

SECTION -II

PAST SYSTEM OF MANAGEMENT AND THEIR RESULTS:

In 1874-75 at the time of selecting the 37 blocks referred to in 143 Mr. Johnston carried out linear valuation surveys length of 154 miles and equal to an area of 1864 acres. the following average stock of materials in the forests per acre

Girth class.	Sal	Bia	Asan	Kusurn	Mahua	Gamhar	Sidha	Daunta	Khair
Under 18"	32.79	-	7.0	0.41	1.02	0.19	3.89	9.77	4.54
18" to 3,	1.2	1.3	1.1	0.18	0.47	0.13	0.26	1.71	0.52
3' to 4 1/2'	6.4	0.3	0.4	0.08	0.23	0.04	0.03	0.36	0.08
4 1/2' to 6'	0.2	0.2	0.2	0.04	0.11	0.003	0.005	0.10	0.03
over 6'	0.1	0.1	0.1	0.02	0.4	-----	-----	0.01	.004
Total:-	34.60	2.8	8.80	0.73	1.87	0.363	4.185	11.95	5.17

On these data Dr. Schlich prescribed complete rest to enable the forest to recover from past ill-treatment. So far as the records show,

management in the initial stages was confined to the protection of the forests. Fellings were limited to the exploitation of unsound timber and over mature trees, and the sale of Khair trees, Bamboos and minor forest products. In 1892 Mr. Dansey, the Conservator of Forests, Bengal, prepared a Working Plan report in the course of which he stated- "There was and is no Sal to cut because almost the entire crop consists of coppice saplings of 18" in girth and under These do not require to be thinned out, and if they were thinned out the produce would not meet with a sale, as the local demands of timber of all sorts, besides being small, can all be provided from. Outside the Reserved Forests. Still less would be the produce command an expert sale, because of its small intrinsic value".

Mr. Haslett's Plan of operations. 1904-14:-

In 1904 Mr. Mc. mire, Conservator of Forests, Bengal in a review of the adverse financial results of the Palamau Division reported to Government that the young crops of Sal were making fair progress, that the produce of improvement felling might become exportable in 20 years time, but that any large yield of timber suitable for exporting would not be obtained in less than 40 years unless coal mines were opened to the south of Daltonganj, and submitted his working plan in 1904-05. His proposals consisted of (1) selection fellings of Sal over 5' in girth and Khair 1'-8" in girth, (2) unregulated fellings of dead Sal and trees of other species for which a demand might be found, and (3) improvement fellings consisting of the removal of the inferior trees interfering with the growth of more promising trees. No sequence of felling was prescribed by him. He prescribed the working of bamboos on a three year's felling cycle in Betla, Saidupe and Kechki forests.

Bamboo felling rules were subsequently amended by the order of Mr. Hart, conservator of Forests, Bengal that six shoots should be left in each clump of which not less than two must be older than the shoots of the year. In 1925, Mr. Hal, Conservator of Forests ordered for the raising of rotation from 3 years to six years and further ordered to open a felling. Series in Ramandag.

Subsidiary Kath Working Schemes of .1906 and 1907 :-

In 1906 the Conservator of Forests, approved of a definite series of Khair fellings under a felling cycle of 20 years, the coupes being selected in Kechki, Saidupe, Ramandag and Baresand blocks and marked on the maps. This scheme had retrospective effect from 1904-05. In 1907 it was altered at the instigation of the Conservator of Forests, who recommended that the exploitable size should be raised to 2' and that the 20 existing coupes should be divided into two felling series, one to be worked on a fifteen and one on 10 year rotation. Mr. Draper, the Divisional Forest Officer drew up a revised statement of fellings for the 15 years rotation felling series but for some reasons the 10 year rotation fellings series dropped out of the picture. It continued till 1931 and almost two felling cycles had been completed. But many old trees were left which indicated that coupes were only worked from time to time when a demand arose. The rotation of 15 years appeared too short a period.

Subsidiary Working Schemes for Betla and Kechki of 1908:-

In 1908 subsidiary working schemes were introduced for regulating fellings in Kechki and Betla blocks. In the former blocks coppice with standards under 30 years rotation was prescribed, in the latter block "Incomplete coppice fellings partaking more of the nature of an improvement fellings" were prescribed on a 20 year rotation. It amounted to a thinning out of inferior poles. Authority was given to the Conservator of Forests to alter the system to one of regular coppice under 20 years rotation. In case of Kechki block fellings were fairly regularly carried out upto the end of 1922-23 and was generally successful. In Betla block no fellings were undertaken until the year 1919-20 when a coupe of 60 acres was opened under coppice with standards and fellings under were carried out over a total of 924 acres up till the year 1924-25. It did not prove successful partly due to the reason that instead of being made to fell all trees over 8" diameter, the contractors were allowed to carry out selection felling of over wool. This type of

forest was not suitable for coppice system as it contained large sized misc. trees of little economical value. Coppice reproduction was very poor.

In 1923 Mr. Mooney submitted revised working schemes for Kechki and Betla blocks to take effect from 1924 on the ground that fellings had resulted in a dense growth of bushes of no value to the exclusion of all useful species. His proposals maintained the old sequence of fellings but prescribed cleanings. For Betla block he prescribed a form of coppice with standards under a rotation of 40 years with supplementary selection fellings on a exploitable diameter of 20" in areas due for coppicing in the second half of the rotation. The coppice with standards system was unusual in that it prescribed the retention of all trees under 8" in diameter as standards and the prohibition of fellings of satinwood which were to be retained to meet special exploitable demand. Mr. Mooney also drew up a Working Scheme for the Saidupe and Ramandag blocks. His scheme prescribed two working circles a Plains Working Circle, 11, 171 acres in extent, which embraced the low lying areas most liable to frost damage, and a Hill Working Circle, 33,512 acres in extent, which comprised the rest of the area. For the Plains Working Circle he prescribed selection cum improvement fellings with a felling cycle of 30 years and an exploitable size of 3'-6" in girth. For the Hill Working Circle coppice with standards was prescribed under a rotation of 60 years, selection of standards being confined to khair and satinwood. The working coupes in the Plains Working Circle was regular but due to lack of demand no coupes in Hill Working Circle should be worked till 1930-31. Mr. Mooney also drew up a revised scheme for working the bamboo forests of the Division. Mr. Mooney expanded the scope of Mr. Haine's scheme to embrace part of the Baresand forests and prescribed altogether 9 felling series to be worked under a rotation of three years leaving uncut in each clump shoots under one year old plus six older green clumps. Since 1923, the bamboos in Kechki and Betla blocks had been fairly fully worked and the productivity of the bamboo forests had been fully maintained prior to 1929-30 only coupe was sold in Saidup block. In 1930-31 Ramandag bamboo coupes were sold for the first time. The Baresand coupes were never sold.

Betla Protected Forest Working Scheme of 1927:-

No working schemes of any kind were introduced for any of the protected forests of the division until 1927 when Mr. D.H. Khan drew up a scheme for the Betla protected forests. He prescribed coppice with standards under a 30 year rotation, the scheme had worked satisfactory. He also drew up a bamboo working scheme for the same forest which involved working on a 3 year rotation on lines similar to those prescribed for the reserved forests.

Irregular Fellings:-

Irregular fellings of other species in addition to Khair were carried out from time to time with the object of lessening the gap between receipts and expenditure. Such fellings were carried out in Saidupe, Ramandag, and Baresand blocks and the cream of the forest was taken.

Nicholson's Working Plan of Palampu Division(1923 to 1951):-

Mr. Nicholson, Deputy Conservator of Forests of Palamau division prepared the Vt regular Working Plan for Palamau Division which came into operation from the 1st July, 1932. The unique feature of the plan was that it dealt with Protected and Reserved forests in the same plan which was contrary to past custom in Bihar & Orissa. The main idea behind this was that the equal attention should be given to the protected forests.

Under this plan seven Working Circle were constituted. Later during the 2' World War one more Working Circle namely Salal Working Circle was formed to meet the demand for packing cases.

(1) Selection Working Circle included- (1) all forests that were beyond 15 miles from the railway and contained marketable timber, (2) other forests which were within 15 miles of railway but for reasons of their composition or their liability to frost damage were considered unsuitable for treatment under coppice. The areas allotted to this working circle comprised compartment 1(a), 2(a) and 10(a) Oriya, Goindi, Pamselli, Bhawarbandha, Saiwe, Siram and all the compartments of Baresand except compartment 23 totaling 66, 489 acres. This was the first time that these forests were brought under regular working. Silviculturally most of the prescriptions were excellent, but Mr. Nicholson did not judge the staff properly. Cultural operations were not laid down definitely, which were generally neglected specially so during the war.

He left to the contractors, the option of fellings, only what they liked. The result of which was that the defective trees got left and there were no subsequent operations prescribed.

163. No efforts were made to cover up the blanks of which there were many in this working circle. Due to ineffective fire control and due to excessive grazing, regeneration of Sal had been poor.

164. Fixing the diameter limits lower than 16", 14" for Moral and 12" for Chhipadohar from revenue point of view had worked very badly specially in Chhipadohar felling series, which resulted in serious over fellings in parts, greater liability of the forests to frost, and heavy invasion by grass at places.

165. (2) **Coppice Working Circle:-** included areas within 15 miles from railway and were free from rights. The Working Circle included the forests of Kechki, Saidupe, compartment 3 to 9, Ramandag compartments 1 to 7. Except for the Kechki felling series, these areas had not been worked regularly in the past. On the whole the system had worked well. The prescriptions however had not been rightly followed. Retention of Sal standards in groups, as laid down in the plan for the 60 years rotation group did not seem to have been followed. Certain miscellaneous species like, Salai, Khair, Palas, Kusum, etc. were reserved by an executive order of the Conservator so usually Sal got neglected in selection for standards.

166. At places even in frosty localities, except for salai very few standards had been left. The result of which was that frost damage had been severe in some coppice/ i.e., Ramadag / Coupes C.C17 to 19.

167. The selection fellings in the 60 years group had only partly served their purpose. Such fellings were prescribed not merely for the removal of large sized trees, but also the benefit of the younger crop by thinning and climber cutting. This aspect did not seem to have got the due attention.

