

## CHAPTER – II THE FORESTS

### FOREST TYPES

1.2.1.0 According to revised classification of forest types of India by Sir H. G. Champion and Shri S. I. Seth the forest of this Division fall into the following types.

1.2.1.1 The sal forests : This corresponds to the Northern Dry sal bearing forests 5B/C1 type. The associates in the top a middle storeys are *Shorea robusta*, *Terminalia tomentosa*, *Madhuca indica*, *Pterocarpus marsapium*, *Adina cordifolia*, *Diospyrus tomentosa*, *Buchannia lanzan*, *Semicarpus anacardium*. Occasional bamboo brakes are also present. The shrubs consist of *Holarrhena antidysentrica*, *Nyctanthes arbortrites*, *Randia species*, *Casearia species*. *Indigofera pulchella*, *Carissaopaca*, *Wendlandia tinctoria*, *Woodfordia fruticosa*, *Croton oblongifolius*, *zizyphus species* and *Phonix*. The grasses consist of *Heteropogon contortus*, *Eulaliopsis binata*. The climbers are *Bauhinia Vahilli*, *Acacia piñata*, *Butia-superba*, *Millettia ouriculata*, *smilak species* and a few species of *Asclepiadacene*.

1.2.1.2 The miscellaneous forests : This belongs to the type Northern Dry mixed deciduous forest 5B/C2. The trees in the tops tory are *Boswellia serrata*, *Anogeissus latifolia*, *Lagerstroemia parviflora*, *Diospyrus tomentosa*, *Pterocarpus marscupium*, *Adina cordifolia*, *Mitragyna parvifolia*, *Buchannia lanzan*, *Sterculiaurens*, *Cochlospermum religiousum*, *Madhuca indica*, *Emblica officinales*, *Aegle marmelos*, *Odina wodier (L. grandis)* *Legerstroemia parviflorra*.

The middle story consists of frequent and extensive bamboo brakes of *Dendrocalmus strictus* where condition of soil is better. The shrubs consists of *wood=fordia fruticosa*, *Nyctanthes arbortritis*, *Zizyphus species*.

### COMPOSITION AND CONDITION OF CROP

1.2.2.0 Sal Forests : Bulk of the forest area will be found to come under this classification. The crop of the entire area is of coppice origin. The general quality of sal

forests is coppice quality B but localized patches having crop of quality A are found in several Felling series. The purity of sal varies widely depending upon various locality factors.

1.2.2.1 The best sal forests are found on the coarse-sandstone of Mahudi and adjoining hills which belong to the Upper Gondwana system. Extensive patches of almost pure sal forest of better quality are found on this hill for example in Niri P.F. & Ex. R. F. Felling series. Natural regeneration in whippy seedling stage is generally adequate in this type of crop.

1.2.2.2. The main associate of the sal forests in the top canopy is the Asan. Its preponderance depends upon the texture of the soil. The heavier the texture of the soil, sal is gradually replaced by asan and other species like, doka, harra bahera, khair etc., karam, bijasal, burhikaram, sidha, dhaura are other common species found in the sal forests.

1.2.2.3 The main species of the middle storey are panjan, Bauhinia species in localities having heavier texture of soil and piar, bhelwa, lodh (*symplocus racemocous*), Caseria species, amla, kend, *Careya arhorea* in other localities.

1.2.2.4 Quite an extensive area having sal forest has undergone degradation due to extreme biotic interference, i.e. irregular felling by villagers, fire and grazing. Such sal forests generally contain young sapling crop of almost pure sal. The site quality is generally good to support excellent pole crop but due to excessive repeated irregular fellings for fuel wood and ghoran the crop never grows beyond whippy seedling stage. Areas with such a crop are popularly known as "sal rooted waste."

### MISCELLANEOUS FOREST

1.2.3.0 The miscellaneous forests are situated on the warmer aspects and comparatively drier localities like hill slopes and hill tops having poor soil and moisture condition. Salai is the main species with varying density. The crop is generally open. Other associates are doka, dhau, sidha, kend, galgal, piar, amla etc. The shrubs consist of *woodfordia fruitcosa*, harsingar amla, climbers are generally absent. The ground cover is also very sparce.

1.2.3.1 The Outer slopes of Ranchi Plateau facing the Damodar basin falling within this Division contain very little except mesh of climbers and miscellaneous shrubs. The climbers are *Acacia pinnata*, *Combretum decandrum*, *Bahunea vahhii* etc. The trees species are not able to grow to sapling or young pole stage due to reckless hacking. Karam, Sidha, Asan, Rori (*Mallotus philippinensis*) is quite common. Scattered bamboo clumps are also found specially on the slopes facing Ramgarrh cantonment area. Such forests were worked under coppice with standard system, but the regenerated crop has not been able to establish due to excessive biotic interference. Scattered semal trees are found in moister localities while salai is found on ridges and drier localities. Sal occurs near the foot-hill in well drained moisture localities. Doka or Jhingan is a common species in such localities.

1.2.3.2 The forest crop on the slopes of hills facing the G. T. Road in Barhi Range contain bushy growth of miscellaneous species. Scattered trees of salai, semal, karam and scattered clumps of bamboo are found on these slopes. Sal occurs on the foot-hill in varying density. Here again the crop is not able to grow to pole size due to excessive biotic interference.

#### KHAIR

1.2.4.0 Khair trees, as usual, are found scattered in Barkagaon, Tandwa a part of Hazaribagh and Barhi Ranges. Khair is generally found on lower slopes of Mahudi hill and eroded areas. The quality is generally poor specially in the eroded localities.

#### BAMBOO

1.2.5.0 Occurrence of Bamboo in this Division is not extensive and occur mainly on the hill slopes of Ranchi plateau and in Barhi Ranges and in the south western portion of National Park Range. The quality is generally poor.

#### THE PLANTATIONS

1.2.6.0 Extensive plantations have been raised in the past in Barhi and Tandwa Ranges. Almost entire forest area situated north of G. T. Road in Barhi Range has been

treated under the soil conservation scheme in which the existing natural crop of sal has been rehabilitated and the blanks have been planted.

1.2.6.1 The species planted are Acacia auriculaeformis, Eucalyptus species, Cassia siamea, Sissoo, Khair and Bamboo. The success of plantation in Barhi Range is generally poor while that in Tandwa Range is good. The older plantations have suffered due to irregular fellings.

#### CLASSIFICATION OF FORESTS FROM MANAGEMENT POINT OF VIEW

1.2.7.0 The forest can be classified into the following categories from the management point of view:

1. Sal and miscellaneous forests which can regenerate and establish by themselves and grow into pole crop after coppice felling.
2. Sal forests which are perpetually in sapling stage and the sal rooted wastes which are not able to grow up due to excessive biotic interference.
3. The bamboo bearing forests.
4. The khair bearing forests.
5. The blanks and semi-blanks containing scrub and useless species.
6. The plantations.
7. Forests situated on dry hill tops, steep slopes and out crop of rocks which are not likely to regenerate after coppicing.

#### INJURIES TO WHICH THE CROP IS LIABLE

1.2.8.0 The forests suffer more due to injuries caused by biotic factors than the natural causes.

#### UNREGULATED FELLINGS

1.2.8.1 This is, perhaps the most significant cause for the deterioration of the forest. Irregular fellings are done on large scale outside the annual coupes by the villagers in the guise of collection of dry fuel wood and for ghoran. Many of the forests situated near

habitations suffer due to this malady. The quantum volume increment put on by forest. This results in gradual depletion of the forest.

## FIRE

1.2.8.2 Fire is a great menace through out these forests and causes greatest damage. This is caused by the local villagers due to careless handling of fire list for burning the floor underneath mahua trees. Some times fire is also caused due to sheer carelessness of the passers by who throw lighted match sticks and biri stub without extinguishing them.

