work was prohibited in the plan. Removal of dry timber, firewood, brushwood, thorns and minor forest produce were to be regulated by Divisional Forest Officer.

Grazing.

118. According to the plan practice of grazing was frequent and as expressed by Mr. Sinha it was not possible at all to control grazing over all the forest, hence grazing was to be controlled only in coppice coupe, plantation area and in fodder farm. A system of grazing known as grazing system was also made. For that rotational grazing on a three year grazing cycle was suggested. It was also realized that a longer cycle of 4 or 5 years may be better. It was felt necessary to close a part of the area of grazing every year. Plantation area was to be fenced for 2-3 years. There were to be 3 paddocks and in any one year only one of the paddocks was to be opened for grazing, the farm and the paddocks were to be fenced by means of cattle proof trenches or barber wire.

Grazing regulations were to be enforced and cultural operation were to be carried out to improve production quickly.

The problem of head loaders was also frequently partly to earn their various needs. The head loaders were mostly unskilled, illiterate and very poor. So there problem was to be identified and attempts were to be made to raise their economic condition. Problem of forest fire was also there and remedial measures were suggested. Maintenance of forest boundaries, forest buildings and forest road etc. were to be taken into consideration.

CHAPTER- VI

STATISTICS OF GROWTH AND YIELD.

12. Yield in the Salai Working Circle and Bamboo Working Circle is being prescribed by area. No enumeration has been done in these cases and hence no estimated of yield can be given. Although attempts have been made to constitute equiproductive coupes, variable stocking and pressure from the local populace may affect the saleable portion of the yield.

CHAPTER- VII

ESTIMATE OF THE CAPITAL VALUE OF THE FORESTS

Average annual revenue.

121. When a forest is being worked for a sustained yield, so that a continuous net income is realized, this income may provide the most reliable indication of its value. However, this estimate of the capital value should be viewed with caution because the annual yield is not normal. The average revenue from the forests of Daltonganj North Division for 1995-96 and 1996-97 (leaving revenue from drift and waif wood, fines and miscellaneous revenue) was Rs. 23,75,675/- Subsequently the revenue from Kendu leaves has increased considerably. The average net revenue including that from Kendu leaves and deducting expenditure over staff and maintenance may be taken to be Rs. 30,00,000/-.

CAPITAL VALUE

122. It has been estimated that about one-third of the annual yield of timber and firewood is extracted annually by head loaders. In addition to this a large share is taken by the right-holders free of cost. If these value are taken into account, the capital value of the forests would be much higher.

Taking Rs. 5, 00,000/- as the capital value, the value per hectare comes to Rs. 387/- for an area of 1, 29,350 ha.

WILD LIFE

123. This is a new chapter being added to the working circle as it is felt that no forest working is complete without paying adequate attention to the wild life population. The animals and birds living in the forests are part of the ecosystem and the management of forest has to take into account this aspect also. The depletion of wild life in this division calls for special attention. The forests of Panki and Manatu used to carry a fair stock of deer while wild boar was found almost everywhere. Illicit shooting and overloading the carrying capacity of the forests with domestic cattle have been the main reason for the depletion of wildlife. If protection is extended to Panki-Manatu-Patan area, the wildlife of the division may increase in number.

124. The census of tigers carried out in May,1993 shows that wild life population in the Division is as below:-

Tiger	-	4 (Four)
Leopard	-	2 (Two)
Elephant	-	4 (Four)