168. 20 years rotation for the Kechki felling series was very short rotation. He had in mind that under a short rotation the natural regeneration of Khair in this felling series would be stimulated, but it did not seem to have materialized.

169. Thinnings and other cultural operations were generally been neglected. In areas - there was heavy shade due to bamboo clumps, the coppice roots as expected had failed to send out vigorous shoots. Thus a bamboo has been favoured which was not altogether undesirable.

170. No attempt was made to fill in the blanks.

171. (3) The village working circle included all forests that were burdended with rights to major forest produce but the method of treatment prescribed was on similar lines as those for coppice working circle. The blocks which included in this working circle were Dorami, Kuchila, Putuagarh, Baridohar, Jargarh, Barrlchattan 1 and 2, Lohara, Labhar, Mundu A& B, Tanwai etc.

172. This working circle was also worked under coppice system. The results had generally been satisfactory. Shoots from high stumps and pollards had been practically eliminated and instead healthy shoots had shot up form close to the ground. Attempts made in the past to stock in blanks had failed.

(4) Teak plantation Working Circle comprised of 7677 acres and consisted of Betla A& B, Saidupe compartment. (1) The technique of plantation was later modified. Mr. Nicholson prescribed planting of teak in lines cut through the forest and gradually opening up of the conopy.

173. Teak being a prominent light demander, this prescription failed and later on about 1938, clear felling and subsequent planting was adopted. The earlier plantation were therefore a failure, the later ones being fair success.

174. Teak was not the most suitable species for these forest Sissoo, Bhurkund, Chilbil, Semal, Gamhar , Bia etc. should have been better but in the absence of fencing arrangements, most of these species were likely to be heavily browsed.

(5) Bamboo Working circle included areas which contained bamboos in sufficient

quantity for regular working and these were chiefly in Betla, Ramandag, Kumandih(now in Latehar division) and Baresand blocks.

175. The prescriptions had worked quite satisfactorily. A cutting cycle of 3 years was adopted. It was subsequently discovered that this period did not allow sufficient time for the coupe to recover properly.

176. Bamboo areas, which were exclusively worked by the tenants i.e., in Dorami felling series, were adversely affected owing to indiscriminate fellings and want of cleanings in the clumps, which were congested and contained many dry and top broken bamboos.

177. (6) Kath Working circle extended to all forests where Khair trees were sufficiently common to justify special felling regulation. These areas were chiefly in Chhipadohar and Latehar Range.

178. A felling cycle of 30 years was adopted and all trees above 8" diameter were exploited.

(7) Miscellaneous working circle included forests that lie beyond 15 miles from the railway and the crop was unmarketable. It applied also to forests villages, lac plantation areas, river beds and more prominent blank areas wherever found.

(8) Salai Working Circle included all forests that lie within 15 miles from railway and contained fairly large proportion of big sized marketable salai trees.

179. This working circle was specially created to meet the demand for packing cases during the war.

Results of last Working Plans :-

The forests of the present Daltoriganj South Division were being managed under two different Working Plans, one was prepared by Mr. P. Mishra. This plan revised the first Working plan for the forests of Palamau Division by Nicholson. It applied to the forests of the then Palamau Forests. The other plan was for a period of 20 years from 1951-52 to 1970-71. Sinha's plan was for the period of 10 years from 1954-55 to 1963-64. The life of both the plans was extended upto the end of 1974-75 vide Forest Department's letter No. A/E(I.F.S.)11-098/7032725 dated the 24th June, 1970.

Mishra's Plan :-

181. Under Mishra's Plan, the following Working Circles had been constituted: -

1. The Sal Conversion Working Circle.
2. The Selection Working Circle.
3. The Coppice Working Circle.
4. The Village Working Circle.
5. The Plantation Working Circle.
6. The Khalsa Working Circle.
7. The Bamboo Working Circle.
8. The Kath Working Circle.
9. The Salai Working Circle.
10. The Miscellaneous Working Circle.

Sinha's Plan: -

182. Mr. Sinha constituted the following Working Circle for the management of ex-zamindari forests:-

1. The Selection Working Circle.
2. The Coppice with Standard Working Circle.
3. The Khair (overlapping) Working Circle.
4. The Bamboo (overlapping) Working Circle.
5. The Salai and Semal(overlapping) Working Circle.

183. **1. The Sal Conversion Working Circle.**

This Working Circle consisted of an area of 21,140 acres occupying Sal bearing plain grounds and the lower gentle slopes of the hills in the Baresand Block, Bhawarbandha Protected Forests and , the Khalsa forest of Paharkocha.

184. The following special objects of managements had been laid down:-
1. To gradually convert the Sal forests into more or less regular crop.
 2. To obtain normality in the forest by obtaining naturally as normal series of age classes, with normal stocking and normal increment
 3. To tend the areas scheduled to be converted but waiting for their turn and to keep them vigorously.
 4. Consistent with the above objects to obtain the maximum sustained yield of large timber to meet the general demands of the market without over felling and Causing deterioration of the forest any for way.

185. The silvicultural system adopted was Conversion to uniform Silvicultural system by periodic blocks. The strict uniformity of the regenerated crop was not aimed at. The method of regeneration was the uniform or shelterwood system, supplemented by artificial regeneration where ever required. No rotation was fixed but it was suggested that it would be ultimately fixed between 120 and 140 years. A conversion period of 100 years was, however, fixed with five periodic blocks each period of 20 years. The regeneration period was assumed to be between 20 and 30 years. Definite allot areas had been made to P.B.I. and P.B.II. The remaining P. had been left unallotted. There was only one felling series. The area of area under different Periodic Block was:

P.B.I - 4,114 Acres.

P.B.II. - 4,156 Acres.

P.B.Inter-(III,IV&V) - 12,870 Acres.

Total: - 21.1.40 acres.

Periodic Block I (4.114 acres):-

186. Areas having mature or maturing crop with fair amount of advance growth had been allotted to this periodic block. But the actual allotment of compartments had not been made realistically on spot inspection of the areas. The criteria for allotment were the description of the crop as embodied in the compartment history, and the sequence in which these areas were worked under Nicholson Plan. Cent percent enumeration of the P.B.I. areas had been carried out and the annual yield was fixed by volume. All Sal trees down to 8" in diameter counted towards the yield. A set of marking rules for the execution of main felling had been laid down. Subsidiary Silvicultural operations had also been prescribed for tending the resultant crop.

187. The marking rules in brief were:-

(i) All trees of 8" and over in diameter should be removed but wherever there was lack of adequate regeneration, only preparatory felling would be carried out.

(ii) No green trees of miscellaneous species excepting Sal and Asan of 16" and over in diameter would be felled along the nala-bank.

(iii) Where the regeneration was below 20' in height, 5 to 8 Sal shelter trees would be left as protection against frost. Some middle storey of Sandan etc. would also to be retained;

188. The subsidiary cultural operations prescribed interalia a 'C' grade thinning in the groups of poles retained as a part of the future crop.

189. The above rules presupposed the existence of a normal crop with normal stocking and density but unfortunately it was not so on the ground.

190. The marking rules were apparently so complicated that the territorial staff was not expected to interpret these correctly, and hence it was considered necessary to lay down that marking in the first five coupes should be done by the Working Plan Division. Accordingly, the first two coupes were marked by the Working Plan Division. The first coupe was disposed off and the main felling revealed that it almost amounted to clear felling. After the removal of the marked trees, there was an invasion of tall and coarse grasses and instead of vigorous Sal seedlings the whole area appeared to be a sea of grass. Fortunately this was detected timely and the entire prescriptions for P.B.I. were kept in abeyance executive order of the then Conservator of Forests, Bihar. For all practical purposes these area (i.e., all the P.B.I areas) were since then treated as P.B.II and all the rules prescribed for P.B.II areas were made applicable to these areas also.

191. The main reasons for the failure were:-

(a) The area had not been reliable stock mapped with as much precision as the system of management demanded. This fact has: been admitted in the Working plan and it would be interesting to re- produce para 94 there from:-

Stock Map:

The decision for the introduction of the Conversion Working Circle was taken late and partly due to this and partly due to frequent transfer of the Working Plans Officer, the field work for this plan has not been as satisfactory as it should have been. No detailed stock maps have been prepared for any compartment. Formerly only Sal and Miscellaneous areas were shown. Afterwards some indications of quality were also given. It is possible from the stock map to have any idea of the maturity of crop or the presence of regeneration".

(b) The allotment of areas to the different periodic Blocks was not done on actual inspection of the crop and too much reliance was placed on the description of the growing stock, which in it left was vague unreliable in most cases. The Chief

criterion for allotment to P.B.I was the sequence in which these areas were worked under Selection system during Nicholson's Plan. In para 108 of the current plan it has been admitted, "In the allotment of periodic blocks reliance has been placed on visual inspections- as embodied on compartment descriptions and the Order in which these areas had been worked under selection system during the last Plan. Thus Baresand 1 and 2 which have been included in P.B.I were the first 2 selection coupes of Baresand Felling Series and it is expected that about 20 years after working there will be sufficiently large number of trees above 16" available in these compartments". The above procedure for allotment of sound silviculture. The result was that the areas unfit for regeneration were allotted to P.B.I and areas having poicrop to P.B.II where as areas with established Sal Seedlings and saplings, which could justifiably be allotted to P.B.I, were left uncared for. areas to P.B.I. could hardly be justified on the principles of.

(c) The rules prescribed for marking were not clear cut and no relation what so ever with the actual condition of the crop.

(d) The actual marking was done more or less on the Singhbhum pattern which was to remove the over wood in one sweep leaving only a few seed-bearers scattered throughout the area. At the time of marking no regard was paid to the local conditions as the canopy was opened drastically.

(e) As stated earlier in sub-para(b) above the areas having no established advance growth and not at all fit for regeneration had been allotted to P.B.I and the drastic removal of the over head cover had resulted in the invasion of coarse grasses. The conditions became impossible for the Sal seeds to germinate and establish the seedlings. The natural regeneration failed and the condition remained the same what it was years ago.