1.2.8.3 The injuries caused by fire are both direct and indirect. These are summarized below :-

1. Seedlings and young saplings are burnt outright. Young poles are badly scorched and their new flush of leaves are burnt. This causes the loss of the year's growth and also reduces their vitality resulting in subsequent unsoundness of trees.
2. The humus and the leaf litter are burnt completely thereby causing a major deficiency of soil nutrient.
3. The ground surface is backed and hardened to make it impenetrable for the tender roots of seedlings.
4. The ground flora is completely burnt. Due to this soil run off in the first few showers is very high. The baking of the soil reduces the porosity of soil which further adds to the run off.
5. The micro-organism which is so much beneficial to the soil is killed outright.

## GRAZING

1.2.8.4 Grazing is another factor which causes appreciable harm to the forest crop in early stages of regeneration. Though the prescriptions of the Working Plan forbid grazing for at least 5 years after coppice felling, this prescription is rarely followed. The young coppice shoots are badly browsed and damaged due to grazing. In older crop the recruitment and establishment of seedlings is handicapped due to grazing and trampling of the seedlings.

Due to excessive incidence of grazing in the forests near villages the ground is also rendered compact for the newly germinated seedlings to strike root. This is one of the main reasons why the floor of forest near villages is bare of any under growth.

### DROUGHT

1.2.8.5 It is one of the important natural factor which causes injuries to the forest. The tract faces periodical drought which is caused due to appreciably lower rainfall than the annual average and long spell of drought before the onset of summer. The plantations suffer most due to drought. Among the present set of species which are being planted on large scale *Acaia auriculaeformis* is the most drought tender species. Even due to a short spell of dry hot weather the growing tip of this species dries up. During a bad drought year sometimes the whole plant dries up completely in extensive patches specially in area on the windward side of the drier hill slopes.

1.2.8.6 The natural species also get adversely affected due to prolonged drought condition. The sal is fairly susceptible to drought condition. It puts on new flush of leaves early. The tender leaves and the shoots get scorched due to hot desiccating wind if the available moisture in the soil decreases beyond critical level.

1.2.8.7 The year 1980 proved to be a bad drought year top drying of sal occurred on large scale in many localities specially in the current coppice coupes where the standards got scorched due to exposure to hot desiccating wind. Due to bad drought condition some drought resistant species delay leafing. This phenomenon was noticed during 1980 on many mahua trees on which new flush of bronze coloured leaves were appearing even after the onset of monsoon.

### FROST

1.2.8.8 Generally frost is not a serious cause for any kind of damage on large scale. However, there are a few localized frost holes on the main Hazaribagh plateau in the valley bottom along nalas. Cold wave generally runs through the tract every year. During the cold wave the vegetation in the frost holes get damaged. The saplings and the young poles

which are not protected by any overwood get frost bottom. Their tender growing shoots are killed.

### CLIMBERS

1.2.8.9 Damage due to climbers is not serious problem. The incidence of climbers is generally low except in comparatively moister valleys. The main species are Bauhinia vahlii, Butea superba, Acacia pennata, Millettia auriculata, Combretum decandrum, Celastrus paniculata and Ventilago madarspatana.

### PARASITIC SHRUBS

1.2.8.10 The banda which is the common local name for all species of branch parasites also does some damage to trees. The two common species are Loranthus longiflorus and Scurrula of which the former is more common. It is found in epidemic form in certain localities where almost all the trees are infested. It lives upon the vitality of the plant due to which the growth is arrested. The other species of banda is viscum orientate.

### WIND

1.2.8.11 High velocity storm associated with rains is common feature during pre-monsoon period. Such storms, sometimes, causes damage to planted species in which many trees are uprooted completely. The damage in the natural forest having close canopy is negligible.

### FUNGUS

1.2.8.12 This causes a lot of injury to the standing crop of sal. It causes heart rot in the standing trees. The infection is so wide-spread that almost all trees in some of the localities like Manatu, Barhi are effected. The crop in poorer localities where forest fire is an annual feature is more susceptible to this disease. The longer an infected trees is allowed to grow the more its heartwood is damaged. The infected tree lose its value drastically. If the infection has advanced, the trees loses its entire timber value and yields nothing better than firewood of inferior quality. The worst part of this after the trees is felled and logged.

## INSECTS

1.2.8.13 Insect damage to natural forest crop is insignificant. However, the young seedlings in the nursery and in the plantation areas are quite susceptible to insect damage. The leaf eating insects, a variety of caterpillars eat away the leaves of seedlings of leguminous species if left uncared. In the plantation areas the freshly planted seedlings are damaged by termite, soil grub and leaf-eating caterpillars. Older trees in the plantations are also sometimes effected by leaf eating insects. The chakundi and the teak are two somman species which are generally damaged.

## CHAPTER – II (A)

### THE FAUNA

1.2.(A).1.0 The status of wild life in the past has been described in fair details in the district gazette of Hazaribagh by E. Lister, C.I.E. published in the year 1917. Though the description relates to the whole district, it holds good in general to the tract of Hazaribagh West Division also. The description is reproduced below:-

1.2.(A).1.1 “There has been no zoological survey of this district and very little has been recorded with special reference to Hazaribagh. It is, however, probable that the wild animals to be found there are practically the same as those in the rest of Chhotanagpur. There is no reason to believe that tigers are specially numerous, in spite of the large number of victims with which they have recently been credited. In a year not more than five or six tiger skins are brought to the Courts for the customary reward of Rs. 25 and the number killed by European sportsman is quite small. It is probable that owing to accidental circumstances tigers take to man killing more freely in this district than elsewhere, and some have been credited with an extraordinary number of victims. They still haunt the Koderma forest, and are permanent residents of the hills near Danto, north of headquarters station. In Khesmi and Doranda, Satgawan and Partappur there appear to be families ordinarily in residence. The great difficulty in meeting with them is the enormous extent of continuous cover over which they may wander free from observation, and the absence of favourite resorts. It is not safe after a kill in any particular place to locality immediately afterwards. Leopards are much more common, and frequently visit the town of Hazaribagh. Each year they kill large numbers of cattle, but they rarely attack human beings unless provoked. Bears are not numerous except in the south and east, where skins are often brought in. They belong to the ordinary sloth variety. Hyena are fairly numerous in the neighbourhood of the head quarters station, whether they are attracted near Seotagaraha Hill. Wolves, for about four years from 1910 to 1914, killed a large number of human beings near Chauparan, but a special reward of Rs. 50 led to the hunting out of the bubs, and the evil has now ceased. They are found over the whole of the district and take considerable toll of goats. Jackals and Foxes are common as there is abundant food over the greater part of the district in the form of feathered game and wild fruits, Pigs are numerous in the west and south, and the great damage which they cause to the crops is usually put forward as the reason for applications

for gun licenses received from that part of the district. Hares are common, except in tracts occupied by the Santhals, whose methods of hunting quickly exterminate all game save snipe. Of deer, sambar are still found, more especially in Gawan and Partappur. Spotted deer, hog deer, four horned deer and ravine deer are met with, but are not plentiful. Nilagi are found in Partappur. The statistics relating to deaths caused by wild animals are as follows:-

#### DEATH CAUSED BY WILD ANIMALS

1.2. (A)1.2. Number of Human beings killed :

Year	Tigers	Leopards	Bears	Wolves	Hyenas	Others	Snakes	Rewards
1910	31	8	11	3	3	3	92	Rs. 471
1911	10	4	0	44	1	0	123	Rs. 2,052
1912	16	2	6	86	2	2	123	Rs. 3,349
1913	26	9	8	21	1	2	97	Rs. 4,140
1914	21	2	5	8	0	0	117	Rs. 10,200
1915	57	7	4	3	1	5	144	Rs. 3,333

1.2.(A).1.3 The larger number of the deaths caused by tigers in 1915 was due to a single animal near kathkamsandi for whom a special reward has been offered. The great increase in the rewards distributed was due to the special rate of Rs. 50 paid for Wolved until the end of March 1915.

