

CHAPTER - V

PASF SYSTEM OF MANAGEMENT

5.1 History of the Forests: The forest of the division form part of the Koihan Estate which was taken over from the Raja of Porahat, then know as the Raja of Singhbhum, in 1836 for management by Government. The first settlement took place in the following year and subsequent settlements took place in the years 1855, 1867 and 1918.

The first investigations with the object of reserving the forests in chotanagpur were sponsored by Dr. Aderson, the then Conservator of Forests, Bengal, in 1864. Captain Lo-Sak during the year 1870-71 and Mr. H.H.Davis during 1879-80 examined the forest of Singhbhum. Following open these inquiries of the, work of selection and demarcation was taken up and carried out chiefly by Messrs. Fuchs, Heining, Manson and W. Johnson, between 1879 and 1884. Selected forests were finally declared reserved on the 1 November 1884.

Prior to reservation the upper and steeper slopes of the forests were subjected to extensive 'jhuming' or shifting cultivation, while on the lower slopes and level grounds "gora" or dry cultivation was practiced. Stretches of well stocked even aged crop, somewhat beyond the pole stage now, are evidence of this shifting cultivation. The serious deterioration of the lower lands has been the result of "gora" cultivation.

Administrative History:- On completion of demarcation the forests of Singhbhum were attached for administrative control to Hazaribag. In 1884-85, the Chhotanagpur Division was constituted, comprising whole of Singhbhum, Palamau and Kodarma. The Singhbhum sub-division consisted of three ranges, Saranda, Kolhan and Porahat. A separate Singhbhum division was created in 1890 consisting of four ranges Saranda, Koihan, Porahat and Chaibasa. The Kolhan Protected Forests were constituted into a Chaibasa Division in 1906-07.

With effect from the 4th May, 1912 the Saitba, Santara and Latua blocks were transferred to the Kolhan (formerly Chaibasa) division. The present Saranda and Kolhan Divisions were created from the 1st April, 1924, the latter consisting of Ambia, Leda San, Latua and Saitba blocks, allocated to the three ranges of Koihan, Santara and Saitba.

The seven Porahat Division Protected Forest blocks, although situated within the land spread in Koihan division were under the territorial jurisdiction of the Porahat Division till 1937, when they were transferred to Koihan. Similarly the Protected Forest Block Nos. 1 to 8, though located within the area of Kolhan Division, were Originally under the administrative control of Chaibasa Division These were transferred to this division in 1937-38. The Dimbuli Reserved

Forest, Anandpur Protected Forest Block nos. XIII, XIV and those located in Panta, Raibera and Derwan villages have been just transferred from Porahat Division.

The potentialities of these forest came to be examined just after reservation in 1884. The first estimate, made by Dr. Schlich in 1885, was for 5,000 mature trees (24" in diameter and above) from the forest now comprising the three divisions of Saranda, Koihan and Porahat. This was further examined by Mr. Darisy and Mr. Chester, the latter reducing the yield estimate to 1,200 — 1,500 mature trees. A brief plan was drafted by Mr. Dancy in 1890 and conditionally approved by the Inspector General of Forests. It was, perhaps, not brought into force, for in 1893 Mr. Chester, the Divisional Forest Officer, was entrusted with the work of preparing a plan. But this was not completed and eventually the first plan for Singhbhum Division was completed by Mr. H.H. Haines between the years 1899 and 1904. It took effect from 1903.

There was very little exploitation during 1884-1894. Exploitation was intensified from 1891-92 onwards when the Bengal-Nagpur Railway (now South-Eastern Railway) was opened to traffic. About 1,000 trees averaging " almost 7 feet in girth were sold in the Kolhan in 1892. Two lakhs of broad — guage sleepers were supplied to the then Ral Bareilly-Banaras Railway during the period 1896-1898 from the forests of Saranda, Koihan and Porahat. The exploitation of forests during this period is shown by the following figures:-

1895— 1898

Block	Acres Worked (Approximately)	Number of trees felled
Leda	18,953	1,857
Ambla	Not Worked	
Santara	Ditto	
Latua	Dotto	
Total	18,953	1,857

1898—1902

Blocks	Trees Number	Cubic feet	Poles Number.	Cubic feet
Saitba	390	7,935	934	5,541
Santara	2,156	44,554	3,706	31,165
Leda	3,907	1,25,791	5,384	46,199
Latua	413	8,303	139	1,359
Ambia	937	42,063	287	2,700
Total	7,803	2,28,646	10,450	86,964

Sabal grass was the only other forest produce in demand.

Name's plan, 1903-18 — Haine's Working Plan covered all the Reserved Forests of Singhbhum. The total area was 725 square miles. Six Working Circle were formed, of which 5 were worked under selection-cu mimprovement felling with a felling cycle of 30 years and the Sixth (Saitba) under coppice system. Santara working circle included Santara and Latua, Koina working circle consisted to .Ambia and Ankua; and Koihan working circle comprised Leda and Ghatkuri blocks(under the present day siMcultural terminology the five working circles were really "Felling series").

In course of working p lan p reparation the forests were d ivided i nto 1 05 compartments. The stock map for the entire forests was prepared but only the area of good quality "valley types Sal was shown therein, since the whole area was considered unsuitable for exploitation and the valley Sat was believed to be the only crop which could yield marketable timber.

Where èlection-cum-improvement was prescribed the felling cycle of 30 years was adopted. The yield was prescribed by area and the annual coupes accounted for one thirtieth of the total "Valley Type Sal"; area together with all the hill area of the compartment in which such portion of the valley Sal happens to fall. Exploitation girth was 6' but bad trees under 6' grith were also to be felled.

Saitba block was divided into four coppice felling series but by the end of the first half period (1918) only 20 per cent of the prescribed area had been felled.