Periodic Block-II:-

An area of 4, 156 acres had been allotted to this P.B. The main operations in this P.B. were:

- (i) To complete regeneration where it was deficient and to obtain it, where it did not exist.
- (ii) To obtain maximum financial benefit by exploiting the trees of over 20" in diameter as these were liable to deteriorate if left standing. For this a felling cycle of 20 years had been prescribed. The yield had been fixed by area. 193. Both the commercial and Silvicultural markings were combined in one operation. Along with the main marking it was also prescribed that where the canopy was closed and the density was more. 6 a "D" grade thinning be carried out in the over wood. Among the subsidiary operations a "C" grade thinning had to be carried out in the existing advance growth. Shrub cutting had been left to the discretion of the Forest Officer.

194. Here again the prescriptions had not been laid down on the actual conditions of the crop. Nothing definite had been prescribed for obtaining regeneration in these areas where it was deficient or absent. The idea of combining silvicultural operations like thinning with

commercial marking did not prove practicable. In actual practice attention had only been paid to commercial exploitation, and thinning and other silvicultural operations had been badly neglected. No effort had been made to help establish the existing whippy seedlings let alone obtaining fresh regeneration where it did not exist. At places the crop, after the main P.B.II, felling, still looked congested and was looking up for thinning. The working plan did not lay any emphasis on climber cuttings. At the time of main marking these were left untouched, the result of which was that at places climbers had gained an upper hand and were damaging the crop. On account of past selection fellings quite a few small gaps had been caused some of which showed some signs of regeneration in the form of happy seedlings and saplings. These had not been attended and the area had been invaded by seeds. In short these had been only commercial exploitation in this P.B. and no attention had been paid to the improvement of the crop.

195. The Periodic Blocks III, IV & V had been lumped together. Thus the total unallotted area was 12,870 acres. The main objects of these P.Bs. were (a) improvement of younger age classes and, (b) preservation of older trees. Only such mature trees were to be removed which were unlikely to remain sound till the time the area would pass to P.B.I. It had accordingly been prescribed that all Sal trees of 18" and above in diameter, all miscellaneous trees excepting Sadan of 16" and over in diameter, and Sadan trees of 12" and over diameter should be removed with a felling cycle of 20 years. The yield had been fixed on area basis. Climbers were to be cut along with the main marking.

196. Here again thinning and other tending operations had been tagged with the commercial marking. In this P.B. too the result was exactly similar to that of P.B.II. Attention had been paid mainly to the commercial aspect of the marking and no care had been taken - improve the crop. Scanty regard has been paid to climber cutting as a result of which considerable damage was caused to the standing crop.

197. The fixation of exploitable diameter at 18" was in itself not consistent with the professed objective of preservation of older trees. On account of this faulty prescription part of this P.B. had undoubtedly been over exploited. Since trees above 20" in diameter were likely to become unsound the marking rules should have prescribed for the removal, of only trees over 20" diameter. With the present marking rules the stock of older trees had certainly depleted and it was most unlikely that trees over 20" in diameter would be available when part of these areas would pass to P.B.II during the period of next 20 years.

198. The miscellaneous regulation for this working circle prescribed (a) protection against grazing and fire, and (b) plantation of blanks and miscellaneous patches with valuable species. The marking officers had also been entrusted with the preparation of detailed sock maps of the P.B.I & II areas at the time of marking.

199. From the foregoing, it would become abundantly clear that the prescriptions for this working circle has been framed with a view to achieve every thing in a single operation. The marking officer was expected to pay equal attention to commercial marking thinning of over

wood (and that too based on the density of the crop), and tending of the young seedlings and saplings and detailed sock mapping of the area at one and the same time. Keeping in view the general standard of technical efficiency of the field staff and their past experience in such work the prescriptions proved over ambitious and imp practicable. The conversion was being introduced in these forests for the first time, and , naturally the field staff had no past experience of the intensity of cultural operations which become essential with this change in the silvicultural system. To start with it was of utmost importance that the prescriptions should have been simple and clear cut. In order to achieve success it was essential that silvicultural operations should remain . Separate from commercial marking. A judicious allotment of areas based on the exact condition of the existing crop would indeed go a long way in solving the problem of natural regeneration in this working circle.

The Sal Selection Working Circle :-

200. This Working Circle comprised four felling series and included all such forests which were either beyond 15 miles from rail heads or unsuitable for treatment under any other system on account of topography, danger of frost damage, and composition of the crop. The special objects of management were (i) to achieve the normal age classes, (ii) to tend the young crop, and (iii) to utilize all trees above exploitable diameter, if silviculturally available.

201. Three felling series viz, the Baresand , Chhipadohar, and Meral had been constituted , the silvicultural system prescribed was selectioncum-improvement felling with a felling cycle of 20 years. The yield had been fixed by area and annual coupes had been made of equal area with a margin of 10% . No enumeration had been carried out. Exploitable diameters for different species had been fixed, and all trees of exploitable diameters marked for removal with a safe guard that trees standing on open grassy areas and steep slopes with a gradient of 30 should not be marked. Subsidiary cultural operations and thinning had been indicated. Climbers wre to becut at the time of marking.

202. The Working Plan prescribed that “All marked trees shall be felled. The contractor must not be given an option to f. Ilorly what he likes”. This had worked very adversely on the stocking of the growing stock of this working circle which was already poor and by this compulsion it had become poorer still. The cent percent removal of trees of exploitable diameters had depleted the growing stock and it was, indeed, doubtful if enough trees 16” in diameter would be available during the next cycle. It might be pointed out here that these forests had once been exploited under Nicholson Plan whose prescriptions were just the same as these of the current one. As a matter of fact the area has since been exploited twice and whatever trees of exploitable diameters were available have been marked and removed. It was only desirable that some restrictions were imposed on the marking and a certain percentage of available trees was retained to a part of the future yield. This safe guard was essential to protect these forests from over exploitation. No attempt had been made to tend the younger age gradations and improve the stocking let alone fresh recruitment of seedlings and achievement of normal forest. It was necessary to have some partial enumeration to ascertain the correct picture of the entire growing stock to ensure an annual sustained yield.

203. In Sinha's Plan eleven felling series were constituted with a felling cycle of 20 years. Different exploitable diameters were fixed for different species. All Sal trees from 12 inches and up were to be marked. Yield was by area.

The Coppice Working Circle:-

204. This Working Circle comprised almost the entire area which fell within a radius of fifteen miles from the different raliheads. The crop contained predominantly Sal on the plains and lower slopes of the hill and Dhaura, Sidha, Karam, Salal, etc. on the higher slopes, and , on the drier localities.

205. The silvicultural system prescribed was "Coppice with Standards" and the rotations varied from 30 to 60 years. Rules for the marking and retention of standard had been laid down. Khair and Salai had been excluded from working

206. Proper subsidiary cultural operations comprising cleaning, climber cutting, and, thinning had been prescribed. Coppiced coupes had to remain closed to grazing for five years.

207. Nothing definite had been prescribed for earing restocking of the blanks or under stocked area, mere retention of standards does not fulfill the requirements in open, dry, and , over grazed areas. Even in the areas which are managed under coppice system it is equally essential that certain percentage of the young regenerated crop should be obtained from seedlings, and in, the areas under consideration it is very difficult to achieve this unless some artificial aid to make the soil receptive is provided.

208. Although the system prescribed was "Coppice with Standards" but it was simple coppice as no rotation for the standards had been fixed, nor had any provision been made for the thinning and removal of the standards at different stages.

209. The exact distribution of areas in the different felling series was not mentioned which led to confusion in laying out' of coupes in some felling series viz. Said up East and Said up West. No effort whatsoever had been made towards the tending of the young crop, probably due to the paucity of funds. No record appeared to have been maintained about the standards. There was no provision for the removal of standards which were likely to deteriorate if kept for too long a period. Area which could profitably be worked under selection should not have been included in this. Sal areas having good regeneration and dry miscellaneous crop on steep slopes should have been excluded from this working circle.

210. Sinha's Plan prescribed the following rotations, number of standards etc.

1. 40 years rotation .. 8 to 10 standards ... 6-12 inches in dia.

2. 20 years rotation .. 10 to 15 standards ... 4-10 inches in dia.
3. 10 years rotation .. 6 to 8 standards ... 4-10 inches in dia.

211. In areas under Selection Working Circle separate areas were carved out to be managed under Coppice system for meeting the requirements of the right holders. The arrangement is working well. Most of forest of Mahuadanr Range had been worked on a rotation of 20 years. For three felling series namely Kachanpur and Pokhari khurd of Chhipadohar Range and Parhi of Mahuadanr Range the rotation was fixed at 10 years rotation because of the poor and degraded crop.

212. No thinning were prescribed for areas under 10 and 20 years rotation but for the areas under 40 and 60 years rotations two thinnings were prescribed as shown below:

- (i) Mishra's Plan 14th and 27th year.
- (ii) Sinha's Plan 15th to 30th year.

No thinning had been done. Cultural operations too had been done only in selected patches.

The Village Working Circle.

213. This working circle covered 15 felling series over an area of 11,427 acres. The special objects of management, besides those included in the previous working circle were (a) to satisfy the demands of the right holders, and (b) to derive as much revenue as possible from the surplus material.

214. It comprised right burdened forests. The system of management was "Coppice with standards" with four rotations varying from 20 to 60 years. Retention of 50% of the standards in respect of those areas which were being worked under 20 years rotation had been indicated. Provisions for subsidiary cultural and tending operations had been made. Detailed instructions for the exercise of rights had been incorporated.

The Khalsa Working Circle.

215. It covered all the forests which were previously under the Khasmahal Department. These were not under any system of management, nor were these subjected to any measures of control for felling and removal of produce by the local right-holders. As a result of this a fair proportion of the crop was maltreated and consisted of malformed, pollarded and high stumps. The special object of management was, therefore, to improve the crop. The forests of this working circle were burdened with rights.

216. These were being managed under two different silvicultural systems. For the forests lying on the north of the Koel, "Coppice with Standards" had been adopted, and, the

areas located on the south of the Koel Selection-cum-Improvement fallings had been prescribed.

217. There were 15 Felling Series under coppice with standards. The rotation varied between 30 and 40 years. Besides the retention of 8 to 10 standards in each annual coupe, the following species had also been declared as reserved:- Mahua, Khair, Mango, Palas, KusumemaI, Bhurkund, and Salai. The coupes were to be thrown open to the right holders one year in advance. The surplus material left after satisfying the requirements of rightholders was to be sold to contractors.