1.2.(A).1.4 Precise information about the birds of this district is almost completely wanting, and the following paragraph is necessarily restricted to a mere impression of its sporting resources. Peafowl are fairly numerous in suitable localities and jungle fowl are wide spread. The grey partridge is common all over the district, but the black species is confined to the more wooded parts, as also is the much less numerous spur-fowl. Field quail may be found in spring in the rabi crops of the west, and bush quail are common. Snipe, though not present in large numbers are wide spread in the cold weather. Green pigeons are common, and golden plover are some times found. A small species of sand grouse is occasionally met with in the north. The great drawback to shooting in the district is the fact that the game is rarely to be found concentrated, and very large bags are seldom obtained. Geese and duck are comparatively very rare as the rivers are too small to be safe resorts, and there are few artificial sheets of water of any size.

1.2.(A).1.5 This same want of large permanent bodies of water necessarily results in the absence of fisheries of serious value. Most of the larger tanks contain fish, which are however liable to total destruction in the not unusual event of complete de-watering, after which the tanks are restocked with fry. There has so far been no detailed scientific examination of the rivers and bandhs, but it is scarcely likely that when made it will reveal anything of commercial importance.

1.2.(A).1.6 Regarding reptiles it is at present safe to say little more than the fact that the reported human deaths from snake bite were 92 in 1901, 125 in 1911 and in the four following years an average of 120.

1.2.(A).1.7 From the above description it is evident that tigers, leopards and wolves were fairly abundant in the whole district. The Danto forest, which at present form a part of the National Park, was permanent residence of the tiger. Leopards were more common and they used to visit Hazaribagh town frequently. The wolves which is at present a rare animal, were perhaps quite numerous killing large number of human beings. They were virtually exterminated by a special drive in which a special reward of Rs. 50 was given.

1.2.(A).2.0 The later Gazetter of the district by P.C. Roy Choudhary published in 1957 states that deforestation has definitely affected the fauna population. Indiscriminate shooting particularly in the years when military personnel were stationed in the district and its neighbourhood in connection with the Second World War is another contributory cause. The Santhals are also indiscriminate hunters. According to the Gazetter of Mr. Roy Choudhary there were 205 breeding birds and 61 migratory birds in this district. He has also not given an account of larger animals of the district.

1.2.(A).2.1 During the transition period, the fauna was heavily exploited along with the ruthless destruction of the forest cover. Practically little seed stock of the wild ungulates, the carnivores and other animals was in this area, the skin of which is still with one of the Mica Merchants of Koderma (Manodih). The landlord used to trap tigers and leopards and sell them to circus and zoo within the help of a device known as area as a monument.

1.2.(A).3.0 National Park : The National Park abounds in wild animals. The concentration of animals is better in the region west of the Patna-Ranchi National Highway. The park is under strict protection and special management since long. The description of wildlife of the Park as given in the Wild Life Management Plan for Hazaribagh National Park is reproduced below:-

Wild Life of the Park may be divided into two broad classes of fauna and avi-fauna.

### FAUNA

1.2.(A).3.1 The main species of this park is Sambhar. It is found almost all over the Park, though the density is more in Rajderwa section. Among the antelopes the four horned antelope is very divided into Primates, Carnivores, Ungulates, Bears, Badgers, Otters, Mongoose, Civets and other species.

#### Primates

1.2.(A).3.2 Among the primates the common langur (*Presbytis entellus*) has been observed at several places. Rhesus monkey (*Macaca mulatta*) is occasional visitor of the Park, a few of these have also been trapped in the district of Ranchi and released into the Park. The visitors are often seeing them.

#### Carnivores

1.2.(A).3.3 Among the Carnivores, Leopard and jungle cat are often met with. Tiger have also been seen by few visitors. The list of other animals seen is given in the above.

#### Ungulates

1.2.(A).3.4 Among the ungulates, Sambhar is most common Blue bull, four horned antelope, spotted deer, barking deer and wild boar are also seen at time.

#### Bears

1.2.(A).3.5 The only species available in the Park is the sloth bear.

#### Badgers

1.2.(A).3.6 Among these Hogbadger and Ratel are found.

#### Otters

1.2.(A).3.7 among this class smooth Indian Otter is often seen in this Park.

#### Mongoose

1.2.(A).3.8 The only species of this class is the common mongoose.

#### Civets

1.2.(A).3.9 Among this class small Indian Civet is often seen.

#### Miscellaneous

1.2.(A).3.10 The Jackal, Indian fox, Indian hare, wild dog, etc are the species which are frequently observed in the Park. The wild dog is very common and causes a lot of damage to other animals.

#### Avi-Fauna

1.2.(A).3.11 The first published work on the Avi-fauna of Hazaribagh district was a paper by V. Ball, "The birds of Chhotanagpur" which appeared in Strary Feathers in 1874. Captain R.H. Baillie contributed a paper on the subject to the journal of the Bengal Natural History Society Vol. XX of 1946. According to the district Gazette of 1957 by Mr. Roy Choudhary, there were 205 breeding birds in the district. He has also mentioned that 62 birds were migratory to this district during cold weather. A list of birds commonly observed in Hazaribagh National Park was published in the Journal of the Bombay Natural History Society Vol.63 (i) by Jamal Ara. She has mentioned that 97 birds were observed in the area by her.

1.2.(A).3.12 The Park is really quite rich in the bird population. The Wild Life Warden Shri. N. K. Prasad has prepared a list of 124 birds including the Migratory birds with the help of his staff. He has also consulted naturalist like Mr. Krishnan and Mr. S. R. Choudhary while preparing the list.

#### POPULATION ESTIMATE

1.2.(A).3.13 In the month of June, 1972 census of tiger was done by the approved method for tiger census. According to this two tiger and one tigress were found to inhabit the park. The present population of tiger as per estimate of staff is one or two.

1.2.(A).3.14 The census of other animals were carried out by track method. This method does not give the exact estimate population but indicates the trend of population. The estimate of population of various animals as per census carried out in 1973 and 1974 summer is given below:-

Sl. No.	Name of animal	Population	Estimate
1.	Sambhar	1060	1630
2.	Barking Deer	320	410
3.	Spotted Deer	40	100
4.	Blue Bull	20	50
5.	Four Horned Antelope	-	90
6.	Chinkara	-	100
7.	Wild Bear	2300	2430
8.	Tiger	10	-
9.	Panther (Leopard)	-	10
10.	Sloth Bear	70	70
11.	Hyena	10	10
12.	Wolf	10	70
13.	Peacock	180	170
14.	Mongoose	10	10

1.2.(A).3.15 The census of Sambhar, Chital, Barking deer-Four horned antelope and Chinkara was carried out by pellet group count method also according to which the following estimate of population was made:

Sl. No.	Name of animal	Population	Estimate
1.	Sambhar	1847	1866
2.	Chital	385	323
3.	Barking deer, Chinkara & Four horned antelope	678	410
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		2910	2599

1.2.(A).3.16 List of animals and birds observed in National Park is given in Appendix. The plan for Hazaribagh Sanctuary.

#### OTHER AREAS

1.2.(A).4.0 The occurrence of wild animals is rather rare in other areas. The commonest animal is the wild boar which is evident from the hue and cry raised by the villagers against damage caused to their agricultural crops by this animal. The other animals which are reported are the barking deer (rare) hyena, leopard, hare, wolf, jackal, sloth bear, common langur. The Madhudi Pahar which has extensive forest with very little human population also does not have any better concentration of animals.

## CHAPTER – III

### UTILISATION OF PRODUCE

1.3.1.0 Utilisation of produce is one of the vital factors which governs the ultimate management of forest. This can be broadly divided into two parts utilization by local people and utilization by industries situated both inside and outside the tract. The management has also to keep in view other demands which are met from the produce of this Division.