On the whole the prescriptions of the plan worked satisfactorily. It has not been possible to state eategorically that over-felling did take place ,butt can be safely stated that the incidences of felling were severe locally. Errors in the executions were also made. Generally the cream of the forest was removed and a great deal of unsound material left standing. Another mistake was the removal of large sal trees from damp valleys where the over-wood was mainly moist mixed forest and where sal regeneration was either non-existent or in a state of suppression. This resulted in the encouragement of miscellaneous species, chiefly asan and jamun at the expense of

sal . Subsidiary improvement felling, thinning and cleaning were generally neglected except with the marking and proved inadequate.

Owing to shortage of staff the revision of Haines could not be undertaken in 1918. During 1918-24 the forests of the division were partly managed by a scheme prepared by Mr. A.N.Grieve. Concentrated regeneration fellings were prescribed for the Santara and Latua blocks while Leda and Ambia blocks continued to be worked under the provisions of Haines' plan. Coppiced fellings in Saitba also continued. Grieve's scheme came into effect from 1919. The yield was fixed by units and was based on an enumeration of half the area allotted to P.B.I. The regeneration period was fixed at 40 years. The work was concentrated mostly in the Santara block.

The introduction of a system of concentrated regeneration felling in the area was the outcome of the recommendations made by Mr. R.S.Troup in 1917 which received the support of Sir George Hert., the then Inspector-General of Forests. The method was first adopted in the Porahat Working Plan then about to be prepared and the same system was subsequently followed in the working plans for Saranda and Kolhan Divisions.

Phillips Plan, 1924 - 34:- Four working circles were prescribed namely, (a) The Conversion Working Circle; (b) The Hill Working Circle; (c) The Miscellaneous species Working Circle; and (d) the Coppice; Working Circle.

(a) The Conversion working circle:- this comprised QI to QIII (actually good QIV AU-India quality class) Sal, the area of the different quality classes being indicated in the prescription of each compartment. The Conversion Working Circle line was, however, neither indicated in the map nor demarcated on the ground. In all about 18,000 acres were included in this working circle. A tentative rotation or conversion period of 120 years was adopted and six periodic blocks were formed. The area of each periodic block was approximately equal.

Periodic Block I:- Periodic block -I, had 2,928 acres in all. The yield was based on a complete enumeration of all trees 12" in diameter and over in this block and was fixed in units. The unit value was fixed by the sawn-sleeper capability of each diameter class as follows:-

12" — 16" diameter = one unit.

16" - 20" diameter = two unit.

20" - 24" diameter = three unit.

24" - 28" diameter = four unit.

Over 28" diameter = five unit.

The annual yield was calculated at one twentieth of the total number of units enumerated and fixed at 4,398 unit.

The following rules provided for the removal of the over-wood by successive fellings, the group

system being considered the most suitable. The over-wood was to be clear-felled over established regeneration, a portion being retained where reproduction was deficient. Cultural operations were suggested to assist regeneration and artificial regeneration was recommended in the moist valleys.

Periodic Block II to V: The areas allotted to each of these periodic blocks were approximately the same as in periodic block. I. In periodic Blocks II, the work was mainly of a preparatory nature and only very light improvement felling were prescribed. The allotment of periodic Block III, IV and V were regarded as provisional. A sort of selection-cum-improvement fellings were prescribed from the 9th to 20th year of the first period but actually no fellings were made.

Periodic Block VI: The area containing the greatest proportion of young crops were allotted to this periodic block. These forests however, contained a good amount of large timber. Removal of over-wood over healthy poles and sapling selection-cum-improvement-fellings Gleanings and thinings in saplings and pole crop were prescribed. A 10 — year cycle for thinning was prescribed for pole crop in Periodic Blocks I and

The Hill Working Circle: - No stock maps were prepared and as a result, except where whole compartments were allotted, the extent of this working circle was rather vague. The system was selection-Gum-improvement' on a 20 year felling cycle with an exploitable diameter of 18 for Sal. A scheme was devised for working areas in the Hill Working Circle falling within compartments being worked in periodic Blocks —I, and VI at the same time as the latter. Whole compartments completely allotted to this working circle formed a separate felling series. In 1928 the felling cycle was increased to 30 years.

The Miscellaneous species WC: — The object was to work the moist mixed forests of the division on a 30 year felling cycle under Selection-cum-Improvement fellings. Various exploitable girths were fixed for different species. Actually very little work was done.

The coppice working circle: - This consisted of whole of the workable area (20534 acres) of the Saitba block which was division into 8 felling series and worked as simple coppice on a rotation of 40 years. An area of 1,444 acres was excluded from petapetti felling series in 1927-28 to be worked under selection-cum-Improvement fellings on a 20 year felling cycle, the exploitable diameter for Sal being fixed at 18.

Review: - In conversion Working Circle generally speaking, the results were best where the fellings had been heaviest and most of the young crops looked healthy and promising. There was under felling in periodic block- I because Marking Officers often went outside the enumerated area which was shown neither on the map nor on the ground. The necessity for thorough and repeated cleanings was not appreciated in the beginning and young crops became seriously infested with weeds and creepers.

Most criticism has centered round the prescription and working of periodic Block-Vt . Strictly speaking, on allotment to periodic Block-Vt should have been made. Some of the compartments allotted to periodic Block-Vt contained fine mature forest and should have been allotted more properly to Periodic Block- I or II.

In the Hill Working Circle, since no limitation fixed to the number of available trees that could be felled, some amount of over — felling did take place. Owing to tack of demand of miscellaneous species very little felling was carried out in the Miscellaneous Species working Circle.

In respect of the coppice working Circle, though the position was better than what it was before the introduction of this plan, fellings continued to be in arrears.

Mooney's Plan 1934-35 to 1943-44 :The following Working circles were constituted :- (a) Sal converion working Circle, (b) Hill or selection working circle, (c) Mixed Forest working Circle, (d) coppice Working Circle, and (e) Miscellaneous Working Circle . The whole area was stock-mapped and the compartments were completely revised.