218. The usual subsidiary cultural and tending operations had been prescribed.

219. No rotation for the standards had been fixed, nor anything had been suggested for their periodical thinnings and removal. In effect, therefore, the prescribed silvicultural system was not coppice with standards but simple coppice.

220. The prescriptions had worked well but cultural operations were not carried out as a result of which there were too many shoots in each stool.

221. The forests which were on the south of the Koel and which were being managed under a selection-cum-improvement felling constituted three felling series namely, Rud, Garu and Baresand with a felling cycle of 20 years. The same rules which had been prescribed for the Chhipadohar and Meral Felings Series of the Selection Working Circle had been made applicable to these forests as well. The comments which have been made under the selection working circle obviously hold good in this case also.

222. The placing two distinct types of forests which were being managed under two entirely different silvicultural systems under one working circle was not desired. It would have been much better to amalgamate the areas with other working circles.

223. Since all the ex-zamindari forests have now vested in Govt. and have now been notified as Protected Forests under section 29(3) of I. F. Act, it is desirable to have only one coppice working circle for all such forests which are fit for being kept under, this working circle.

The Plantation Working Circle :-

224. The objects in the constitution of this Working Circle were (a) to tend and maintain the existing plantations, (b) to replace the valueless miscellaneous crop by economically valuable crop by means of plantations. The areas included under this working circle and extent of older plantations had not been indicated.

225. This Working Circle comprise of two felling series (i) Betla Felling Series comprised of Betla Block(ii) Kerh Felling Series. The areas allotted to this circle was no where Indicated. From the statement of fellings and the rotation fixed it was understood that there were 6,000 acres and 1,440 acres in the Betla and Kerh felling series respectively but the precise location was not known from the Working Plan. The areas of annual coupes for plantation in the Betla and Kerh felling series were about 150 acres and 36 acres respectively. About 1/3w of the areas of each annual clear felled coupe was to be planted and over the balance the coppice shoots were to be allowed to grow.

226. The species prescribed for plantation were Teak, Sisoo, Gamhar, Bija, Tut, Semal, Bhurkund, Khair, Kydia, Calycina, Ailanthus, Acrocarpus Fraxinifolius, Chilbil and Bamboo. of these the first six named species were to be raised by stumps with a spacing of 6' x 6' and the remaining by direct sowing. Fencing of the plantation areas had been suggested.

The Bamboo Working Circle :-

227. This working circle overlaps with the areas of other working circles. In Mishra's Plan 20 felling series were constituted and 9 felling series had been constituted in Sinha' Plan. A cutting cycle of 4 years was adopted in Mishra's Plan and usual cutting rules were enforced. In Sinha's Plan for the Ex-Zamindari forests a cutting cycle of 3 years was prescribed purely as a silvicultural measure to clean the congested clumps. The working has given a satisfactory result. The yield in many felling series has improved but in some felling series especially around Betla tourist complex the yield has decreased considerably due to elephant damage 'and probably due to theft. Bamboo forest of Betla R.F.felling series, Betla K.R.F.felling series, Dorami felling series etc. have almost depleted to the extent of bamboo rooted waste and their rehabilitation has become very essential.

228. More bamboo felling series have since been constituted by the Divisional Forest Officers to include some left over bamboo bearing areas due to improvement of communication and increased demand of bamboos. At present there are 44 bamboo felling series in the Division out of which 23 felling series have 4 years cutting cycles and remaining 21 felling series have 3 years cutting cycle. At present about 75% of the forests of this Division come under this working circle, some of the felling series need reconstitution. Definite provisions should have been made for meeting the demand of right holders.

Present Position of Bamboo Felling Series

229. Most of the bamboo fellings are on Jng or short term lease with paper Mills and with individual contractors. In the year 1976-77, 33 felling series were on lease and coupes of 11 fellings series were on sale in the annual auction.

2.	Latehar lease	5'	1. Tissia (6833.86) 2. Adhery (6782.37) 3. korgi (3276.03) 4. Durup (5488.56) 5. Surkumi (2331.45) Total	3 years.	12 years lease from 1955-56 to 1966-67 renewed for 9 years from 1967-68 to 1975-76 & renewed upto 1979- 80
3.	South Koel	8	1. Harra (2726.00) 2. Kohbarwa (2998.00) 3. Datram (2864.00) 4. Baribandh R.F. (2585.00) 5. Mayapur (5420.47)	4 Years	12 Year lease from 1950-51 to 1961-62, from 1962- 63 to 73-74 to 1985-86

The areas under various leases and annual coupes are given below:-

Sl. No.	Name of the lease	No. of felling series	Area in acres.
1.	M/S. R.I. Ltd.	17	
2.	M/S. I.P.P. Ltd.	9	
3.	Indivical Contractors	7	
4.	Under annual auction	11	
	Total	44	1,92,200.09

The details of lease and felling series are indicated below:-

Sl. No.	Name of lease & lessees.	No. of F.S.	Name of F.S. (areas in acre)	Cutting cycle.	Period of lease.
1.	South Koel lease	4.	1. Baresand (26609.00) 2. Pandra (6222.70) 3. Korwai (3031.22) 4. Huluk (3738.00)	4 years	12 years lease from 1950-51 to 1961-62 & renewed from to 1974-75 & again renewed upto 1985-86
		Total	39,582.92		
			6. Henar (3254.00) 7. Rud (1660.00) 8. Kottam (4065.99)		
		Total:-	25,573.46		
4.	M/S R.I.Ltd.	8	1. Chetma (1612.90) 2. Aksi (2839.44) 3. Orsa (2164.95) 4. Mehraru (1412.25) 5. Hurdag (2082.07) 6. Baribandh P.F. (1257.15) 7. Nawarango (559.46) 8. Tanwai (2187.00)	3 years	12 years lease from 1962-63 to 1973-74 and renewed for 12 year for 1974-75 to 1985-86.
		Total:-	14,115.00		
5.	M/S.R.I. Ltd.	1.	1. Morwaikalan (8674.59) (3yrs. cutting	4 years	1976-77 to 1979-80

cycle.)

G. Total:- 22,789.81

Individual Contractors:-

6.	Sri. M.K. Verma	1.	1. Mirchaiya (1867.41)	3yrs. cutting cycle.	8 yrs. 01-07-76 to 30.06.84
7.	M/S M.L. Biswas & Co.	2.	1. Maromar (2761.53) 2. Saldup (11,839.00)	4 yrs.	8 yrs. 01-07-76 to 30-06-84
8.	Sri. Bindeswar Prasad.	1.	1. Garu (6255.00)	4 yrs.	8 yrs. 19-02-73 to 1979-80
9.	Srr. Someshwar Prasad	2.	1. Betla R.F. (6274.00) 2. Betla K.R.F. (747.15)	4 yrs.	8 yrs. 1972-73 to 1979-80
10.	Sri. R. S. Roy	1.	1. Tongari (9839.00)	4 yrs.	8yrs. (Now falls in Tiger Project)
		Total:-	39,583.09		

Name of Felling Series on annual sale:-

Sl. No.	Felling Series	Area in acres	Cutting cycle.
1.	Lat	2006.68	4 years.
2.	Mandu	262.16	4 years
3.	Ladi	4635.36	4 years.
4.	Meral	8749.58	4 years.
5.	Sahpur	1830.23	3 years.
6.	Bandua	2154.81	3 years.
7.	Dorami	1675.00	4 years.

8.	Baridohar	1675.00	4 years.
9.	gari.	1379.46	3 years
10.	Rabid	246.103	3 years
11.	Mahuadanr	2271.16	
	Total:-	39,958.54 acres.	

Yield of Bamboo:

The total out turn of bamboo in the division has been as follows:

(i) **Lease Coirnes from. 1962-63(yield in M.Ton) (IP.P.) -12 Years lease-**

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	10,168	7,887	6,680	9,495
B	9,456	7,718	8,388	4,377
C	4,184	7,082	7,321	3,856
D	8,163	8,045	8,333	3,228

(ii) **12 years lease from 155-56 to 1966-67 , renewed for 9 years from 1967-68 to 1975-76.**

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	3,181	3,601	3,028	6,017
B	4,511	3,220	3,134	3,583
C	4,552	1,267	1,303	1,813

(iii) **12 years lease from 1950-51 to 1961-62 , from 1973-74, and renewed from 1974-75 to 1985-86. lease to M/S.R.I.Ltd.)**

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	5,934	4,623	7,972	8,187

B	4,775	5,811	10,246	9,047
C	6,992	5,628	6,736	8,177
D	5,246	7,949	7,643	7,042

(iv) 12 years lease from 1962-63 to 1973-74 & renewed for years from 1974-75 to 1985- (MIS. R.I.Ltd.)

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.	5 ST Cycle.
A.	2,095	1,838	2,539	2,727	2,128
B	2,107	1,961	2,486	3,303	2,259
C	2,268	1,739	1,956	2,726	1,443
D	408	399	397	491	---

INDIVIDUAL LEASES

"Morwaikalan" leased to MIS. R.I.Ltd.(1976-77 to 80-81)

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.	5 ST Cycle.
A.	---	1,157	1,347	835	---
B	42	29	30	40	---
C	182	277	287	249	---

"Mirchaiya" leased to Sri. M.K. Verma (01-07-1977 to 30-06-1984)

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.	5 ST Cycle.
A.	965	1,020	1,043	988	1,165
B.	945	985	1,045	1,160	1,690
C.	415	437	590	623	797

“Maromar” and Saidupe leased to M/S.M.Biswas (from 01-07-76 to 30-06-1984, 1972-73 to 1980-81 falls in ‘Core’ area of Tiger Project)

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.	5 ST Cycle.
A.	2,089	2,284	2,257	1,265	1,507
B	2,404	2,582	2,621	1,634	1,778
C	2,010	2,082	2,178	1,318	1,735

“Garu” leased to Sri. Bindeswar Prasad (From 19-02-73 to 30-06-1980)

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	1,144	1,106	1,160	1,230
B	565	570	597	734
C	1,132	1,135	1,143	T.P.Core
D	792	705	750.	936

Betla R.R.& Betla Khalsa leased to Sri. Someshwar Prasad (From 1972- 73 to 1979-80)

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	4,684	4,661	4,283	2,037
B	3,842	2,865	3,089	33
C	5,034	3,893	2,306	---

D	2,912	3,750	2,279	1,122
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"Tanfari" leased to M/S R.S. Roy (72-73 to 79-80) (Now fall in Tiger Project)

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	436	574	873	--
B	3,195	3,186	3,260	--
C	905	882	895	--
D	2,466	2,730	--	--

(From 1973-74, the area falls under 'Core' of T.P.)