### AGRICULTURAL CUSTOMS AND WANTS OF THE POPULATION

1.3.2.0. The majority of people living within the tract are poor agriculturists. Their demand of forest produce is for two purposes agriculture and household. The agricultural demand is for agricultural tools like plough, macha for storing straw, latha-khamba for well irrigation and ghoran for fencing the homestead land. Very large number of cattle heads reared mainly for the agricultural purpose need large area of grazing ground.

1.3.2.1 The household requirement is for fuelwood and for repair and construction of houses. The furniture, in the poor village economy, consists mainly of cots generally of wooden legs and bamboo frame.

1.3.2.2 Village cottage industry is few. The only cottage industry is basket making. This is the caste-profession of the Turies who belong to the schedule caste. Rope making out of chope, the fibers of climbers is another cottage industry on a very small scale. This work is done mainly by Birhuss a poor tribesman who roam about in the forest and live by hunting. Rope spinning from sabai grass is practiced on a small scale. Chatai weaving from Khajur (Phoenix species) leaves and broom making from broom grass is done on a very small scale. Katha extraction is a seasonal industry during winter. It provides small employment, but nobody depends entirely upon this industry for livelihood.

1.3.2.3 Bringing of firewood and other forest produce from the forest and selling the same to local families has, of late developed into a regular profession for a class of poor families. Generally the female fold is employed in this profession on large scale in almost all

localities. Biri-making has not development as a cottage industry in the villages. In the urban and semi-urban areas a handful of persons are employed on this profession.

1.3.2.4 Flowers, fruits, and tubers are collected on a fairly large scale. A part of it is consumed and the balance is sold away which is exported out of the tract for industrial use. Mahua corolla is collected on large scale. A part of it is consumed as food and the balance is sold away which goes to distilleries. A variety of tuber the yams belonging mainly to the genera *Discorea* are dug out by poor villagers living inside forest. It is eaten. This is used as food. Mahua fruit is collected on large scale for its oil. A part of its consumed and the balance is sold away which ultimately goes out of the tract for soap making.

## MARKETS AND MARKETABLE PRODUCTS

1.3.3.0 The villagers require the following timber for their agricultural and household use:

Ghoran	: Sal, saplings, thorny shrubs of ber karanda
Machan	: Vertical posts are made of forked poles of 20 cm dia of sal, asan, kend the horizontal members are poles of 10-15 cm dia. Poles of sal, asan.
Latha	: Sal or asan poles of 12.5 – 15 cm dia and 6-9 metre length
Khambha	: Poles of sal, asan, salai of 20-25 cm dia and 4.5 6 metre length
Plough	: Sal, asan, panjan, khair, mahua, kend of minimum 25 cm dia.
Harish	: Sal or asan poles of 10 cm dia.
Yoke	: Bija or gamhar 15-20 cm
Henga (leveler)	: Sal 20 cm dia.
Rafter	: Sal, asan, sidha of 10-15 cm dia.
Dharan (eidge piece)	: Sal, asan, mahua of 20-25 cm dia
Door & window frame	: Sal, mahua
Door & window shutters	: Bija, Sal, Mahua, Mango, Kathal, Karam
Cart	: Sal, asan, dhau, panjan, arjun
Tool handle	: Dhaura, Panjan
Behngi	: Dhaman

Cot	: Sal, bija, gamhar, karam, bamboo for frame
Rope strings	: Fibres of mahulan, latpalas, sabai
Mat	: Khajur (Phoenix species)
Roof	: Thatch grass (Heteropogon species)
Edible fruits & flower	: Mahua, kend, piar, jamun, ber, bhelwa, kenda, bel, myrobolans
Leaf plates	: Sal, mahua, palas, mahulan.

## INDUSTRIAL DEMANDS

1.3.4.0 A number of industries situated within and outside the tract depend upon the forest of the division for supply of forest produce. Besides, some departments of the Government and semi-government organizations require a number of forest produce. The important ones which need special mentioned and forest producer required by them are given below:

1.3.4.1 Coalmines : Central Coalfields Limited and Bharat Cooking Coal Limited. The coalmines require props, tramline & cogging sleepers and timber for civil works in very large quantity. Their requirement is so immense that entire quantity of mining timber produced in the State does not fully meet their requirement. Mining timber is imported from the adjoining states of Orissa and Madhya Pradesh, even then it is always in short supply. The standard sizes of timber required are :

1.3.4.2	Props : Sal & miscellaneous hardwood species :	
	Butt end dia	Lengths
	15.0 cm	2.4, 3.0, 3.6 metres
	17.5 cm	2.4, 3.0, 3.6, 4.2, 4.8 metres
	20.0 cm	3.6, 4.4, 4.8, 5.4, 6.0 metres

(The difference between the butt-end and top end dia should not be less than 5 cm. )

Poles : 10.0 to 12.5 cm dia and lengths 3.0 to 4.8 metre of sal and asan.

T.L. and Cogging sleepers :

1.3.4.3 The sleepers should be of sal and hardwood species. Sleepers of softwood species (salai) are accepted in small percentage of total supply. The T.L. sleepers can be rough-hewn or sawn on two opposite sides. The Cogging sleepers should be sawn on two sides or all the four sides. The size are :-

Cogging Sleepers : 1.5m x 15 cm x 10 cm

1.5m x 17.5 cm x 12.5 cm

1.2m x 15 cm x 10 cm

1.2m x 12.5 cm x 10 cm

1.2m x 10 cm x 10 cm

T.L. Sleepers: 1.2m x 15 cm x 10 cm

1.3.4.4 Sawn timbers : Sawn planks of 2m x 15 cm x 2.5 cm of hardwood species are required in large quantity for underground mines for stone-dust-burriers. Besides, sawn timber of standard size is also required for civil works like construction of house etc.

1.3.4.5 Sprags : Small round pieces of sal and hardwood species 0.75 metre long and about 6.0 cm dia bluntly pointed on both ends are used in the open-cast mines in large number. These are used for braking the speed of trollys running down a sloping track.

1.3.4.6 Mica-Mines of Koderma : The Mica-Mines also use poles in large quality. The poles are used in semi-permanent positions under humid conditions. Hence they require only sal poles which is comparatively more durable. The size of poles required are 10 cm to 20 cm dia and 3.6 to 6.0 metre length. There is no restriction on the size of top dia.

1.3.4.7 Bhurkunda Glass Factory: It requires softwood planks for packing boxes.

1.3.4.8 Glass Factory : There are a number of glass factories near Ranchi Road Railway Station. They manufacture glass ware. They require firewood for their kilns and bamboo-baskets for packing the glass wares.

1.3.4.9 Bokaro Steel Limited : It requires sawn timber of a number of sizes and poles of all sizes. Their requirement is huge.

1.3.4.10 Heavy Engineering Corporation, Hatia : It requires timber for packing and casting moulds. For packing, it requires, beams and scantlings of soft wood species of various sizes. It also requires a small quantity of charcoal.

1.3.4.11 Among departments of Government and semi-government organizations, the Irrigation Department, the Bihar State Electricity Board, the Public Works Department, the Forest Department are some of the important consumers of timber. The River Valley Projects require sal and asan poles of 10 to 20 cm dia and 3.6 to 6.0 metre length for flood control measures and for construction purposes. The Public Works Department require structural very large number of fencing posts. The Bihar State Electricity Board uses thirty to fifty thousand of wooden electric transmission poles, the standard sizes of which are given below. Poles treated with Ascu under pressure are used.

Type	Length (metre)	Top girth (cm)	Butt girth (cm)
A1	8.5 to 9.5	31 to 41	58 to 63
A2	8.0 to 8.5	33 to 38	58 to 63
B	8.0 to 8.5	33 to 38	51 to 56
C	7.0 to 7.5	26 to 36	43 to 51
C/S	7.5 to 8.0	26 to 33	48 to 56
D & E	7.0 to 6.5	24 to 30	43 to 51

1.3.4.12 Paper Mills : For the Rohtas Industries Limited which is situated in this State and for other paper mills situated in the adjoining State of West Bengal, Bamboo is the chief and the best raw material. The bamboo is always in short supply to these paper mills. Due to variety of local uses of bamboo the local demand itself for bamboo is much more than what is produced in this Division.