Sal Cgnversion WC :- This working Circle comprised the better Sal forests, Q-1 to Q-III and some Q-IV areas, occupying, in the most part, the valleys and the lower and middle slops of the hills. In addition some of the moist type mixed forests were also included in this working circle. The total area allotted to this working circle was 21,946 acres. The conversion period of 120 years was retained , as also the six periodic blocks. Each periodic block was approximately equal in area and periodic Block- I and II were demarcated on the ground. The other periodic blocks were nly delineated on the map but not demarcated . Periodic Blocks-III to V were lumped together to form Periodic Blocks Inter.

Periodic Block I:- (1) The yield of periodic block — I was fixed by volume , all Sal of 12” diameter and over counting against it. The unit values were revised and fixed on the basis of commercial timber in the round. The following unit values were adopted :-

12”-16” Trees **Ya** unit, 16”-20” = I unit, 20”-24” 2 units
24”-28” = 3 units and 28” and over 1/2-4 units The exploitation was to be of clear felling nature with reservation of 3 to 5 standards and groups of well-ground thrifty poles.

Periodic Block 11(2) All Sal trees of 28” and over in diameter were prescribed for felling on the ground that if left longer they would become unsound.

Intermediate Periodic Block (3) In Periodic block Inter Selection — cum — Improvement fellings were prescribed . Felling cycle was 20 years . All Sal trees of 22” diameter and over were tobe felled.

Periodic Block VI (4) No felling was prescribed. Two thinnings at 10 years interval were recommended.

Hill or Selection Working Circle: The area of this working circle was 94,921 acres. There was only one felling series and the coupes were so arranged that fellings took place concurrently with those of the conversion working circle in the same compartment. The system prescribed was selection — cum — Improvement fellings and the felling cycle was fixed at 20 years. The exploitable diameter was fixed at 18” and every tree of 18” and above in diameter was to be felled.

(c) Mixed Forest Working Circle: - This working circle comprised the valleys containing moist or semi-moist mixed forests. It was proposed to be worked under a Selection — cum — Improvement system to provide a sustained supply of soft wood. The exact area of the Working Circle was not computed. Two felling series were constituted and the felling cycle was tentatively fixed at 20 years. The yield was fixed by area based on the enumeration of various species with the yield of Semal as and the number of regulating factor. The diameter limit of each species and the number of trees of that diameter and above that could be felled annually was fixed. Clear felling was prescribed where plantations were contemplated and it was recommended that suitable areas of 20 acres or more within easy reach of railway stations or floatable rivers should be selected and planted up.

(d) Coppice Working Circle: - This comprised the whole of Saitba Reserved Forest the Ganmore Protected Forest and certain areas in the north of Leda and Ambia blocks. The total area was 24,962 acres of reserved and 11,417 acres of protected forests. The system of simple coppice with retention of 8 to 10 standards per acre was prescribed. Thirteen felling series were constituted. Two rotations of 40 and 70 years were prescribed. Thinnings in the 14th as also in the year of the rotation were prescribed and a statement of thinnings was incorporated.

(e) Miscellaneous Working Circle :- This comprised forest villages, certain protected forests; and areas where no work was prescribed.

Review: - No standards were prescribed for retention in Periodic Block-I by Mr. Mooney. The prescriptions were, however, altered as indicated above by the then conservator of forests. The retention of standards was a controversial prescription. As a future reserve of large sized timber they are certainly of some value. The necessity of their retention as seed bearers to re-stock blanks is perhaps questionable. It is also not correct to hold that, as Mr. Owden stated, they cost nothing and did no harm at all. Many of these species could not stand the sudden opening and died out. Others turned into wolf — trees. It could not be doubted that at the time of felling these standards did some damage to the pole crop near them. It might perhaps be a better compromise to retain all healthy poles up to 8” in diameter whether singly or in groups. It was also not wise to leave soft woods like Semal, Kadam, and Bhurkund in Periodic Block I areas. These suppress the younger poles and damage them at the time of felling. The removal of trees 28” and over in Periodic Block II, again at the instance of the Conservator of Forests, was perhaps unwise. There was no evidence that trees above this diameter would deteriorate during the next twenty years or so. Large trees 8’ to 10’ in girth have commonly been found sound to the core. The

selection fellings in Periodic Block Inter has also robbed the forests of the larger- sized trees. In fact the fellings in Periodic Block Inter have only been revenue fellings.

Hill Working Circle: - The removal of all trees 18” and above regardless of the presence of trees in approach class can never be taken as a sound prescription. Mr. Mooney’s original prescription of the removal, 50 % of trees 16” in diameter and over was certainly better.

Mixed Forest Working Circle:- No operations were carried out in this working circle.

Coppice Working Circle: - The results of the felling in this Working Circle are satisfactory but in the changed conditions of time inclusion of the Reserved Forest compartments in coppice working Circle appears to be inadvisable and the subsequent transfer of coppice areas in Ambia and Leda blocks to Coppice Working Circle, and Selected working circle seems to be a step in the right direction.

Miscellaneous Working Circle :- Adequate attention to the welfare of Forest villages was not invited nor beneficial measures taken up.

Derry’s Plan 1944-45 to 1959-60:- Prescriptions and comments.- The forests are being managed under the following working Circles :-

- (a) Sal Conversion working Circle.
- (b) Sal Selection working Circle.
- (c) Mixed selection Working Circle.
- (d) Mixed Irregular working Circle.
- (e) Coppice Working circle

There can be no adverse comments on the principles of the constitution of Sal Conversion circle. The allotment of areas to this working Circle has been Conservative.