Annual Coupes.

(1) Baridohar F.S.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	--	--	--	--
B	150	75	109	255 not sold
C	--	--	--	---

D	108	107	--	--
---	-----	-----	----	----

(2) Rabdi F.S.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	--	--	--	201
B	---	-	--	--not sold
C	--	--	--	--
D	--	--	--•	--

(3) Gari F.S.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	145	--	150	--
B	--	205	185	277
C		220	--	210

(4) Dorami F.S.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	385	--	393	258
B	215	245	264	238
C	--	--	275	241

(5) Lat F.S.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	35	40	--	107
B	40	98	68	90
C	30	32	--	---
D	--	55	--	--

(6) Meral F.S.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A	120	130	145	46
B	310	198	110	99
C	140	142	--	--
D	275	--	369	--

(7) Mundu F.S.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	295	345	368	--
B	215	230	257	346
C	290	211	287.	258
D	230	258	305	--

(8) Ladi FS.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	320	405	380	290
B	225	243	286	174
C	325	488	336	---
D	215	---	243	---

(9) Bandua FS.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	---	---	338	---
B	---	242	150	151
C	---	190	175	---

(9) Bandua FS.

(10) Shahpur F.S.

Coupe	1 ST Cycle.	2 ST Cycle.	3 ST Cycle.	4 ST Cycle.
A.	---	---	50	---
B	---	224	440	---
C	---	---	161	---

The Kath Working Circle:

235. The area of this working circle also over-laps with other working circles. There were two felling series with a felling cycle of 30 years in Mishra's Plan and 10 years in Sinha's Plan. In both the plans, the exploitable diameter was fixed at 8". Along with this hollow and dying Khair trees of lower diameters were also to be marked. The annual yield had been fixed by area. provision for raising artificial plantations. of khair by direct sowing had been made which was never followed in the fields. This working circle needs reconstitution in view of splitting and re-organisation. then Palamau Forest Division and the areas of the both the two plans should be amalgamated into one.

The Salai Working Circle :-

235. This working circle was constituted with the main aim to exploit salai trees for the manufacture of packing cases whose demand had considerably increased since the 2nd World War. All the salai bearing areas were placed under this working circle and overlapped with other working circles. Selective fellings of salai trees 12" over in diameter were prescribed with a felling cycle of 15 years. The annual yield had been fixed by the number of trees in the different felling series. It had also been provided that if large number of salai trees are felled during the course of cleaning the young crop in other working circles, all those felled salai trees of exploitable diameter would count towards the annual yield. There were six felling series in Mishra's Plan and one in Sinha's Plan.

236. The yield had been fixed on the basis of 2.5% enumeration of salai trees in salai bearing areas. No definite sequence of fellings had been prescribed.

237. With the rising market of salal and its entry into Paper industry, it is desirable to aim at sustained annual yield for which the value of "t" and "z" has to be fixed on a more rational basis.

The Miscellaneous Working Circle:-

238. This working circle constituted a miscellaneous group of areas as classified below:

Group—A- Contained about 5,608 acres of unworkable area on account of inaccessibility, lack of demand, or unfit for being worked under any regular system. Thinnings and selection fellings where ever possible were to be carried out at the discretion of the Divisional Forest Officer to meet the demand of right holders and if the disposal of the produce was possible.

Group —B- Lac orchards -621 acres. No working was prescribed as there was a separate scheme for the cultivation of lac. These areas now fall in Daltonganj North Forest Division and Latehar Division.

Group —C- River beds and banks containing no or little vegetation over an area of 2197 acres. Nothing had been prescribed for this except for removal of dead trees.

Group —D- Plantation areas 1256 acres. Nothing had been prescribed. In fact this area should have been properly included in the Plantation Working Circle. These were the abandoned cultivation sites.

Group —E- Railway depots, and area of 12 acres.

239. The exact location and distribution of the different groups had nowhere been indicated in the Plan. It could not be said with any certainty, nor could it be ascertained in the field as to which area had been declared to be inaccessible or un-workable as allotted to Group A.

Dry Marking of Trees:-

240. In the latter part of 1950 it was observed that a considerable large number of trees of all species were drying. It was decided that these trees should be removed as quickly as possible. Accordingly a scheme for the marking of dry trees was prepared by Sri. I P.N.Choudhary A.C.F. for the period from 1960-61 to 1964-65. It covered an area of 82,092 acres. During this period felling of green trees were suspended.

241. Marking of dry trees still continued as more trees started drying after the 1966 drought. There is no approved scheme to this effect.

Mr. S. N. Bhagat's Plan

The following Working Circle had been constituted in Mr. Bhagat's Plan(1980-81 to 1999-2000).

- (i) The Selection Working Circle.
- (ii) The Coppice Working Circle.
- (iii) The Bamboo (Overlapping) Working Circle.
- (iv) The Salai (Overlapping) Working Circle.
- (v) The Wild Life management Working Circle.
- (vi) The Plantation Working Circle.
- (vii) The Protection Working Circle.

1. Selection Workinci Circle:

In this working circle all the forests , which were on the hills and steep slopes in the critical area of the catchment of the rivers, North Koel, Burha, Aksi etc. and all other forests falling in Buffer zone of the Project Tiger. Were included. It was prescribed to manage the forests under selection cum Improvement system. Minimum exploitable diameters of species were fixed. Felling cycle was fixed at twenty years fifty percent of exploitable selection trees were prescribe to be marked for felling. How ever this prescription was not strictly follow. This led to depletion of large size trees. Blanks or open areas were not attended for ensuring regeneration or restocking

2. The Coppice Working Circle: -

All the forests, which were on moderate hills or plain area were kept in the coppice working circle for meeting the local demands. The object of management was to supply poles, props, small timber and fire wood to meet the general demand of right holders, local people, for sale to general public and for industries. However no attention was paid to ensure the regeneration of area after working the annual coupes. As result of repeated hacking of coppice shoots by villagers, areas could not restock and degradation of forests to place. Some areas also lost their forest cover.

3. Bamboo(Overlaina) Working Circle:-

In this working circle Bamboo bearing forests were managed. The forests were grouped into cutting series for the sake of better management and proper supervision. But due to illicit cutting of karils and forest fires bamboo forests lost their clumps. Hence intensive efforts to rehabilitate bamboo forests are urgently needed.

4. Salai Working Circle:

Working circle comprised those forests in which Salai trees were present in sufficient numbers for commercial exploitation. Selection cum improvement system was prescribed Exploitable diameter was fixed at 12 inches and felling cycle of fifteen years was prescribed There were three felling series in this circle

5. The.Wild Life management Working Circle:

All the areas of division were included in this circle because of abundance of flora and fauna in this division. However still more efforts are needed to protect , preserve and develop area from the wild life management point of view.

6. The Plantation Working Circle:

It has been found that plantations raised in past were not successful due to biotic factors In a few patches they still survive . However local species or recommended for plantation with involvement of local people.

7. The Protection Working Circle:

This working circle consisted of forest occupying steep and precipitous slope and also those forests which have unusual and interesting flora which deserve protection due to their aesthetic value . No felling except hygienic felling was prescribed in 10 years cycle. However scanty regard was given to the prescriptions of this working circle. -

Past Yield

The following statement shows the yield during the years.
1968-69 to 1976-77

Best Yield between 1968-69 to 1967-77

Year	Logs (in thousand Cft.)	Poles (in nos.)	Fuel maunds (in	Charcoal (in Bags.)	Bamboo (in tona)
1968-69	762,402	90919	257237	17648	28,277
1969-70	640,115	123541	202521	33980	31,964
1970-71	867,606	175032	359025.810	29947	30,871
1971-72	561,540	49212	175704.561	5843	37,851
1972-73	465.900	158966	188420	49310	31,196

1973-74	575,500	722812	170934	42639	29,586
1974-75	540,275	66629.12	153018	14438	29,300
1975-76	13,646 C.M.	--	1934 C.M.	--	18999
1976-77	15,529 C.M.	--	1,628 C.M.	--	26,176

Minor Forest Produce.

Khuta (in nos.)	T.I.& Cogons in nos.	Bundles Mahulan leaves,	In Maunds Mahulan bark.	Fodder grass.	In bags Mahua seeds.	In standard bags Kendu leaf.
1	2	3	4	5	6	7
65020	33024	4610	422	--	--	--
90152	37452	3273	505	--	--	--

117168	10336	5432	567	--	--	--
103342	15726	5478	150	1058.992	--	--
91284	10677	6030	1070	329.45	--	14664..
79497	12903	3570	1416	287.050	144	14659.51
53573	20698	5924	707	--	--	13215.1
--	--	8120	--	--	--	13924.
--	--	Not sold.	--	--	--	13856..

Past Revenue and Expenditures.

247. Efforts have been made to give the figures of past revenue and expenditures as accurately as possible. The figures for Khasmahal and Private Forests have also been included.

248. The following statement shows the revenue and expenditure during the period from 1965-66 to 1976-77.

Revenue & Expenditure of Daltongani South Division.

Year	Revenue (in Rs.)	Expenditure(in Rs.)	Remarks.
1965-66	20,00,439	Plan -1,61,622 Non Plan- 3,66,008	
1966-67	15,77,589	Plan -3,26,172 Non Plan- 3,95,600	
1967-68	25,33,038	Plan - 2,74,270 Non Plan: 4,45,689	
1968-69	28,02, 123	Plan -2,31,069 Non Plan- 4,98,604	
1969-70	28,89,275	Plan -2,32,442 Non Plan- 5,53,975	
1970-71	42,45,975	Plan -2,15,407 Non Plan- 5,69,174	
1971-72	53,34,438	Plan -4,65,122 Non Plan- 7,95,703	
1972-73	54,44,880	Plan -6,54,825 Non Plan- 9,26,557	

1973-74	61,43,775	Plan -3,62,931 Non Plan- 9,09,518
1974-75	56,81,795	Plan -1,75,947 Non Plan- t2,06,176
1975-76	49,71,641	Plan -2,51,783 Non Plan- 10,90,335
1976-77	57,02,493	Plan -2,66,727 Non Plan- 11,31,080

PART -I

CHAPTER -VII

STATISTICS OF GROWTH AND YIELD:

No reliable statistics of growth or yield are available either for Sal or any other species. In determining the rotation, the “All India Yield Table” for Sal has been relied upon and the influence of edaphic and biotic factors have been given due consideration. Stray measurements of coppice growth along with ocular observations indicate that the growth and yield of Coppice ‘B’ quality Sal would be generally applicable to these forests although the growth varies with fairly wide margin from plain forests to rocky hill slopes.