1.3.4.13 Kendu Leaf : Kendu leaf produced in the Division is mostly exported outside the tracts for biri making. The market for kendu leaf keeps on fluctuating due to fluctuation supply and demand.

1.3.4.14 Khair : The average sale price for Khair trees suddenly jumped up due to large number of katha factories have been established in Uttar Pradesh and other States. The price of Khair trees has now fairly established. The minor fluctuation in the price, now is

due to fluctuation in the price of katha. Khair trees purchased by katha factories are all exported find it more paying to sell away khair billets to katha factories. However, even now, khair trees are consumed locally for extraction of katha.

1.3.4.15 Sal Seed: The sal seed is, at present, one of the valuable products of the forest. The kernel of the seed is used for extraction of oil which has a variety of uses. The oil is extracted by solvent process. Hence all the seed produced in the division goes out of the tract to the solvent plants.

1.3.4.16 Medical plants: A number of plants naturally found in the forest have medicinal use. Chief among these are the myrabolans (harra, bahera and amla, Sonachhal (bark of *Orozylon indicum*) has gained importance since last few years. Bark of arjun (*T. arjuna*) and kurchi or koraya (*Holorrhena antidysentrica*) has been under medicinal use since long.

1.3.4.17 Gums and resins: Gums and resins of several species like salai, keonji, piar, dhauta, galgal have commercial use. Of late, they have developed market. At present, there is no systematic scheme for exploitation of these produce.

1.3.4.18 Koraya Paprout : Wood of koraya (*Holorrhena antidysentrica*) and Paprout (*Gardenia parviflora*) is used for making toys and counters of karam board by turning. Pieces of larger dia also are turned to make toys. At present there is no systematic scheme for exploitation of these produce.

## LIMES OF EXPORT

1.3.5.0 The division is served by two Railway lines the Grand Chord in the north and the Muri-Barwadih section in the south. Due to improved efficiency of road transport the railway does not play any important role in the marketing of forest produce in this Division. Due to consumption of all the produce locally no need for long distant transport is felt.

1.3.5.1 The division is served by a number of all weather roads. The important roads are:-

1. Grand Trunk Road

2. Patna – Ranchi Road
3. Hazaribagh – Barkagaon – Tandwa Road
4. Hazaribagh – Semaria-Tandwa Road
5. Hazaribagh-Katkamsandhi Road
6. Ramgarh-Gola Road
7. Ramgarh –Bhurkunda Road.

Besides, there are a number of fair weather road including the forest roads. The total length of forest roads is 460.75 km. There is no chunk of forest which is not served by a road.

1.3.5.2 The coalmines of the Central Coalfield Limited are situated mostly south of the Damodar river while the forests are on the north. The Damodar being unaffordable during major part of the year the transport of timber to the coalmines is difficult. Besides, there are big unbridged rivers namely, the Haharo and the present difficulties in transport of produce from the forest.

#### METHODS OF EXPLOITATION AND THEIR COST

1.3.6.0 The annual coupes of the coppice working circle belonging to the community category are handed over to the respective Panchayats for distribution of forest produce among the rightholders. The coupes are worked by the villages on which only uneffective control is exercised by the forest staff to ensure scientific working. The working of the rightholders coupes are generally not satisfactory.

1.3.6.1 In such commercial felling series of Coppice Working Circle where rights exist the portion of the annual coupe set a part for the rightholders is given to them through their Panchayat in the previous working season i.e. before June. The rightholders exercise their right till June. The balance surplus of the coupe is disposed of in the annual auction by outright sale.

1.3.6.2 A set of conditions are laid under the terms of the agreement of sale for supply of forest produce to local villagers. Under these terms the coupe purchaser is supposed to sell firewood and poles to local villages at prescribed rates. The provision is made in order to ensure that the villagers living near the forest could purchase produce of

their requirement at reasonable rates locally so that they do not have to go to a distant depot and purchase at higher rates and then spend money on its transport ultimately rendering the purchase too costly for their meager monetary resources.

1.3.6.3 Four commercial coppice coupes of Jorakath Beat in Barkagaon Range situated near the area of operation of Departmental Working Division in Mandu Range of Hazaribagh East Division are worked-departmentally by them.

1.3.6.4 Working by contractors in the coupe is generally satisfactory. Recently several cases of illicit felling by forest contractors outside the coupe area are regularly coming to light. The illicit fellings are done either in the demarcated forests or in the khasmahal land outside demarcation or in the raiyati lands. Such illicit fellings have become a common feature. The main reason for such fellings is the exorbitant prices paid by them due to unhealthy competition for the coupes which generally yield produce far less in value than the price. The second important cause is the mushroom growth of short term temporary forest contractors who believe in plundering the forest for one or two years and then leaving the business for ever. The third reason is the general deterioration in the law and order situation, lack of respect for the law of the land and denudation of moral values at all levels.

1.3.6.5 The well meaning provision in the agreement for sale prescribing sale of forest produce to the local villagers is generally not followed at all. The reasons for this are the exorbitant prices paid for the coupe and lack of any effort made by the forest staff to enforce it. Due to this, even a genuine, willing local purchaser is left with no choice but to depend on illicit felling from the forest for obtaining produce of his requirement. Generally the economic condition of villagers living financial resources they could afford to purchase forest produce from the coupe at coupe rates which is much more economical than purchasing from distant depots at fantastically high rates, but since it is denied, they are left with no alternative but to pilfer from the neighboring forests. Illicit felling occurs in the forests near villagers due to this reason. Hence, in order to control illicit fellings of this type, arrangements will have to be made to make forest produce available locally to genuine willing purchasers.

1.3.6.6 Thus we find that there are two defects in the working by forest contractors illicit felling by them and non-sale of forest produce to local people. These defects can be

removed if the forests are worked through on organization which can work on a low margin of profit and whose primary interest is the conservation and development of the forest. Departmental Working of coppice coupes is being done since last fifteen years in the adjoining Hazaribagh East Division and in part of this Division also. It should be examined if this organization in its present shape and with the present way working or otherwise should totally replace the forest contractors.

1.3.6.7 The Working period of coppice coupes used to be from October to June. But as per executive order of the Chief Conservator of Forests, Bihar vide his letter no. 6579 dated 07.08.1975 it was reduced till end of March. This was done in order to ensure that coppicing is completed before March, So as to produce more vigorous during spring and rains. This restriction is definitely beneficial for coppice growth, but at the same time, it produces other practical difficulties. The work in the coupe does not really start in October due to delay in communication of ratification order and other formalities. Thus the effective working period is from November or December to March i.e. for 4-5 months only instead of 7-8 months. This presents practical difficulties for the contractors. The local forest workers also go out of contractors. The local forest workers also go out of employment after March when there is no other employment in the villagers. Due to these difficulties, it has not been possible to restrict the working period till March and the usual working period till end of June is being followed.

1.3.6.8 Felling and logging is generally done by country axe. Modern logging tools is not used in the working of coupes. Felling a logging by axe results in wastage upto about 10-15 percent. A controversy was raised about the use of saw in felling of poles. It was suspected that coppicing power of the stump is reduced if felling were done by saw . The forest Research Institute Dehra-Dun advised that though there might be noticeable difference in the vigour of coppice shoots in the year of felling, the growth catches up and no significant difference is left in subsequent years. In case of poles, felling by axe does not result in appreciable wastage. Hence, in order to avoid doubt, felling of poles can be done by axe but in case of timber-yielding trees, felling must be done by saw. However, subsequent cross cutting must always be done by saw in all cases.