Areas on steep slopes unsuitable for being converted have nowhere been allotted to this working circle. On the other hand there was scope for extension of the conversion working circle line in a number of compartments. The system of fellings adopted was more or less a continuation of the system of fellings adopted in the Singhbhum forests by Mr. P.J. Phillips and continued by Mr. H. F. Mooney.

Mr. Derry has not differentiated between conversion period and Rotation. The present Conversion period need not be the same as the rotation to be adopted, subsequently. Rotation was fixed at 138 years and the allotments of areas were made to six periodic blocks, with periods of 23 years each. In actual practice there has been no deviation in this respect from Mooney’s plan. Definite allotments were made only to periodic Blocks-I, II and VI. For periodic

Blocks-III, IV and V, areas were lumped together as periodic Block Inter. The working in the different periodic blocks invites the following comments-

(1) Periodic Block I: - The annual yield was fixed by area and fellings were in the nature of clear felling of all trees of 8" and over in diameter except groups of thrifty poles. It is not clear whether Mr. Derry's intentions were to retain groups of thrifty poles over 8" in diameter also. In practice, however, only groups of thrifty poles below 8" in diameter have been retained wherever possible. No standards have been retained. Climber cutting at the time of marking and cultural operations after the main fellings were prescribed. The prescriptions have worked well and all the areas, where periodic Block-I fellings have been carried out, have regenerated well. It is generally felt that adequate Sal regeneration do not come up with ease in moist localities where once the over head canopy is removed there is a prolific growth of mesophyllous species which do not allow the sat seedlings to grow unless cut back repeatedly continuously for five years or more. Preliminary thinning was prescribed in the 10 year, after the main felling consisting of —

1. Mechanical thinning with 5' spacement rod.
2. All stools were to be left with only one shoot.
3. Creeper cutting was to be carried out with the thinnings.

It is felt that a delay in preliminary thinning of 10 years has proved harmful. Also the neglect in the proper execution of different cultural operation in the young crop has caused some irreparable harm.

Periodic Block II to V. - Herein fellings of (a) Top-broke, or fungus attacked stems, (b) suppressed stems of economic size, and (c) A limited number of dominant stems in the congested canopy were prescribed for removal in uniform to semi-uniform stands of poles. In adequately stocked areas apart from removal of top-broken and dead stems one in every 10 trees of 12" to 20" diameter, if silviculturalty necessary, were prescribed for felling. In open crops felling of only fungus attacked; top-broken or dead stems were prescribed. These prescriptions are so complicated that no Marking officer could be reasonably expected to master them, It is but natural that where fellings cannot be prescribed by simple diameter limits or in some simple ratio of trees beyond a certain fixed diameter, the Marking Officers will have to exercise some intelligence and discretion and follow the intentions of the prescriptions. But it seems, that the stock of the subordinate staff who are generally employed for marking was not kept in view while prescribing such marking rules. This has not been explained why such complicated marking had to be adopted in preference to simpler ones. Markings in these periodic blocks have been a commonsense marking depending purely on the Marking Officers. It was not possible to relate the Marking on the ground with the prescriptions of the plan. Marking Officers have invariably kept an eye on revenue. Very often unhealthy trees have been left growing over crops on healthy ones. Thinnings and improvement fellings in the lower diameter classes have always been completely neglected.

(3) Periodic Block Vi:- In periodic Block-Vi areas, mechanical thinnings and creeper cuttings were prescribed in the 10 year of the main fellings and second silvicultural thinnings and creeper

cuttings were also prescribed eleven years after. Trees and poles standing over vigorous groups of saplings and poles were to be girdled. These thinnings have generally fallen in arrears. No attention seems to have been given to standards retained at the time of periodic Block-I fellings earlier. In some of these areas large-sized trees are found obstructing the growth of large number of poles. Most of these were not going to survive the conversion period and it should have been advantageous to pick them up earlier.

(4) Mr. Deny had listed a few compartments where special development operations were to be carried out; such areas were shown on the Management Maps also. The list comprised areas containing —

- (a) Crops whose growth developments did not appear to be an adequate reflection of local edaphic possible ties.
- (b) Crops of inadequate stocking inclusive of blanks from abandoned cultivation.
- (c) Crops in sites where erosion is active.
- (d) Crops in danger of retrogression from biotic influence of miscellaneous associations.
- (e) Crops where the conditions of weed and climber growth were prolific.

No specific treatment was prescribed and it was left to the discretion of the Divisional Forest Officer. Nothing seems to have been done in such areas.

There is only one felling series in the conversion working circle. This has meant concentration of work and unnecessary strain on the executive and supervisory staff. During 1945-47 and 1947-48 and again during 1949-51 to 1951-53, Periodic Block-I felling were confined to Koihari Range only where as the Range Officer and Beat Officer in Koihan Range were extremely busy during this period, the staff in the Santara Range were having a comparatively easier time. It should have been desirable to have two felling series- one comprising Leda and Pmbia blocks and the other comprising Saritara and Latua blocks.

Sal Selection Working Circle: - This working Circle comprised the middle and higher slopes and hill tops. Selection-cum-Improvement fellings under a felling cycle of 15 years were prescribed. Selection diameter was fixed at 16". Enumeration was carried out in 4" diameter classes over 21,376 acres (approximately 22per cent of the total area of the Working Circle). Yield for Sal was fixed by Smythies formula on the enumerated figures.

“T “was more or less roughly fixed at 60 years and “Z” was taken as 50 per cent on the basis of the high percentage of unsoundness that had been known from past fellings of such crops. The yield for Sal was fixed at one in every 3 sound trees above 16" in diameter. Besides, all dead, fungus attacked and top-broken trees 16" diameter and up were to be felled. In subsidiary cultural operation, the fungus ridden trees between 12" to 16" in diameter were to be marked for felling . It will be apparent that improment fellings were actually limited to frees

beyond 12" in diameter, no fellings being prescribed for stems below 12" in diameter. This has been rather too conservative. In congested crops no inducement has been given for regeneration to come up and for the younger poles to grow up. Actually the marking list usually shows more than 95 per cent of trees as being above 16" in diameter. Marking on the ground has left quite a lot to be desired. The selection of one in three trees has not always been correct and solitary stems usually unhealthy have been allowed to grow over groups of healthy trees and poles.