250 In there divisions, the following Research and Experimental plots exist. These plots are maintained by the Forest Research Division, Jharkhand,

1. Simple Plots.

SI. No.	Sample plot no.	Location	Species	Date of formation.	Range	Remarks.
1.	5	Baresand-9	Sal	03-02-1928	Garu East	
2.	6	Baresand-1	Sal	18-02-1928	Garu East.	
3.	7	Baresand-2	Sal	27-02-1928	Garu East.	
4.	8	Baresand-2	Sal	27-02-1928	Garu East.	
5.	11	Saidupe-1	Teak	June, 1961	Betla	

6.	12	Betla-2	Teak	March, 1961	Betla	
7.	13	Betla-2	Teak	13-09-69	Betla	
8.	15	Bhawarbadha K.R.F.	Sal	12-04-78	Garu East.	
9.	17	Bareasnd-22	Sal	15-04-78	Garu East	

2. Single Tree Increment Plots.

SI. No.	Sample plot no.	Location	Species	Date of formation.	Range	Remarks.
1.	1	Baresand-	Cugenia	01-02-	Garu East	
		1	delber.	1938		
2.	2	Kechki	Goides. Accia	30-09-	Betla	
3.	3	R.F. Saidup-1	catechu Accia	1953 01-12-	Betla.	
4.	4	Morwai P.F	Bewwellia	28-06-1955	Chhipadohar West	

3. Linear Tree Increment Plots.

SI. No.	Sample plot no.	Location	Species	Date of formation.	Range	Remarks.
1.	1	Saidupe-10	Sal	10-12-1955	Garu East	
2.	2	Bareasnd-4	Sal	January, 56	Garu East	
3.	3	Bareasnd-4	Sal	April, 59	Garu East	

251. There are no sample or Research Plots in the protected (vested) forests. No local statistics of growth or yield, either of Sal or of any other species, are available.

	Range	Forest	No.	hac.	hac.	ation	Spp.	cm.	cm.	5c m	above	
1.	Baresa nd	Drup	Mahua danr no.	1972	12.00	0.68%	Sal	222	221	260	104	807

Asan 52 44 25 15 136
Dhaw 16 21 14 51
Bija 6 1 1 2 10
Misc 50 74 71 50 245 346 361 371 171 1249

- 2 Mahua Orsa Mahua 876.5 24.00 2.7% in 2 Sal. 49 33 25 13 120
danr
danr P.F. no. plots.
Asan 25 32 25 16 98
Dhaw 72 61 45 32 210
Ba 1 3 4
Aie 96 95 75 59 325 inl2 243 224 170 120 757 hact.
Plot-II
In 12 ha. Sal. 444 242 41 26 753
Plot -I
Asan 4 4 3 4 15
Dhaw 5 5 1 11
Bija
Misc 27 46 34 37 144
480 297 78 68 923
TOTA 723 521 248 188 1680
L IN
- 3 M.DAN Sohar M.DAN 447.7 8.00 1.80% Sal. 5 194 427 615 1241
R. pat R. No.
Asan 4 4 8 16
Dhaw 2 10 12 24
Bija
7 8 14 29
5 207 **449 649 1310**
- 4 M.DAN Chorm M.DAN 239.60 8.00 3.30% Sal. 7 141 346 389 1083
R. arwa R. No.
Asan 1 9 12 10 32
Dhaw 6 7 14 27
Bija I I
frhce 2 21 28 34 85

10 1777 393 648 1228

2 3 4 5 6 7 8 9 10 11 **12 13**

5 M.DAN Goel M.DAN 67.36 12.00 17.80% Sal. 330 69 16 8 423

R. Khar R. No.

Asan 82 51 20 6 159

Dhaw

Bija

Misce 129 75 42 29 275

541 195 78 43 857

6 M.DAN Chiro M.DAN 495.7 12.00 2.40% Sal. 3 4 2 1 10

R. R. No.

Asan 9 18 17 4 48

Dhaw 26 54 41 17 138

Bija

Misce 137 166 115 36 454

175 242 175 58 650

7 Chhipa Manda Barwa 1085 4.04 0.37% Sal. 12 71 127 40 250

dohar(I P.F. dih No.

Asan 14 41 38 93

Dhaw 1 1 2

Bija 1 1

Misce 6 22 20 48

Total:. 12 93 190 99 393

8 Chhipa Marida Barwa 1085 4.04 0.37% Sal. 11 55 71 20 157

dohar(I P.F. dih No.

Asan 13 48 58 24 143

Dhaw 1 11 7 2 21

Bija 2 2

Misce 101 196 126 70 493

Total:. 126 310 264 116 816

9 Chhipa Manda Barwa 1085 4.04 0.37% Sal. 4 24 25 4 57

dohar(I P.F. dih No.

Asan 16 92 54 - 18 180

Dhaw 2 9 2 13

Bija 2 2 4

Misce 181 258 177 106 722

Total:. 203 385 260 128 976

10 Chhipa Marida Barwa 1085 4.04 0.37% Sal. 27 45 36 10 118

dohar(I P.F. dih No.

Asan 16 41 55 21 133

Dhaw 12 11 16 9 48

Bija 1 1

Misce 234 322 193 136 885

Total:. 289 419 301 176 1185

Chhipa Manda Barwa 1085 4.04 0.37% Sal. 6 5 1 12

- 11 dohar(I P.F. dih No.
 Asan 30 41 27 16 114
 Dhaw 4 26 10 9 49
 Bija 3 2 5
 fyjje 143 149 76 52 420
 Total:. 183 224 116 77 600
 2 3 4 5 6 7 8 9 10 11 12 13
- 12 Baresa Durup Mahua 1971 4.04 0.20% Sal. 9 57 76 22 164
 danr
 nd No.84
 Asan 0 5 1 1 7
 Dhaw 0 0 0 0 0
 Bija 0 2 1 0 3
 Mi 6 23 5 5 39
 Total:. 15 87 83 28 213
 Baresa Durup Mahua 1971 4.04 0.20% Sal. 23 129 102 60 314
 danr
 nd No.84
 Asan 0 6 3 2 11
 Dhaw 0 1 0 0 11
 Bija 0 6 5 0 11
 Misce 32 22 7 2 40
 Total:- 32 164 117 64 377
 Baresa Durup Mahua 1971 4.04 0.20% Sal. 17 120 90 16 243
 danr
 nd No.84
 Asan 1 6 7 1 15
 Dhaw 0 0 0 0 0
 Bija 0 1 0 0 1
 Lç 2 31 9 1 43
 Total:- 20 158 106 18 302
- 13 Garu Hurda Mahua 636.5 4.04 0.63% Sal. 619 439 101 41 1200
 danr
 east g no. 42
 Asan 10 17 17 7 51
 Dhaw 22 7 4 1 34
 Bija 1 2 3
 Misce 194 103 63 50 410
Total:- 846 568 185 99 1698
 Garu Hurda Mahua 636.5 4.04 0.63% Sal. 303 459 78 20 860
 danr
 east g no. 42
 Asan 5 4 1 10
 Dhaw 5 4 1 1 11
 Bija
 Mce 155 99 59 55 368

- Total:- 468 562 142 77 1249
Garu Hi.irda Mahua 636.5 4.04 0.63% Sal. 481 383 145 15 1024
danr
east g no.42
Asan 43 19 5 67
Dhaw 63 5 68
Bija
Misc 526 138 38 31 733
Total:- 1113 545 188 46 1892
- 14 Garu Kotam Garu- 113.3 /1111111111/ 1.78% Sal. 132 83 47 60 322
East 32
Asan 8 34 38 77 157
Dhaw 11 9 10 22 52
Bija 1 1
Lilce 50 76 73 130 329
Total:- 201 202 169 289 861
2 3 4 5 6 7 8 9 10 11 12 13
- 15 Garu Kui Mahuw 112 2.02 1.80% Sal. 34 65 65 66 230
adanr.
East P.F. No.44
Asan 2 3 5
Dhaw 7 1 1 9
Bija
Misc 35 40 32 33 140
Total:- 76 107 101 100 384
- 16 Garu Simak Mahuw 410 4.04 0.98% Sal. 173 213 151 79 616
adanr.
East has No.20
Asan 6 21 15 10 52
Dhaw 2 2
Bija 2 2
Misc 85 61 23 16 185
Total:. 266 297 189 105 857
- 17 Garu Simak Mahuw 410 4.04 0.98% Sal. 368 263 120 23 774
adanr.
East has No.20
Asan 2 4 1 7
Dhaw
Bija -
misc 91 35 5 136
Total:. **459 300 129 29 917**
- 18 Chhipa Saidup Barwa 1113 4.04 0.36% Sal. 161 401 282 204 1048
Compt dih No.
dohar t. No.9 53
Asan 64 71 33 15 183
Dhaw 8 4 1 13

Bija. 1 3 6 3 13
Misc 150 75 20 20 265
Total: 384 **554** 342 **242** 1522
Chhipa Saidup Barwa 1113 4.04 0.36% Sal. 101 267 211 136 715
Compt dih No.
dohar t. No.9 53
Asan 40 56 25 8 129
Dhaw 14 6 2 22
Bja **2 2 1 5**
Msce 133 73 23 10 239
Total: 290 402 263 155 1110
Chhipa Saidup Barwa 1113 4.04 0.36% Sal. 85 132 110 109 436
Compt dih No.
dohar t. No.9 53
Asan 41 68 35 33 177
haw 18 16 3 9 46
Bija 1 1 2 2 6
Misc 194 98 35 19 346
Total: 339 315 185 172 1011
2 3 4 5 6 7 8 9 10 11 12 13
Chhipa Saidup Barwa 1113 2.02 0.18% Sal. 102 142 127 62 433
Compt dih No.
dohar I. No.9 53
Asan 31 16 5 4 56
Dhaw 2 1 3
Bija 1 1 2
Misc 65 30 10 2 107
Total: 201 190 142 68 601

PART -I

CHAPTER -VIII

ESTIMATE OF THE CAPITAL VALUE OF THE FORESTS:-

255. 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. But this estimate of the Capital Value, and the Average annual income, particularly for this division will not be very accurate for the following reasons:-

- (i) A vast area of the forests are not being worked since 1972-73 due to the creation of "Project Tiger".
- (ii) A sizeable area of the forests are expected to be submerged in the proposed Kutku Dam. (.A portion of the forest has since been clear felled in the year 1978-79).
- (iii) A fair proportion of the annual yield of timber and fire —wood is extracted annually by the head loaders.
- (iv) A large share is taken annually by the right-holders free of cost.
- (v) Some forest produces are annually lost due to theft, elephant damage and damage by wild animals, and also in the shape of drift & waif wood.