1.3.6.9 Some bamboo coupes are worked through contractors and balance are on long term lease to M/s Rohtas Industries Limited. The working is generally satisfactory.

1.3.6.11 Collection of sal seeds is at present done through sal seed Organization of the Bihar State Forest Development Corporation. The Work in this Division is done by the Sal Seed Project, Hazaribagh. Sal seed is collected by the villagers which is then purchased by the staff of the Project at fixed rate. Before the Nationalization of this trade, sal seed used to be collected by a private contractor under a long term lease.

1.3.6.12 The khair trees are sold annually on public auction. The khair timber being very valuable felling and cross-cutting is generally done by country saw. Katha extraction is done locally in the coupe itself by old country method.

1.3.6.13 There is no systematic scheme for disposal of other minor forest produce. They are disposed of by sale of the right for collection by public auction. Since the value is meager very little importance is attached to the disposal of such produce.

#### COST OF EXPLOITATION

1.3.7.0 Coppice coupes : The rate for cost of exploitable for the year 1979-80 in the Department Working Divisions is given below :

- A. Timber :
  - i) Easy area -95 paise per cft.
  - ii) Difficult area 1.05 paise per cft.
  
- B. Pole :
  - i) 25 paise per inch dia for length upto 21 cft.
  - ii) 28 paise per inch dia for length upto 22 to 30 cft.
  - iii) 30 paise per inch dia for length for derrick poles.
  
- C. Tramline and Cogging Sleepers :
  - i) upto 6" dia – 2 paise per piece
  - ii) 6"-8" dia – 32 paise per piece
  - iii) 30 paise per inch dia for length for derrick poles.
  
- D. Fencing Post : 25 paise per pieces.
  
- E. Timber Toa : (upto 8' length and 2' girth)
  - i) easy area – 45 paise per cft.
  - ii) different area 60 paise per cft.

1.3.7.1 Bamboo coupes: The cost of exploitation of bamboo as obtained from Rohtas Industries Limited varies from Rs. 1/- to Rs. 2/- per buddle of 30-35 kg weight depending upon the topography and lead.

1.3.7.2 Kendu leaf : The approved rate for collection of kendu leaf for the year 1979-80 is Rs. 27/- per standard bag of green leaves tied in polas delivered at phandis. The rates for previous years is given below:

Year	Rate for Govt. land (per bag)	Rate for Private growers (per bag)
1973	17.50	20.00
1974	17.50	20.00
1975	20.00	22.50
1976	20.00	22.50
1977	20.00	22.50
1978	22.50	25.50
1979	27.00	29.50
1980	27.50	30.00

(One standard bag contains 1,000 pollas)

#### SAL SEED

1.3.7.3 The collection cost of sal seed in its different forms is given below. It is at these rates that sal seeds were purchase during 1980 season. The seeds only in keruel form were purchased during 1980.

- i. Sal seed with wings, 10 paise per kg.
- ii. Sal seed without wings 20 paise per kg.
- iii. Sal seed kernel 45 paise per kg.

#### PAST AND CURRENT PRICES

1.3.8.0 No systematic information about past prices in the open market is available. However, the depot sale rates for various types of produce for last 15 years since 1965 are available in the records of Department Working Division, Hazaribagh.

1.3.8.1 It is not considered necessary to reproduce here the rates of all the previous years. However, the approved rates for the year 1969-70 and 1979-80 for important items are given below to give an idea of the rise in the prices of various types of produce over last 10 years.

1.3.8.2 Timber (round)

Species	Rate during 1969-70 (Rs./cft)	Rate during 1979-80 (Rs./cft)	Average rise (%)
Sal	4.50-8.50	16.0-32.0	355-376
Bija	5.50-10.00	14.50-43.00	263-430
Gamhar	3.75-9.00	9.30-32.0	248-253
Karam	3.75-9.00	9.30-26.00	248-288
Asan	3.00-4.50	10.00-22.00	333-488
Hardwood	2.75-4.00	7.50-19.50	272-487
Softwood	3.00-3.12	5.25-7.50	175-240

1.3.8.3 Pole (Sal)

Length (ft)	Dia (inch)	Rates (Rs.) 1969-70	Rates (Rs.) 1979-80	Average Rise (%)
8-1	4	2.00	8.55	427
12	4	2.75	8.55	310
14	4	3.75	8.55	228
8	6	4.25	10.50	217
10	6	6.00	15.75	262
12	6	7.50	17.80	237
14	6	8.25	21.00	254
16	7	11.75	31.50	268
18	7	13.50	34.00	251

20	7	15.25	41.25	270
22	7	18.00	45.90	255
24	7	20.50	55.10	268

1.3.8.4	Firewood			
	3.00 per quintal	9.00 per quintal	300	
	Fencing Post			
	Sal 1.10	2.80	255	
	Misc. 0.90	2.40	271	

1.3.8.5 The analysis of the above rates indicates the following:-

- (1) In case of round timber the rise in price of logs of lower size is smaller than that of higher sizes. The rise for lower sizes is 272 to 355 percent while for higher sizes it is 288 to 488 percent.
- (2) The rise in price of sal poles is between 228 to 294 percent an average of about 250 percent.
- (3) The rise in price of fencing post, which is entirely consumed by the forest department itself, is between 255 to 271 percent.

#### CURRENT SALE RATES

1.3.8.6 The depot sale rates approved for the year 1979-80 for the Department Working Division is given below:-

1.3.8.7 Poles (Sal)  
Length (Metre) Butt-diameter in centimeter

2.4-3.6 7.50 cm dia Rs. 5.90  
10.00 c.m. Rs. 8.50

Length	12.50	15.00	17.50	20.00	22.50	cm. dia.
2.4	07.85	10.50	13.80	17.50	19.70	
3.0	10.50	15.75	18.30	20.40	22.45	
3.6	11.90	17.80	21.75	23.70	27.40	

4.2	14.20	21.00	26.25	27.60	34.00
4.0	17.15	26.25	31.50	36.75	42.50
5.4	19.30	28.90	34.00	38.10	49.75
6.0	23.70	36.75	41.25	50.50	59.00
6.6	25.70	41.25	45.90	57.10	69.55
7.2	28.85	45.90	55.10	63.65	73.50
7.8	31.90	54.20	61.70	80.00	91.25
8.4	34.80	59.50	80.50	90.30	103.00
9.0	31.50	63.00	90.30	103.00	215.00
9.6	39.80	69.00	103.00	120.00	238.00
10.2	22.50		275.00		

#### 1.3.8.8 Round Logs (per cubic metre)

Species	60-75 cm. mid-girth	75-90 cm. mid-girth	90-120 cm. mid-girth	120-150 cm. mid-girth	150 cm & up cm. mid-girth
Sal	564	688	836	970	1130
Paisar	512	688	981	1306	1518
Gamhar	565	688	1024	1041	1156
Karam	328	565	644	812	918
Anjan, Kaju					
Jamun	328	375	565	653	777
Asan	353	424	512	582	688
Hardwood	265	335	388	466	565
Softwood	185	194	212	229	165

#### 1.3.8.9 Sawn Timber (per cubic metre)

Species	Length upto 2.4 m			Length above 2.4 m		
	10 -15 cm. width	15 -22.5 cm. width	22.5 -30 cm. width	10 -15 cm. width	15 -22.5 cm. width	22.5 -30 cm. width
Sal	1287	1433	1675	1387	1530	1772

Bija	1602	1869	2113	1700	1966	2210
Karam	727	874	1068	826	971	1165
Asan	545	704	850	657	801	948
Jamun	670	815	960	768	912	1059
Hardwood	559	657	754	608	706	803
Softwood	501	535	582	535	582	632

#### 1.3.8.10 Scattlings (per cubic metre)

Species	Rate
Sal upto 1.2 m	1277
Gamhar 1.2 m or more	1433
Bija	1603
Anjan	777
Karam	718
Asan	560
Jamun	671
Hardwood	560
Softwood	510

Note : The above rates have been worked out on the basis of rates per cft. multiplied.

