

CHAPTER – III  
FOREST RESOURCES  
COMPOSITION AND CONDITION OF FOREST

1. THE FORESTS

Forest types : According to revised a survey of forest types of India by Sir H.G. Champion & S. K. Seth, the forest of this Division fall into the following type.

2. THE SAL FORESTS

This corresponds to the Northern Dry sal bearing forests 5B/C1 type. The associates in the top and middle storey are *Shorea robusta*, *Terminalia-tomentosa*, *Madhuca indica*, *Pterocarpus marsupium*, *Adina cordifolia*, *Diospyros tomentosa*, *Buchnania lanzan*, *Semicarpus anacardium* etc. Occasional bamboo brake is also present. The shrubs consist of *Holorrhæna antidysentrica*, *Nyctanthes arbortritesa*, *Randia species*, *Casearia species*, *Indigofera poulchella*, *Carissa opaca*, *Wendlandia tinctoria*, *Woodfordia fruticosa*, *Croton oblongifolius*, *Zizyphus species* and *Phoenix*. The grasses consist of *Heteropogon contortus*, *Eculaliopsis binata*, *Milletia ouriculata*, *Smilax species* and a few species of Asclepiadaceae.

THE MISCELLANEOUS FORESTS

This belongs to the type Northern Dry mixed deciduous forest-5B/C2. The trees in the top storey are *Boswellia serrata*, *Anogeissus latifolia*, *Lagerstroemia parviflora*, *Diospyros tomentosa*, *Pterocarpus marsupium*, *Adina cordifolia*, *Mitragyana parvifolia*, *Buchannia lanzan*, *Sterculia urens*, *Cochlospermum religiosum*, *Madhuca indica*, *Embllica officinales* *Aegle marmelos*, *Odina wodier* etc.

The middle storey consists of frequent and extensive bamboo brakes of *Dendrocalamus strictus* where condition of soil is better. The shrubs consist of *Woodfordia fruticosa*, *Nyctanthes arbortritis*, *Zizyphus species*.

The miscellaneous forests generally occur on the southern aspect of the hills or at such sites where soil is shallow and poor. The sal forest can be divided into three categories from management point of view. These have been developed due to biotic factors like unregulated felling, fire and grazing. Isolated forest blocks or forests

situated closer to thickly populated habitations have undergone extreme degradation due to these factors. Unregulated felling and preference for felling of thicker stems by villagers have kept the forest in perpetual sapling or thin pole stage. The extreme combined effect of all these three factors has reduced the forest into rooted waste of sal. Further degradation has resulted in complete disappearance of vegetative cover creating blanks.

The dry mixed forests which are subjected to extreme biotic factors like unregulated felling, grazing and fire have reduced it to scrubs consisting mainly of *Cariss species*, *Disospyros tomentosa* (Kend) and Sidha in areas having poorer soil and of *Holorrhaena* & *Croton*, etc in better areas. The ultimate effect of these factor is again complete disappearance of vegetation except low grasses.

FROM THE MANAGEMENT POINT OF VIEW THE FORESTS CAN BE DIVIDED INTO FOLLOWING CATEGORIES.

Sal and miscellaneous forests which are likely to regenerate and establish themselves and grow into pole crop after coppice felling.

1. Sal forest which is perpetually in sapling or thin pole stage including the Sal rooted wastes.
2. Dry mixed forests having extensive bamboo brakes.
3. Dry mixed forests situated on hill tops and steep slopes and on extensive outcrop of rocks.
4. Plantation including natural forests rehabilitated along with plantation.
5. Blanks or semi-blanks.

## CHAPTER – IV

### STATISTICS OF GROWTH AND YIELD

No particular statistics of growth and yield for the area of Hazaribagh East Division has been collected during this revised plan. Though the forest of the Division has been worked previously for one full rotation the collection of growth figures of the crop for the whole rotation could not be done as ages of the crop on the ground could not be ascertained for reasons of non-availability of the records of earlier felling years of the crop.

#### STATISTIC COLLECTED IN PAST

In the past the growth statistic of some commonly found trees in the area like Sal (*Shorea robusta*), Asan (*Terminalia tomentosa*), Piar (*Buchnamia Lanza*), Paisar (*Pterocarpus marsupium*), Gamhar (*Gmelina arborea*), Salai (*Boswellia serrata*), Dhaura (*Anogeissus latifolia*), Khair (*Acacia catechu*) etc. have been collected which still hold good for the forests species of the Division and is represented in the following graph of age-diameter.

#### WORK DONE FOR THE REVISED PLAN

Stock mapping of the forests of entire Hazaribagh East Division has been done. The scale chosen for the stock mapping is 6"=1 mile (1:10, 560). The total forest land of the Division is the

- Fairly stockeed (i.e. density 40% and above) Sal area 8.59% of the Division.
- The miscellaneous forests (with 40% and above density sal area), 21.27%
- Under stocked (less than 40% density) sal area 6.36%

- Under less than 40% density miscellaneous area, and 15.33% of the Division is scrubby blanks and sal rooted wastes.