As stated earlier thinnings have also been neglected. There was only one felling series and a sequence of felling was worked out which more or less co-ordinated with operations of the adjoining areas of the Sal Conversion working circle. No diameter limits were fixed for specific other than Sal.

In this Working Circle, also areas were listed for special developments operation. Here in some specific suggestions were made such as: (a) Successive light fellings in the over-wood particularly where miscellaneous species are common, accompanied in the first instance by a cutting back of all stagnant Sal, advanced growth and saplings. (b) Artificial sowing in which the use of piasal was recommended where Sal recruitment was scanty and natural infiltration was unlikely. (c) Terracing in eroded sites accompanied by artificial planting. It was also suggested that the Divisional Forest Office, should co-operate with the Research officer in fixing an exploitation diameter after taking into account the growing unsoundness higher diameter classes. Nothing has been done in this detection.

Mixed Selection Working Circle: - The areas bearing miscellaneous crop were allotted to this working Circle, except these which were not considered fit for exploitation, due to paucity of demands, exploitation costs etc. The object of this working circle was to regulate the exploitation of bhukund, . karam, gamhar, dhaura etc. it was also intended to improve the stocking and growth conditions of important species by tending and thinning. The system adopted was Selection felling of the available mature trees accompanied and followed by creeper cutting. For sal, piasal, karam, asan, bhurkhurid, mango, kadam, bahera, sins, and pandrai, the exploitable diameter was fixed at 20" and for others at 16". There was only one felling series and the felling cycle adopted was 15 years. The enumeration figures were made use for the Smythies' formula and for trees whose exploitable diameter was fixed at 20", removal of one in two exploitable trees was prescribed, and for others where exploitable diameter was fixed at 16", removal of one in three trees were prescribed. As subsidiary operations suppressed stems of 8" to 16" in diameter for the species with the large exploitable diameter and 4" to 8" for other species interfering with the development and progress of the advanced growth of the more valuable species were to be felled. All dead stems were also prescribed for fellings. In the following year, creeper cutting was prescribed in July — August and again October, November. Ten years afterwards subsidiary thinnings and creeper cutting were to be carried out.

It has not been clearly laid down what areas will be termed as miscellaneous forests, with the result that areas containing quite a high percentage of Sal have been allotted to this Working Circle. It is usual to find that Sal constitution more than 75 per cent of the yield from fellings in the mixed Selection Working areas. Again allotment of small areas of 4 to 5 acres in the mixed

selection Working Circle has been of very doubtful utility, as this cc have been easily covered under prescription in the Sal selection working circle. Thinnings prescribed along with the main fellings have been completed neglect.

Subsidiary creeper cuttings have, also, not been carried out.

In this working Circle also some areas were listed where special development operations were to be carried out, but it seems that these have been neglected. **14 Mixed Irregular working Circle:-** According to the working Plan, mixed Forests in middle and higher topographical locations have been allotted to this working circle and it was intended to regard the crop involved as a protective mantle for ground and moisture conservation and as a reserve of timber for future demands. The constitution of this working Circle has been a most controversial decision. Definite areas have not been allotted to this working Circle. In Leda 15 and 16 excellent miscellaneous areas containing a large number of exploitable trees of miscellaneous species have been allotted to this working Circle. Shilarly in Latua 33 64- acre patch has been allotted to this working Circle, wherein Sat comprises about 40 per cent to 60 per cent of over- wood with good number of stems of 16" to 18" diameter and over and quite a few large-sized asan and dhaura. A number of other compartments allotted to this Working Circle suffers from similars complaints.

Coppice Working Circle:- There is not much comment in the working of the coppice Working Circle. Generally speaking not much care is taken by the staff in the selection of standards. Stems 12" to 14" in diameter have been retained which are likely to survive for long. In the better quality areas. Anjitbera and Kundrugutu- Pasubera felling Series of Saitba Rang, crop looks congested and it seems that thinnings were both in arrears and light at places.

Warren's Plan for the Protected Forest Blocks I to 8, 1937-38 to up-to-date:- these blocks were not under any systematic working before 1924- 25 and the villagers removed their requirements from any where they liked. From 1924-25 they are being worked under simple coppice with retention of a few standards for seeds etc. on a rotation of 40 years Mr. Warren's Plan, which in fact continued the past system, covered an area of 6,993 acres in six felling series. The silvicultural system was simple coppice with retention of 8 to 10 standards of 6" to 8" diameter. The rotation adopted was 40 years. Areas covered b yt his plan a re comparatively m uch poorer. N o cleaning or thinning operations were prescribed and the prescription to clear fell all over, even the poorly stocked steep slopes hill tops and ridges has proved injurious. The prescription of sowing and planting in the blank areas of the annual coupes which was left to the discretion of the local staff has not been carried out.

Sin gh's Plan for divisional Protected forests Blocks Nos, XIX to XXV and the Karra, Henua, Agruan and Kadalsukua Protected Forests,

1952-53 to up-to-date:- As has been allied to earlier the seven Porahat Division Protected Forest Blocks nos. XIX to XXV were transferred to this division in 1937. These blocks along with the remaining eighteen were being managed under a working P,lan prepared by Mr. Hart from 1930-31 to 1939-40. The period of the plan was formally extended by two years but in the absence of a

revised plan the old prescriptions continued and coupes were laid accordingly. As regards the four blocks of Koihan Protected Forests, namely, Henua, Kara, Agruan and Kadalsukua, these were placed in miscellaneous working circle in Mooney's plan and were closed to regular working except what might be required for meeting right-holders' demand. All the above blocks were left unaccounted for by Mr. Derry in his revised plan for this division.