#### 1.3.9.0 Coupe Depot Rate

The current rates for sale of forest produce from coupe depots as published in the sale list is reproduce below:-

FIREWOOD (from coupe) rates to be announced at the time of auction.

Per saggar load (bullock)	Rs. 4.00
Per saggar load (buffalo)	Rs. 5.00
Per Car load (bullock)	Rs. 6.00
Per car load (buffalo)	Rs. 8.00
Per quintal	Rs. 1.50 (Stocked by the contractors)

POLE (from coupe) Sal :

Dia of poles in centimeter	Length of poles in feet				
	8'-12'	12'- 16'	16'- 20'	20'-22'	22'-24'
7.5cm	1.60	2.00	-	-	-
10.0	1.75	2.50	2.75	-	-
12.5	3.50	4.50	6.25	7.25	7.75
Asan					
7.5 cm	1.00	1.00	1.00	-	-
10.0	1.75	2.25	2.50	-	-
12.5	3.25	4.25	5.50	6.50	7.25
Miscellaneous					
7.5 cm	1.00	1.00	-	-	-
10.0	1.75	2.25	2.50	-	-
12.5	3.00	4.00	5.00	6.00	6.75

POLE (from coupe) Sal :

Length in feet	Price for different diameters		
	15.0 cm	17.5 cm	20.0 cm
8'-10'	5.50	7.00	7.50
10'-12'	6.00	7.50	8.00
12'-14'	7.25	8.25	8.75
14'-16'	7.75	9.25	11.50
16'-18'	9.25	10.75	14.50
18'-20'	10.75	12.25	17.50
20'-22'	12.25	15.50	19.50
22'-24'	17.50	19.50	22.00
24'-26'	19.50	23.50	27.00
26' & up	21.50	25.50	29.00

Asan

Length in feet	Price for different diameters		
	15.0 cm	17.5 cm	20.0 cm
8'-10'	5.00	5.75	6.25
10'-12'	5.50	6.25	6.75
12'-14'	6.25	6.75	7.25
14'-16'	7.25	8.25	9.75
16'-18'	9.00	9.50	11.75
18'-20'	9.50	10.00	12.50
20'-22'	11.50	13.00	15.75
22'-24'	13.75	15.75	17.75
24'-26'	15.75	19.75	21.75
26' & up	-	21.50	25.00

#### Miscellaneous

Length in feet	Price for different diameters		
	15.0 cm	17.5 cm	20.0 cm
8'-10'	4.50	5.25	5.50
10'-12'	5.00	5.75	6.00
12'-14'	5.75	6.50	7.00
14'-16'	7.00	8.00	8.75
16'-18'	8.50	8.75	9.75
18'-20'	8.75	9.25	10.25
20'-22'	10.00	11.00	11.75
22'-24'	11.75	13.75	15.75
24'-26'	13.75	17.75	19.75
26' & up	15.75	19.50	23.00

#### Timber

Class	Upto 75 cm	Less than 4' length		
		75-90 cm	90-120 cm	120 cm & up
Class I	2.50	3.00	4.00	5.00
Class II	1.50	1.75	2.25	3.00

More than 4' length

Class I	3.50	4.25	5.50	6.75
Class II	2.50	2.75	3.25	4.00

Class I	Sal, Bija, Panjan, Satsal, Gamhar, Sisam, Teak, Toon, Haldu, Asan
Class II	Jamun, Siris, Arjun, Dhaura, Sidha etc.

Lodra – poles upto 7.5 cm in dia @ Rs. 0.20 per piece.

#### SCHEDULE OF RATE

1.3.10.0 The proposed schedule of rates for various types of produce is given below. The rates are yet to be approved by the Commissioner, North Chhotanagpur. The rates have, however, come into force :-

Name of forest produce

A – Royalty rate for poles (under bark)

Class I

(i) Poles in girth

6"-12	15 cm to under 30 cm	Rs. 0.75
12"-18"	30 cm to under 45 cm	Rs. 2.50
18"-24"	45 cm to under 60 cm	Rs. 4.00
24"-30"	60 cm to under 75 cm	Rs. 7.50
30"-36"	75 cm to under 90 cm	Rs. 11.00

(ii) Second class : Half of the above rate.

B-Royalty rates for timber in round (under bark)

Class I

(i) 90 cm to under 120 cm girth	Rs. 150.00
120 cm to under 150 cm girth	Rs. 200.00
150 cm and above girth	Rs. 250.00

(ii) Second Class : Rate will be half of the first class timber

C. Royalty rates for firewood, brushwood and charcoal and other Minor Forest Produce

(a)	Firewood	Headload	0.25
		Bahangy load	0.50
		Saggar load	1.25
		Bullock cart load	2.50
		Buffalow cart load	3.00
(b)	Brushwood & thorns	Headload	0.10
		Bahangy load	0.20
		Saggar load	1.00
		Bullock cart load	2.00
		Buffalow cart load	3.00
(c)	Sabai grass	Headload	0.50
		Bahangy load	1.00
		Saggar load	2.50
		Bullock cart load	5.00
		Buffalow cart load	6.00
(d)	Thatch grass and fodder grass	Headload	0.05
		Bahangy load	0.10
		Saggar load	0.25
		Bullock cart load	0.50
		Buffalow cart load	0.75
(e)	Chope	Headload	0.05
		Bahangy load	0.10
		Saggar load	2.25
		Bullock cart load	0.50
		Buffalow cart load	0.75

(f)	Leaves (including khajur leaves)	Headload	0.05
		Bahangy load	0.10
		Saggar load	0.25
		Bullock cart load	0.50
		Buffalow cart load	0.75
(g)	Tassar cocoon	For 100 trees	Rs. 2.00
(h)	Lac	For 100 trees	Rs. 2.00
(i)	Honey	Per killo gram	Rs. 2.00
(j)	Wax	Per killo gram	Rs. 2.00
(k)	Bamboo	Each (for turies only )	Rs. 0.03
		Each (for others)	Rs. 0.10

#### ANALYSIS OF CURRENT PRICES OF POLES

1.3.11.0 If we examine closely the prices of poles of poles of various dia. We find that rise in price of poles from 12.50 cm (5 inches) to 15.00 cm (6 inches) to roughly about 50% while from 15 cm. (6 inches) to 17.50 cm (7 inches) it is about 25% and from 17.50 cm (7 inches) to 20.00 cm (8 inches) it again about 25%. It takes roughly about 10 years for sal to grow from 12.50 cm. dia to 15.00 cm and from 15.00 cm to 17.5 cm dia and so on. The price rise from 12.5 cm dia to 15.0 cm dia is 5% per year whereas from 15 cm to 17.5 cm and from 17.5 cm to 20.0 cm dia it is about 2.5% only. Hence from the point of view of marginal financial return it is most economical to harvest the crop at 15.0 cm crop dia. If the crop is allowed to grow further the marginal financial return diminishes and falls far short of the usual rate of interest. However, in view of the demand for poles of bigger dia for vital industrial use, it is essential to grow bigger dia poles also.

CHAPTER – IV  
STAFF AND LABOUR SUPPLY

STAFF

1.4.1.0 The following is the strength of office and field staff in this Division :-

Office Staff	:	Permanent	-	8
		Temporary	-	3
		Court Forester	-	2

Field Staff : There are 6 (six) Ranges in the Division.

1.4.1.1 The present strength of each range is given below. The figures within the bracket indicate the strength proposed in Mishra's Plan.