256 However, for the figures of revenue available upto the time of preparation of 14f plan it is found that the average annual revenue for 1975-76 and 1976-77 for this division (leaving revenue from drift and waif wood, fines and miscellaneous revenue) was Rs. 53,36,567.00 or say Rs. 54,00,000. If the above loss is taken into account, the revenue of the division will be much higher and may touch even Rs. One crore annually.

Capital Value:-

On the basis of annual net revenue of Rs. 1,00,00,000 when capitalized at 6% rate of interest, yields the figure of about Rs. 16,00,000,00.

CHAPTER -IX.

WILD LIFE

258. These division have a rich heritage of Wild Life and commands a unique position in the state for abundance and variety of wild life. Most of the common species of wild life, available in the State, are found in the divisions in large number due to its geographical situation, vegetation and attempts made from time to time for their protection. The majestic Gaur C Bison), Tiger , Elephants, Sambhar, Cheetal, Barking deer, Four horned antelope, Nilgai (Bule bull), Panthers, Wolves, Wild dogs, Wild boars, Flying squirrels, Porcupines, Pythons, Peafowls, Hynas, Hornbills and a number of other wild animals, birds and reptiles are found in the forests of this division. One of the ‘Tiger Reserves’ in the country has been selected in this division. The tourist zone at Betla under the proposed Palamau National Park has become a place of attraction for Indians well as foreign tourists.

259. The earliest record about the wild life in this tract is available in the final report on the “Survey & Settlement of Palamau Government Estate, Palamau District in Chhotanagpur, Bengal, 1894 to 1897” by DPH.F. Dunder, Settlement Officer. An extract is reproduc&below:
260 The following is a list of some of the larger animals found in Palamau

English name	Native name	Scientific name	Remarks
1	2	3	4
The Hanuman Monkey.	Langur, Hnuman.	Semnopithecusentellus.	Eaten by Birhors.
The Bengal monkey	Bandar.	Macasus rhesus.	
The Tiger	Bagh.	Fêllis tigris ,	Eaten by Oranos, Birhors,
			& Bi rjeas.
The Leopard	Tendua or Carna	Felis pardus	
The Panther	Chita or Lakra	Fellis panthera	
The Leopard cat	Koria bagh or sons chits.	Fellis benglensis	
The jungle cat	Jangly bull or	Fellis chaus	

	Bhanro.		
The Indian civet	Katas	Viverra zibtha.	
The common/mongoose(Indian)	Neur	Herpestes mango.	
The Striped hyaena.	Hurha	Hysens atriata.	
The Indian Wolf.	Hurar	Canis pallipes	
The Jackal.	Siar (male) Phekar(female)	Cnis sureus	
The Indian wild dog.	Koia	Chins deccanensis	
The Indian fox.	Lomri or Lamar or Khikhir.	Canis benglensis	
The sloth bear	Bhalu	Melursus urainus	Eaten by Birjeas &
The hog badger	Bijar bhal	Arctonyx collaris	
The Indian otter	God	Lutrs flair	
The Gaur	Gaur	Bose gaurus	
The black buck	Harns or Kalagora	Antelope cervicapra.	
The Indian Gazells	Chinkara or Banbakri.	Cazells bennettii.	
The four homed antelope	Chowings(male) Kotari(femal)	Tétracerus quadricornis.	
The nilgai	Lai (male) Rojin(female)	Boselaphus Tragocamelus	
The Indian deer.	Chitra	Cervus axis	
The Sambar	Sambhar	Carvus unicolor	
The Barking deer	Bherra	Carvulus muntjac	
The Indian mouse deer.	Nigwan or Rigwa.	Neminna indicis	

The Indian wild boar.	Suar	Sus cristatus	
The common Indian squirrel	Rukhi or Chikhurq	Sciutus palmarum.	A great pest when ma ka I rineine
The black rat	Bhuis	Mus Rattus	
The common house rat	Chutia	Mus nivieventer	
The field rat	Jungle mus	Nesokis blythisns	Eat by Che Ora & Bhu is
The common Indian mouse.	Chuha	Mus musculus	
The white tailed porcupine.	Sahi	Hystrix cristate	
The common red tailed hare.	Kharha or Iambha	Lepus ruficsudatus	

261. The amount paid by Government during each of the last five years on account of rewards for killing wild animals, being chiefly tigers, leopards and boars in given below:

	Rs	A.	P.	
1992-93	348	8	0	
1993-94	1028	4	0	
1994-95	1321	12	0	
1995-96	1972	12	0	1996-
97	1111	8	0	

262. The skins and skulls of tiger, leopards, bear and other wild animals are brought to the Kutchery for payment of rewards. Government pays Rs. 25/- for killing a full grown tiger, Rs. 5/- for leopard, Rs. 5/- for wolf and Rs. 2/8 for a bear. After inspection by a gazetted officer, the skins are generally taken away by the Kutchery officials, the police or pleaders and Mukhtars, some of whom, I believe, sell them in Calcutta or else where at good profit. Then a guarantee is given that a Lin will not be produc&.for a second reward, the head is not cut off, and this enhances its value. The price of a good tiger skin in the market is said to be about Rs. 100/- and of a leopard skin Rs. 50/- I would recommend that instead of allowing wild animals, skins to be taken away by people as at present, they should be sold to the highest bidder by public auction, and the sale proceeds credited to Government.

“Another suggestion I would like to make on this subject is this. Tiger and leopard cubs, young bears, wolves and other wild animals are frequently brought to the Kutchery for rewards. Why

should not they be taken over and forwarded to the Zoological Gardens, Calcutta,. If this were regularly done in all districts of Chhotanagpur, Santhal Parganas and Orissa, a large number of valuable India animals would soon be obtained and would considerably benefit the Gardens”.

263. In the Imperial Gazetteer of India, Provincial series, Bengal Vol. 11, compiled in 1909, a brief mention of the fauna of this region is made as follows:-

“The Chief Wild animals to be met with are tiger, leopards , black bears, bison, sambhar chital(spotted deer), chinkara, four horned antelope, barking deer, nilgai, antelope and wild dog. The Government ‘Reserve’ Forests form a shelter for a game, and though tigers have probably diminished in number of late years, bison and deer have considerably increased, inspite of the ravages committed by wild dogs”.

264. There is no mention of the occurrence of elephants in this tract in these reports. It appears that the elephant is a recent immigrant to this area possibly since the early 1920. Then Divisional Forest Officer Palamau has noted the following in the forest journal of Palamau Division regarding migration of elephants.

“Three elephant (1 tusker, Imakhna, 1 cow) came into the Division in 1919-20 from Sirguja and have remained. They are usually to be found in the vicinity of Baresand & Maromar where they do great deal of damage to the crops. They frequent the deserted villages of Tenu & Karl, Henar during the day. Occasionally they wander as far as north as Morwai and Hutar. (There are thirteen or fourteen new)”.

The present strength of the elephants in this division is about 60. They reside in the deeper forests of Baresand(Maromar, Lat area) during summer and monsoon period from April to August, nearly half of the population travels down to the northern border of the division up to Betla Forest, where they stay for the remaining seven months.

265. A census of the tiger population in an area of 115 sq. miles(299 sq. km.) of this region was made by W. Nicholson of the Imperial Forest Service (India) in 1934. The enumeration was based on pug mark counts at water holes in the early morning of 01-05-1934 and the number recorded was 32. This works out to an average of one tiger per 9.3 sq. km. The recent count (1972) over one week of tiger population in this region has given a figure of 21 adults and 5 cubs over an area of 1091 sq. km. This shows the decline in the population within a period of 40 years.

Range of Wild Life :-

266. In this division large variety of wild life is found. Mammals range from elephants to rats and moles, while birds range from peafowl, vultures and sarus to the tiny sunbird. Few migratory ducks have recently been noticed in Kamaldah lake, near Betla. A crocodile used to live in a pond in Pokhari village by the side of Betla but it is no longer there. Pythons are found, as also a number of other snakes and many lizards including the monitor. Appendix- IX. gives list of wild life generally found in this division.

Avifauna:-

267. The division's very rich in ground birds also. Peafowl, the red jungle fowl, grey and black partridges are fairly common. Most of the woodlands birds also found in these divisions. During summer, when the rains are imminent, voices of the koel, the Indian cuckoo, the papiha and the pied crested cuckoo are generally heard in these divisions. A list of the birds commonly seen in this division is indicated in the Appendix —XIII.

HUNTING RECORDS: -

These division had some finest shooting blocks in the State. Rud, Lat, Garu and Mundu were favourite shooting blocks for hunters of this State or Outsiders. In view of the depredation caused by frequent shooting, Lat was converted into a sanctuary while restrictions were imposed in others. After the enactment of Wild Life (protection) Act, of 1972, the shooting has completely been stopped under the provisions of the Act and all the shooting blocks have been merged into the newly created Palamau Wild Life Sanctuary. The following gives the records of animals shot in the divisions from 1967 to 1971.