Tree enumeration work was done in all the four Ranges of Division. Sample Plots of one ha. size were made randomly in the areas having more the 40% density where all trees having 20cms and above girth were enumerated.

TABLE SHOWING NO. OF ENUMERATION PLOTS IN DIFFERENT RANGES

Sl. No.	Range	Area (Ha)	No. of Enumeration
1	Mandu	25653.53	76
2	Daru	17595.39	126
3	Gomia	9142.99	73
4	Bagodar	36148.29	160
	Total	88540.20	435

As the enumeration work were done only in less than a half percent of the total forest area of the Division it is difficult to asses the actual forest resource as well as the potential yield of the Division. But an estimated 2.03 poles/has can be extracted from the improvement W.C. & 11.2 poles/ha form plantation W.C. per annum.

However a comparative percentage of relatively significant tree species which are in size of 20cms and above girth over bank has been made out from the total 435 enumeration plots and given in following chart.

TABLE SHOWING RELATIVE PERCENTAGE OF IMPORTANT TREES IN THE ENUMERATION PLOTS

Sl. No.	Common Name	Botanical Name	%
1.	Sal	<i>Shorea robusta</i>	26.47
2.	Piar	<i>Buchania lanzan</i>	4.94
3.	Kend	<i>Diospyrosmelamoxylon</i>	5.61

4.	Palas	<i>Butea monosperm</i>	4.53
5.	Sidha	<i>Lagerstroemia parviflom</i>	3.18
6.	Asan	<i>Terminalia fomentosa</i>	3.32
7.	Mahua	<i>Madhuca indica</i>	3.17
8.	Karaiya	<i>Holorrhena anvitidysemtrica</i>	3.26
9.	Salai	<i>Boswellia serrata</i>	4.53
10.	Bandarlor	<i>Cassia fistula</i>	2.39
11.	Putri	<i>Croton oblongifolius</i>	2.12
12.	Bahera	<i>Terminalia belerica</i>	1.69
13.	Bhelwa	<i>Semecarpu sanacardinm</i>	1.21
14.	Kari	<i>Cleistanthes collinus</i>	1.79
15.	Kathber	<i>Zizyphus xylopyrus</i>	1.95
16.	Kakor	<i>Gariga pinnata</i>	1.04
17.	Galgal	<i>Cochlospermum religiosum</i>	1.51
18.	Beri	<i>Caesaria tomentosa</i>	1.08
19.	Harisingar	<i>Nyctanthes arbor-tristis</i>	1.61
20.	Semul	<i>Bombax ceiba</i>	1.21
21.	Laba	<i>Bauhinia retusa</i>	1.71
22.	Makarkend	<i>Diospyrus spp.</i>	1.23
23.	Pharrad	<i>Stereisoermum suaveolens</i>	1.19
24.	Piri	<i>Erythrina suberosa</i>	1.07
25.	Dhaura	<i>Anogeissus latifolie</i>	3.13
26.	Am	<i>Mangifera indica</i>	0.91
27.	Kachnar	<i>Bsuhinia variegata</i>	0.78
28.	Paisar	<i>Pteroearpus marsupium</i>	0.71
29.	Rori	<i>Mallotus philippinensis</i>	0.84
30.	Rohan	<i>Soymida febrifuga</i>	0.98
31.	Papra	<i>Gardenia latifolia</i>	0.54
32.	Doka	<i>Lannea coromandelica</i>	0.36
33.	Kajh	<i>Bridellia retusa</i>	0.64
34.	Aonla	<i>Emlica officinalis</i>	0.98
35.	Harra	<i>Terminalia chebula</i>	0.81
36.	Kusum	<i>Schleichera oleosa</i>	0.63
37.	Jamun	<i>Syzygium cumini</i>	0.52
38.	Karam	<i>Adina cordifolia</i>	0.38

39.	Lodhd	<i>Symplocos raecemosaa</i>	0.48
40.	Karhar	<i>Gardenia turgida</i>	0.58
41.	Keonjhi	<i>Sterculia urens</i>	0.46
42.	Sonachhal	<i>Oroxylum indicum</i>	0.43
43.	Dumar	<i>Ficus glomerata</i>	0.41
44.	Dhaman	<i>Grewia spp</i>	0.56
45.	Amra	<i>Spondias pinnata</i>	0.41
46.	Panigamhar	<i>Trewia nudiflora</i>	0.27
47.	Udal	<i>Sterculia villosa</i>	0.27
48.	Chamror	<i>Ehretia laevis</i>	0.24
49.	Katjamun	<i>Syzygium species</i>	0.20
50.	Kathmahuli	<i>Bauhinia retusa</i>	1.04
51.	Karanj	<i>Pongamia pinnata</i>	0.14
52.	Bel	<i>Aegle marmelos</i>	0.02
53.	Pandan	<i>Oogenia oenesis</i>	0.15
54.	Gamhar	<i>Gmelina arborea</i>	0.08
55.	Bharhul	<i>Chloroxylon swietenia</i>	0.08
56.	Neem	<i>Azadirachta indica</i>	0.02
57.	Bhurkund	<i>Hymenodictyon excelsum</i>	0.03
58.	Bargad	<i>Ficus bengalensis</i>	0.04
59.	Pakar	<i>Ficus retusa</i>	0.04
60.	Gurikaram	<i>Mitragyna parviflora</i>	0.03