Mr. Singh's plan covered all the blocks comprising an area of about 10.5 square miles. Two working circles were constituted, coppice-with-standards working circle and Selection working circle. In the former the system of coppice- with —standard with a 40 years rotation was adopted and the rotation for the standard was to be 80 years. The Karra, Henua, Agruan and Kadalsukua Protected forests comprising an area of 2,139 acres, were to be worked under a selection system after being grouped into one felling series. A felling cycle of 30 years was prescribed and minimum exploitable diameter was fixed for different species.

Review :-

Mr. A. Haiderv's Plan -1960-61 to 1975-76 (A 16 Year Plan): Prescriptio and comments:- According to Mr. A. Haiciery's Plan the forests of Kolhan Division were being managed under the following Working circles with a aim to increase the productivity and bringing about a state as nearly approaching to the ideal of normal forest as practicable:-.

1. Sal Conversion Working Circle.
2. Sal Selection working Circle.
3. Plantation working Circle.
4. Coppice Working Circle, and
5. Miscellaneous working Circle.

Following statement is a summary showing the area in Acre allotted to different Working Circle in different ranges:-

RESERVED FORESTS

<i>Range</i>	<i>C.W.C.</i>	<i>S.WC.</i>	<i>Plantation w.c.</i>	<i>Coppice wC.</i>	<i>Miscellaneous wC</i>
Kolhan	9,903	29,750	2,455	1,399	..
Santara	11,820	66,307	985	..	896
Saitba	20,535	1,103

TOTAL	21,723	96,057	3,440	21,934	1,999
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PROTECTED FOREST

Range	C.W.C.	S.W.C.	Plantation w.C.	Coppice wc.	Miscellaneous wc
Kolhan.	282	616	107	18,325	837
Santara	1Z	89	15	2,895	..
Saitba	4,624	..
TOTAL	299	705	122	25,844	837

In this plan, the system of blocks and compartment was retained without any change as envisaged in the previous plan.

Sal Conversion Working Circle:- This includes all the better quality Sal foests of the Kolhan division where concentrated regeneration felling is justified and has succeeded very well. The ultimate aim is to convert the existing irregular forest to a regular, approximately even aged stand, so that the best condition possible for the production of well grown trees of maximum size may be brought

about. The special objects of management under this working circle are as follows:

- (i) To Convert the existing irregular forest to a regular one by natural means, aticflo attain normality as speedily as possible.
- (ii) To successfully regenerate the area allotted to Periodic block and to induce and establish natural regeneration of Sal, wherever dificent, in area allotted to Periodic BlockII.
- (iii) To improve the composition and stocking of the existing crop, by application of correct silvicultural principles with a view to the production of the maximum sustained yield of timber of the exploitable diameter.
- (iv) To preserve and tend, under best conditions of growth, all trees of younger age gradations, and
- (v) Consistent with the above to obtain the maximum financial return.

1.5.20 **Silvicultural system-** To achieve the above species objects the forests allotted to this working circle would be managed by a method of Encentrated regeneration felling by periodic blocks, or in other wording clear felling with natural regeneration.

Conversion Period: - A period of long extent i.e. 140 years was fixed as a final rotation with a option that after the present irregular crop is converted into a uniform stand, the period may be reduced up to a period of 96 years, at which the crop is expected to attain a average dia of 14”.

Divisions into periods:-There was constructed six periods of 16 years each.
PERIODIC BLOCKS-I:- This block consists of the area mature crop and adequate regeneration, as a rule, the areas from Periodic Block II of the previous plan had been taken to Periodic Block I as per the fitness of the area and condition of the crop.

PERIODIC BLOCK-II:- This block contains the crop, which are mature or are approaching maturity Regeneration is usually, though not invariably present.

INTER MEDIATE PERIODIC BLOCK:- In the Koihan F.S., the Periodic Block III and IV he clubbed together to constitute Periodic Block Inter. It contains irregular middle aged stands and poles crops. Where as in Santara Felling Series. Periodic block III and IV are constituted separately.

PERIODIC BLOCK-V:- This comprises pole crops which have been converted during the currency of Phillip’s and Mooney’s Plan.

SAL SELECTION WORKING CIRCLE:- This Working circle comprises the poorer quality Sal (quality IV& V) and dry mixed forests. Endeavour will be made to improve the composition and density of the crop by suitable cultural operations. The system will be “ Selection-cum-Improvement” and the yield will be regulated by area with a numerical check on the number of selection of trees to be removed from each annual coupes. Trees in such localities are crooked, malformed and stunted, seldom attaining a height beyond 50’. There is a general lack of pole and sapling crop which is the most disconcerting feature of this working circle, because the forests of this working circle have so far received a step motherly treatment, hence Mr. A. Haidery focused more attention on the forests of this working Circle with a aim to manage them on par with the areas allotted to conversion working circle. Accordingly, the special objects of managements are aimed as follows:

- (i) To maintain the hill slopes under adequate forests cover for the prevention of soil erosion, and conservation of soil moisture.
- (ii) To improve the composition and stocking of the existing crop by application of silvicultural treatments.
- (iii) To induce and obtain natural regeneration of Sal and other economically valuable species and to establish and tend it to form the future crop. At places, where the natural regeneration is difficult to obtain resort to some artificial means may have to be taken.
- (iv) To preserve and tend, under the best condition of growth, all trees under the exploitable diameter to replace the bigger trees these are felled.

(V) To exploit all trees, subject to a numerical check of exploitable diameter as far as Proper Silviculture and management permit and thus to obtain a sustained annual yield.

(VI) Consistent with the above to reap the maximum financial benefit.