<u>Animals</u>	<u>1967-68</u>	<u>1968-69</u>	<u>1969-70</u>	<u>1970-71</u>
Tiger	---	---	--	--
Leopard	---	---	--	--
Bear	---	2	--	--
Wild boar	4	---	--	--
Chital	10	5	--	3
Sambhar	5	2	3	--
Barking deer	2	1	--	--
Others	---	---	--	2

Population Estimates of WILD LIFE:

269 No estimate has been made of the population of wild life in this division, except the tiger census carried out in summer of 1972. 26 tigers had been estimated from pug marks. Of these 9 were adult males, 12 adults females and 5 cubs. In Betla sanctuary area strip survey of all the animals is done twice during the year. This gives an indication of the rise or fall in the population of wild animals, in the area, but no estimate of the population has yet been made. The technique if properly followed would give fairly reliable estimate of the population. This type of estimates may be termed as population index. Such indices for different species in the period of 1970 to 1976 are given below for the area of old Betla Sanctuary.

<u>Name of the species.</u>	<u>1970 winter/summ</u>		<u>1971 win /sum</u>		<u>1972 win/sum</u>		<u>1973 win/summ</u>		<u>1974 win/sum</u>	
Tiger	12	6	14	3	--	--	2	--		

Panther	1	--	4	--	1	--	--	--	
Hyena	2	1	3	4	4	3	1	--	
Elephant	--	--	6	--	17	--	24	31	
Gaur	61	65	31	41	53	83	73	438	
Sambhar	139	157	148	144	125	154	160	110	
Nilgai	7	33.	14	12	15	14	20	6	
Chital	539	747	625	586	541	879	623	718	
Barking deer	62	85	95	94	67	105	94	95	
Wild boar	213	252	333	252	251	326	349	136	
Peafowl	12	228	218	189	182	220	151	128	
Wolf	12	4	1	--	4	9	--	--	
Wilddogs	--	5	9	1	--	--	--		.
Por-ctipine	--	--	5	--	-	--	--	-	

Sanctuaries:-

270. For protection of Wild Life, number of sanctuaries were created from time to time. Following six sanctuaries existed in this division-

- (1) Betla Sanctuary 249 Sq. km.
- (2) Bagechampa Sanctuary 84 Sq. km.
- (3) Lat Sancutary 64 Sq. km.
- (4) Baresand Sanctuary 92 Sq. km.
- (5) Netarhat 'A' Sanctuary 20 Sq. km.
- (6) Netarhat 'B' Sanctuary 14 Sq. km.

Palamau Wild Life Sanctuary :-

271. All the above sanctuaries now form part of the Palamau Wild Life Sanctuary notified under the provision of Wild Life (Protection) Act, 1972 vide Government of Bihar notification No. s.o. 1224 dt. July, 76. It extends over an area of 979.27 Sq.km. situated in then the Daltonganj South Division, Garhwa South Division and Latehar Forest Division. The most of its area i.e., 749.3 Sq. km. falls in this division and the remaining area i.e. 155.66 Sq. km, and 74.28 Sq. km. are in Latehar and Garhwa South Division respectively. The details of the area of Palamau Wild Life sanctuary are shown in the Appendix - X

Mahuadanr Wolf Sanctuary:-

272. Considering the dwindling population of wolf, a species listed in schedule I of the Wild Life (Protection) Act, 1972, a separate Wolf Sanctuary has since been created in this division for the preservation and multiplication of wolves named as the Mahuadanr wolf Sanctuary in the Gheechari Valley of Mahuadanr Range vide Government of Bihar, notification No. 1062, dated, the 23 June, 1979. the wolf Sanctuary extends over an area of 63.25 Sq. km. The details of the area of the Mahuadanr Wolf Sanctuary are given in Appendix-XI. There is a management scheme for the Wolf Sanctuary prepared jointly by Sri.J.Mishra, I.F.S. & Sri R.C.Sahai, I.F.S. for the period from 1974-75 to 1980-81.

273. The scheme provides for strict protection of the core i.e., Sanctum Sanctorum having an area of 196 hec. (98 hec. in the east of Sarnadih P.F. and 98 hec in Urambi P.F.) from fire, grazing, illicit felling, shooting and trapping of any kind of wild life and disturbance by the humanity. Fodder for the flocks of goats and pigs are to be provided to the wolves. In other areas than the Sanctum Sanctorum, all forestry operation i.e. bamboo working, timber felling, collection of kendu leaves would continue. Right holders coupes would be laid out. The shooting of all forms of wild life would be completely prohibited. The area would be strictly protected from fire.

Palamau Tiger Reserve:-

274. The Tiger (*panthera tigris*), one of the most magnificent animals in the cat family which at one time was found in large number throughout the Indian sub-continent, has been declining fast. Its number has been reduced to such an extent that it has been included in the list of endangered species. At the end of the 19th century, the estimated number of tigers in India was 40,000. But due to unrestricted killings by hunters, poachers and traders specially for tiger skin, shrinkage of forest area due to various developmental projects and pressure of growing human settlement, destruction of habitat, paucity of prey animals and disturbances etc. the tiger population has dwindled to such an extent that the total numbers of tigers estimated at 4,000 in 1965, was put at a less than 2,000 by a tiger census in 1972.

275. To save the tiger from total annihilation and to restore its number to viable population a special project "The Project Tiger" was launched in 1973 by the Government of India with the help of the World Wildlife Fund. Nine areas were

selected for the purpose, representing the different types of Tiger and habitat. Palamau Tiger Project, in the State of Bihar, one of them. Two more Tiger Reserves have since been created. The Palamau Tiger Reserve was created in June, 1974, vide Govt. of India notification no. J 11025/1/72-FRY(WEF) dated the 4th January, 1974. In this State, the southern portion of Palamau district having a fair number of tigers (26 tigers as per 1972 census) has been selected to serve as a reserve for the revival of the tiger and associate animals. The Reserve has been named as Palamau Tiger Reserve. Project Tiger aims at total environmental conservation and seeks to protect and revive the tiger in India by according protection to the entire Fauna and Flora of the area.

276. The Palamau Tiger Reserve extends over an area of 928.12 Sq. km. of which the major portion i.e., falls in this division. The remaining area of the Reserve extends in the adjoining forests of latehar, Garhwa South and Ranchi West Divisions. The Palamau Tiger Reserve was notified as Sanctuary in the year 1976 and forms part of the Palamau Game Sanctuary. The details of the area felling in the Reserve are given in the Appendix- VII .

277. There was a management plan of the " Tiger Reserve" prepared by Sri B.N.Sinha, I.F.S. The Field Director of the rank of the Conservator of Forests assisted by a Deputy Director of the rank of Deputy Conservator of Forests is incharge of the 'Reserve' for the effective implementation of the Project.

278. The management of the 'Reserve' in brief is summarized below: For the purpose of the management, the Reserve has been divided into two zones- viz. 'The Core' and the 'Buffer zone'. The 'Core' of the reserve or the Sanctum sanctorum has an area of 203.70 Sq. km. which entirely falls in this division. Here no forestry operations of any kind or human rights or concessions and cattle keeping or grazing is allowed nor movement of men except for the management of the Reserve. There are no villages in the 'Core'.

279. In the ' Buffer Zone' other than the core, the working of bamboo coupes and the coupes of right holders C4M' - the only forestry operations permitted. Excess cattle are to be shifted and no grazing permits are granted to outsiders. No mines or quarries exist or are to be allowed. There are a few villages inside the buffer area, out of the total area i.e. 726.51 Sq. km. of the buffer, 469.32 Sq. falls in this division.

280. Various water development schemes like anicuts dams, dug out, wells and gussles have been undertaken over the whole area and these are being protected from poachers. The entire reserve is being protected from poaching and fire for which adequate numbers of staff have been employed. A large number of check posts have been established. There is one armed flying squad to operate over the area, telecommunication system has been installed for instant information from the remote area of the Reserve. During summer, a number of fire watchers are engaged. Fire towers have also been erected and more will be erected in near future. Besides various development works like construction of buildings for staff, roads have been undertaken. Research programme for floristic and faunal surveys and census is to be started.

Proposal for a National Park:-

281. A proposal has been sent to Govt. that the old Betla Game Sanctuary having an area of 249 Sq. km. which is one of the best faunal area in the State, should be constituted as Palamau National Park. It has not yet acquired the legal status of a National Park, but the intensive management of the old Betla Sanctuary in the last decade has considerably improved. The wild ungulate population in it has now become extremely attractive to tourists who are able to see Gaur (Bison) and spotted deer(Chital) for example in broad day light at any time of the year. Elephants are also a great attraction for most part of the year.

Tourist Zone at Betla :-

282. About 35 Sq. km. near Betla, in the northern portion of the proposed National Park (now in Tiver Reserve) has been fully developed as tourist zone by constructing net work of forest roads, watch towers, water holes and has been fully protected from grazing and fire. The availability of departmental vehicles and spot- lights on reasonable rates to see the wild life a departmental run canteen for food and lodging facilities including a newly constructed 'Tree top' attracts a large number tourists, not only for the tourists of the State but also of the adjoining States of West Bengal and U.P.It has become popular for the foreign tourists also. The following table indicates the number of Indian and Foreign tourists in the last decade: Number of visitors Total Indian Foreign tourists in the last decade:-

Year	Number of visitors		Total
	Indian	Foreign	
1968	4335	105	4440
1969	4140	146	4286
1970	7135	113	7288
1971	8171	105	8284
1974	12919	214	13133
1975	15834	215	16049
1976	19519	224	19743
1977	19670	286	19956

283. The park can be visited at any time of the year during rains also. It is only 26 km. from Daltonganj, the district head-quarters of Palamau and connected by a pucca P.W.D. road, which passes to Mahuadanr and Netarhat. The landing strip for areoplane essituated by the side of Daltonganj Ranchi Highway is 20 km. from Betla and only 6 km. from Daltanganj.

1968	4335	105	4440
1969	4140	146	4286
1970	7135	113	7288
1971	8171	105	8284
1974	12919	214	13133
1975	15834	215	16049
1976	19519	224	19743
1977	19670	286	19956

283. The park can be visited at any time of the year during rains also. It is only 26 km. from Daltonganj, the district head-quarters of Palamau and connected by a pucca P.W.D. road, which passes to Mahuadanr and Netarhat. The landing strip for aeroplanes situated by the side of Daltonganj Ranchi Highway is 20 km. from Betla and only 6 km. from Daltanganj.