Name of Range	Number of beats	Number of sub-beats	Naka guards	Other coupe seer	Staff over etc.
Ramgarh	3 (3)	20 (20)	1	1	
Tandwa	3 (3)	20 (20)	-	3	
Barkagaon	4 (4)	26 (27)	1	3	
Hazaribagh	3 (3)	20 (20)	3	2	
National Park	3 (3)	18 (18)	-	-	
Barhi	4 (4)	27 (26)	2	2	

1.4.1.2 The following statement gives the area of each range, beat and average area of sub-beat as per Mishra's Plan:-

Name of Range sq.km/sq. mile	Name of beat	Area sq. km. / sq. mile	No. of sub- beat	Average area per sub-beat sq. km.
Ramgarh 236.59/91.55	Bhurkunda	98.60/38.07	8	12.32
	Ramgarh	49.44/19.09	5	9.82
	Gola	88.55/34.19	7	12.65
Tandwa 263.61/101.78	Misrol	89.82/34.68	8	11.23
	Bahera	65.42/25.26	5	13.08

	Tandwa	108.36/41.84	7	15.48
Barkagaon	Barkagaon	122.24/47.20	7	17.46
427.76/165.16	Jorakath	100.75/38.90	6	16.80
	Manatu	97.02/37.46	6	16.17
	Hendegir	123.05/47.51	8	15.38
Hazaribagh	Hazaribagh	122.42/47.24	9	13.60
	(sadar)			
272.57/10524	Katkamsandi	70.88/27.37	5	14.17
	Ichak	77.46/29.91	6	12.91
National Park	Bahimar	49.59/19.15	5	9.92
186.27/71.92	Rajderwa	58.50/22.59	5	11.70
	Pokharia	78.16/30.18	8	9.77
Barhi	Barkatha	76.58/29.57	6	12.76
369.12/142.52	Dumduma	111.78/43.16	6	18.63
	Barhi	48.46/32.61	7	6.92
	Srinagar	87.20/33.69	7	12.46

1.4.1.3 From the above statement it can be seen that Barhi range has very large area. The areas of different beats of Barkagaon range and that of Hazaribagh (Hazaribagh range) Dumdudma (Barhi range) and Tandwa beats are approximately or a little more than 40 sq. km. The average per sub-beat is again the highest in Barkagaon range. The over all average for the division is approximately 12.9 sq. km. Thus the areas of two ranges Barkagaon and Barhi and some beats-Barkagaon & Hendegir, in Barkagaon range, Hazaribagh sadar in Hazaribagh range and Dumduma in Barhi range is wieldy. Similarly the average area of sub-beats of all the beats of Barkagaon range, sub-beats of Dumduma beat of Barhi range is and those of Tandwa beat of Tandwa range are wieldy. Thus there is a need for reorganization of Raneges, Beats and sub-beats.

#### LABOUR SUPPLY

1.4.2.0 The position of labour supply is on the whole satisfactory except in the colliery belt of Ramgarh range. Bhadaï is the main agricultural crop grown in the tract. Rabi cultivation is almost nil. Hence the agricultural activities do not coincide with forestry operations. As such dearth of labour due to agricultural activities is not felt.

1.4.2.1 The wages of an unskilled rural labour has risen from Rs. 1.50 in the last plan to Rs. 4.50. The works relating to forestry operation have been included in the schedule of minimum wages act since 1970 as per Government of Bihar Notification No. S.O. No. 92 dated 23.9.1970 in which the minimum wages for an unskilled labour was fixed at Rs. 2.50. The first revision of the minimum wages was made in the year 1976 vide notification dated the 23<sup>rd</sup> January 1976. The minimum wages for notification is given below :-

## NOTIFICATION

Patna, the 23<sup>rd</sup> January, 1976

S.O. In exercise of the powers conferred by clause (b) of sub-section (1) of section 3 of the minimum wage Act, 1948 (11 of 1948) read with sub-section (2) of section 5 of the said act, and after having considered the advice of the committee appointed under clause (d) of sub-section (1) of section 5 of the said act, the Governor of Bihar is pleased to revise the minimum rates of wages fixed in the State Government's notifications No. S.O. No. 92, dated 23<sup>rd</sup> September 1970 and to fix the minimum rates of wages such their categories of workmen for whom minimum rates of wages were not fixed earlier under the said Act, as specified in column 3 of the schedule here to annexed which shall be payable to the different categories of employees employed in the employment in "Forestry and Timbring operations" in the whole of the State of Bihar and specified in the corresponding entry in column 2 of the said schedules.

The minimum rates of wages so revised and fixed shall be within the meaning of clause (iii) of sub-section (1) of section 4 of the said Act.

This notification shall come into force with effect from the date of its issue.

## SCHEDULE

Sl. No.	Categories of employees	Minimum rates of wages
(1)	Mazdoor	Rs. 5/- per day for urban area
(2)	Mate	Rs. 4.50 per day for other than urban area
(3)	Khalasi	Rs. 150/- per month
(4)	Darwan	Rs. 150/- per month
(5)	Helper to Head Sawyer (in mechanised sawmills)	Rs. 150/- per month
(6)	Helper to Sawyer (in hand speredated sawmills)	Rs. 150/-per month
(7)	Munim or Manager or Accountant or Clerk	Rs. 5/- per day in urban area , Rs. 4.50/- per day for other than urban area
(8)	Jeep Driver	Rs. 225/- per month
(9)	Sawyer (in hand-sperated sawmills)	Rs. 8/- per day
(10)	Head sawyer (in mechanized saw mills)	Rs. 275/- per month
(11)	Truck Divers (diesel)	Rs. 300/- per month
(12)	Truck Driver (petrol)	Rs. 275/- per month
(13)	Log cutter of various types telling, debarthing and stacking at loading site at cappees forest	Rs. 0.10 paise per C.M. diameter
(14)	Felling of trees (Logs) in selection circle.	Rs. 0.10 paise 2.5 cm diameter
(15)	Logging	Rs. 0.30 paise per piece
(16)	Tonna (4' x 5')	
(17)	Cutting & collection of bambers (including sidding)	
	(a) Lagges	Rs. 6/- per hundred or Rs. 1.25 per 37.5 kilogrammes
	(b) Tonnas	Rs. 5/- per hundred or Rs. 1.15 per 37.5 kilogrammes
	(c) Sarhi	Rs. 2.25 per hundred or Rs. 1/- per 37.5 kilogrammes
(18)	Conversion of trabonand fencing post	Rs. 0.18 paise per piece
(19)	Cutting concession including stacking at sit of	Rs. 21/- per stack

	firewood (size 14' x 6' x 5')	
(20)	Chrceals manufacturing	Rs. 1.75 per bag (35 kg)
(21)	Fodder grass or thatch grass sewai grass	Rs. 1.75 per bag
(22)	Sal seed	Rs. 0.40 paise per kg.
(23)	Bauhinia leaves collection	Rs. 0.40 per kg
(24)	Munshi	Rs. 170/- per month

Note : Any category of employees where minimum rates of wages have not been specifically fixed in the above schedule, shall not get less than Rs. 5/- per day in urban or Rs. 4.50 per day in other than urban area.

Explanation – I : Urban area will mean :

- (a) Municipal area including Jamshedpur
- (b) Dhanbad will include Jharia and Sindri
- (c) Bokaro Steel City including Chas.

Explanation – II

(a) Conversion of the daily rates of wages into monthly rates of wages and vice versa shall be worked out – respectively by multiplying and dividing by 26.

(b) Man and Women workers shall get the same rates of wages for work of equal valued.

(c) The minimum rates of wages fixed and revised above and based on the All India Average Consumer Price Index Number 1960-100) 325, it is in the average of the indices of the first half of the year 1975 (January, June). These will be increase or decrease in the wages with the rise or fall, as the case may be, in the aforesaid Index at the rate of 50 paise per point per month and that will be treated as dearness allowance component, but even if the index fall below 325 wages shall not fall below the minimum rates of wages as shown in column 3 of the schedule. The payment of dearness allowance in the basis of average of the All India Consumer Price Index Number for the successive period of six months each will be applicable of three months.

No. II/W3-1056/75-I & E 259

By order of the Governor of Bihar

(A.K. Banerjee)

Deputy Secretary to Government