SILVICULTURAL SYSTEM:- In order to achieve the object of management, the system prescribed is “ Selection-cum-Improvement fellings”. This will consist in removal of silviculturally available trees with trees with the aim to maintain and improve the soil cover for exploitable diameters:

Sl. No.	Species	Diameter(exploitable)
1.	Sal	16”
2.	Asan, Bija, Gamhar, sisos, Karam, Bhurkund, Sins, Semal, Jamun, Sidha.	18”
3.	Dhaura and Panjan.	16”

ROTATION:- On the basis of available data’s the prewise age of which the crop will attain the average diameter of 16” is not yet known, but it is most probably expected to be in the region of 165 to 170 years.

This working Circle consists of the following blocks-

Compartments of different felling series: SL.No.

Sl. No.	Name of Felling Series.	Block	Compartment No.
1	Ambia.	Ambia.	1to24
2	Leda	Leda, Kara P.F., Agruani P.F.	I TO 30
3	Santara	Santara	I TO 46
4	Latua	Latua.	1 to 52 & Kadalsukua.

FELLING CYCLE:- It was fixed at 20 years.

In this working circle, it has been advocated that major areas are on the hill slopes. Which are susceptible from the point of soil erosion. Therefore a need for soil and moisture conservation is pleaded here. Besides the different measures of soil conservation the contour trenching of dry hills and plantation of the blank areas with suitable species of economic importance might be carried, out.

PLANTATION WORKING CIRCLE:- This comprises practically all the moist miscellaneous forests and a part of dry mixed forest of this division, where Sal regeneration is difficult to obtain and where successful plantation of valuable species has been raised. The aim is to replace the existing valueless miscellaneous crop by some species of economic importance, in particular, teak (*Tectona grandis*). This working circle is scattered in different blocks and also overlaps coppice working circle. All the existing plantations of teak and semal that have so far raised in this division have also been allotted to this working circle. The most of areas fall in Ganmore P.F., Henua RE., Sonua P.F. and Borai P.F..

the special objects of management of this working circle are as

- (I) To restock the patches of inferior miscellaneous forests with species of economic importance.
- (ii) To raise plantations of teak, rose-wood and other equally valuable species on a large scale for augmenting the supply timber for furniture and plywood industries.
- (iii) To maintain and develop the existing plantations on correct silvicultural principles with a view to get the maximum financial returns at the time of final harvesting.

SILVICULTURAL SYSTEM:- "Clear felling with artificial regeneration" is adopted here the following tabular statements show the areas of different compartments and P.F. allotted this working circle. **RAISED PLANT.**

<i>Block & Compartment No.,...</i>	<i>Semal.</i>	<i>Teak.</i>	<i>Area available for plantation.</i>	<i>Total.</i>
Ambia — 1,3,9,12,13,14,16,18 ,19,20,24. Henua P.F. Ganumor P.F.	12	30	1,036	1,078
Leda— 3,4,5,6,7,8,9,10, 17,18,19,20,21, 22,23,24,25,26, 27,30 Kara P.F. Sonua P.F. Agruan P.F. Borari P.F.	424	643	974	2,041

Santara — 1,5,6,8,10,14, 15,17,18,19,21, 22,23,24, 35,37,39,40,41, 45.	5	--	625	630
Latua- 2,3,5,7,8,9,13,27,29, 31,32,33,36, 39,40,52, Kadalsukua P.F.	16	22	332	370

In this working circle it is proposed that approximately 200 acres will be planted each year during this plan period, if funds are readily available during the third and subsequent 5-year plan period the annual target may conveniently be raised to 300 acres with the planting programme of 90% teak and 10% of other special in pure patch.

COPPICE WORKING CIRCLE: - This working circle contains second growth Sal forest and has been constituted to meet the requirements of the local right-holders and to market the surplus in the form of pit crops, poles small building materials, fire-wood and charcoal to coalfields and industrial centers. With the above species objects of management this working circle comprises.

(a) The entire Saitba R.F. Block excepting 440 acres being the area of the rangamati forest village and 663 acres constituting the crest of numerous high rocky hills which are almost blank and require rigid protection.

(b) All the P.F. blocks excepting the Kara P.F., Argruan P.F. and Kadalsukua P.F...

(c) The Dimbuli R.F., Anadpur P.F. Block XIII & XIV and the Raibera, Derwan and Panta P.F...

SILVICULTURAL SYSTEM:- The system adopted is simple coppice with the reservation of about 10 poles per acres.

ROTATION:- For better quality crop, the coppice rotation will be 70 years. For rest, a rotation of 40 years excepting Dimbuli R.F. , for which a rotation of 30 years has been adopted. All the protected forests were placed under this working circle.

MISCELLANEOUS WORKING CIRCLE:- This comprises forest villages, preserved trees, game sanetuarise and those areas which have been closed to fellings. Parts of the areas in Saitba, Henua and Ganmore Blocks have been set aside as unworkable. There are some localised patches of bamboos (Dendrocolamus strictus & Banbusa bambos).

AREA AND DISTRIBUTION:- The details of the area under this Working Circle are as follows:

<i>S.L.No.</i>	<i>NAME</i>	<i>AREA IN ACRES.</i>
1.	Rajabasa forest village	210.00
2.	Hussipi forest village	472.00

3	Tumbahaka forest village	21.4.00
4	Rangamati forest village	440.00
5	Saitba R.F.Block (Part)	663.00
6	Ganmore P.F. Block (Part)	552:00
7	Henua P.F. Block(Part)	285.29
	Total	2,836.29 acres.

In this working circle, the main prescriptions are based with the aim to maintain forest demarcation line, restriction to the fresh clearing of the ground, restriction to cut the green sal trees of 8" and over diameter by the villagers of forest village without the permission by concerning Divisional Forest Officer and also to manage the forest of each village for purpose of grazing in to two parts where grazing may be done alternatively.

REVIEW OF HAIDERY'S PLAN

The prescriptions of Haidery's plan were followed by the concerned to a large extent. The condition of the crop was satisfactory and the forests were managed as per the prescription of existing working plan. As such, the prescriptions were compatible with the prevailing conditions of the forest. However, the end result of this working plan could not be assessed because at the time, when working plan period expired, Jharkhand Agitation started in Singhbhum district engulfing the Koihan Forest Division as a whole. This resulted into non-revision of the working plan at right time; regular fieldwork such as stock-mapping and enumeration etc. could not be carried out in the field. Which resulted into information gap about the effects of the Haidery's plan?

The Haidery's plan period was extended twice between 1975-76 to 95-96. Firstly, Conservator of Forests, Working Plan & Research Circle, Ranchi vide his letter No. 5 dt. 4.1 .1985 requested Chief Conservator of Forest (Development), Bihar, Ranchi to extend the plan Period from 1975-76 to 1979-80, Again G.E., Working plan and Research Circle, Ranchi prayed to C.C.F. (Dev) Ranchi for the extension of kolhan Working Plan vide his Memo No. 597 dated- 26.11.88 for 1980 to 1995. At present Kolhan's working plan has been given extension unto 30.6.1998.vide Govt. of India's Letter No. 13-FSWP/ BH — Kolhan dated- 1.1.97 with a restriction on green fellin⁹ in any working circle area. During this period of extension from 1975 to 1997, the forests of Kolban division were extensively damaged by the Jharkhand Agitation, there by completely defeating the purpose of working plan.

C.F, Working Plan and Research Circle, Ranchi was entrusted with the job of studying the effect of illicit felling in the working plan vide C.C.F. (Dev.) Ranchi, Bihar Letter No:- 9205 dated- 10.12.81. He was also requested to make recommendations as how the future felling should be regulated, so as not to result into over-felling, and to adjust the illicit felled areas against permissible felling under the working plan.

C.F., Working Plan and Research Circle, Ranchi submitted the report in this regard. A copy of which is in annexed. On the basis of which, C.C.F. (Dev) Bihar in his Memo no. 6261 dated- 9.1.82 issued some direction in regards to future felling. These are as follows:

- (i) No felling in Conversion Working Circle would be done 1985-86.
- (ii) Regular felling as per Working Plan would commence from 1982-83 only in selection working Circle starting from unworked coupes as per working Plan.
- (iii) In case of Coppice working circle, the sequence of felling, as prescribed would be followed. Area felled by the Agitationists if any, would form part of the coupe. Felling in coppice coupe would commence from 1982-83, starting from unworked coupes if any as per working plan.

But in later days, more forest areas were felled and encroached by the Jharkhand Agitationists. Thus the working and management of the Koihan Forest Division was no more carried out according to Haidery's Plan prescriptions during extension period i.e. 1975-76 to 1995-96. No regular operations which were prescribed in the Haidery's working plan were carried out. During the period of 1975-76 to 1995-96 Salvage operation was carried out, in the area where Jharkhand Agitationists had cleared the forest areas.

Present status of the Forest:- The forest of Kolhan division have been plundered of its glory during past decades. It has been the result of Jharkhand Agitation to a large extent and continuous theft and smuggling in general. Around 7480 HaG.. of forest area were destroyed by the Agitationists during the year 1980 to 1995. The detail is given in Annexure —IV

The whole division was affected by this Jharkhand Agitation. Due to Jharkhand felling, which is a clear felling in nature followed by burning of the crop and cultivation over the area had resulted into a permanent loss of the forest.

The division is affected to a large extent by theft of important timber varieties like Bija, Gamhar, Sal Asan, Karam, etc. which come to the nearby markets of Chakardharpur and Chaibasa.

The theft is mostly selective in nature has resulted into loss of some very important spp. altogether from the forests specially Teak, Bija, and Gamhar are no more visible in the forests. In general this has resulted into the reduction in the crop density. There is a silver lining. Local people have started protecting their forest. At present there are eight VFMP and sixteen Village EcoDevelopment Committee have started working in this division, though not in a big way.

It will not be possible to protect the forest of Kolhan until and unless the Forest Department does something for the people residing inside the remote forests. Further eco-development projects has to be prepared for the villages and the R.F., so that both can be developed. Besides in P.F. areas, village forest protection committee can be constituted and their

active help and cooperation can be taken after preparation of microplans, which should match the working Plan prescription for rights and concession.

Vast areas of forests have been encroached. The list of encroachment is annexed, as Annuxture. . V .There is an urgent need to remove to the encroachments from the hilltop, and steep slopes but this is a very sensitive matter because tribals in general, who are residing in the forest as Jharkhandies have established villages of their own and almost in all the cases, the tribals from Ranchi, East Singhbhum, Gumla, Mayurbhanj {Orissa} ,Keonjhar{Orissa} , and Sundergarh { Orissa} have come to settle in the forest during Jharkhand Agitation. They have got political support also . So their removal and resettlement is urgently required, so that the forest can regain its lost glory.

TEN YEAR GROSS REVENUE OF KOLHAN STATE TRADING DIVISION

The gross revenue obtained from sale of timber is given below.The revenue also includes timber obtained from salvage operations whereby trees felled in the organized illicit felling, i.e., Jharkhand felling, along with regular timber from coupes whenever coupes have been made as per working plan. Hence figures shown, varies from year to year.

YEAR	YEARLY GROSS REVENUE(QNRS.)
1992-1993	5,06,22,169=53
1993-1994	4,91,48,449=94
1994-1995	4,97,53,891=00
1995-1996	4,42,11,086=72
1996-1997	3,27,97,276=84
1997-1 998	1,89,10,223=34
1998-1999	68,26,783=25
1999-2000	19,58,623=40
2000-2001	42,42,987=95
2001-2002	57,74,95=41