## CHAPTER – V

### Bio-Diversity & Wild Life of Hazaribagh East Division

#### INTRODUCTION

- Hazaribagh East Division cover 909.2149 sq. km. of forest area compared to the total geographical area 3344.53339 sq. km.
- Percentage area under forest is 27.18% of total geographical area.
- This Division lies between 23°25' N to 24°15' latitude 85°20' E to 86°10' East longitude.
- Hazaribagh East Division is actuated on plateau of Hazaribagh & its slope.

It is important to note that the tract covered by this working plan does not have any Protected Area and hence wildlife preservation in the forests and outside must be given a priority. Compact patches of dense forests exist in this area and they are capable of harboring a good number of herbivores and carnivores. Majority of nalas and streams become dry during summer season. Small bunds and anicuts should therefore be constructed across nalas and streams in the interior areas where probability of getting wild animal is high and the moisture conservation structures are otherwise not available. Salt licks will be embedded in the ground near the water holes created by the construction of bunds anicuts. Plantations adjoining such areas must contain suitable fruit and fodder species to provide for animals and birds. Special attention should be paid to fire protect these localities.

Survey of birds should be conducted at regular interval to count number and variety of birds, if possible with the help of Nature Clubs or Groups interested in the conservation activities.

Wild life census of the area should be conducted.

A register will be maintained in the division and range officers to records the occurrence of carnivorous and herbivorous species separately. Any subordinate should send his report giving the name of the animal sex of the animal if possible) date, time, place of observance number seen and other details direct to the ranges and division on wireless. He will also report in writing to ROF giving all the above details. Based on these reports, register in the ranges and division will be maintained. Every three months DCF would review the status of wild life in the Divisions.

## FLORA

- The forest of this tract can be classified according to revised survey of forest types of India by Champion & Seth as Northern Dry Sal bearing forests 5B/C type & Northern Dry mixed Deciduous forest 5B/C<sub>2</sub>.
- The associates in top & middle storey in 5B/C<sub>1</sub> are *Shorea robusta*, *Terminalia*, *Mahua*, *Adina cordifolia*, *Diospyrue tomentosa*, *Buchannia lanzan*, Occasionally *Bamboo brake*.
- The shrubs consist of *Holorrhena antidysentrica* *Randia spp*, *Cassia species*. *Indigofera pulchella*, *Carissa opaca*. *Wendleandia tinctorla*, *Woodfordia fructicosa*, *Croton oblongifolius*, *Zizyphus spp* & *Phoenix*.
- The grasses consist of *Heteropogon controtus*, *Eulaliopsis binata*. Main climbers are *Bauhinia vahlii*. *Acacia pinnata*, *Butea superba* *Milletia aurculata*, *Smilax species* & few species of *Asclepiadece*.
- In the type Northern Dry Mixed Deciduous forest 5B/C<sub>2</sub>, the top storey has *Boswellia serrata*, *Anogeissus latifolia*, *Lagerstromia parviflora*, *Diospros tomentosa*, *Pterocarpus marsupium* *Odina wodier*.
- The middle storey consists of Bamboo brakes of *Dendrocalamus strictus*. The shrubs consist of *Woodfordia fruscticosa*. *Nyctanthes arbor-tristis*, *Zizyphus species*.
- Miscellaneous spp. of forest generally occur on the southern aspect of the hills. Soil is shallow & poor.
- Sal forests occupy the largest area of the Division. The total area of Sal forest as per stock stock map is **59979.19 Ha**.
- Dry mixed forests have extreme biotic factor like illicit felling, grazing & fire.

### 3. List of Common Trees in Hazaribagh East Division

Sl. No.	Botanical Name	Common Name
1.	<i>Cassia fistula</i>	Amatlas
2.	<i>Emblia Officinalis</i>	Awala
3.	<i>Mangifera indica</i>	Am
4.	<i>Terminalia arjuna</i>	Arjun
5.	<i>Terminalia tomentosa</i>	Asan
6.	<i>Spondias Pinnata</i>	Asan
7.	<i>Acacia Arabica</i>	Babul
8.	<i>Aegle mermelos</i>	Bel
9.	<i>Melia azadiracta</i>	Bakain
10.	<i>Caseeria tomentosa</i>	Beri
11.	<i>Ficus bengalensis</i>	Bar
12.	<i>Pterocarpus marsupium</i>	Paisar
13.	<i>Terminalia belerica</i>	Behera
14.	<i>Hymenodictyon excelsum</i>	Bhurkud
15.	<i>Semecarpus anacardiam</i>	Bhelwa
16.	<i>Holoptelia integrifolia</i>	Chilbl
17.	<i>Ehrtia lavis</i>	Chamror
18.	<i>Anogeissus latifolia</i>	Dhanta
19.	<i>Ficus glomerata</i>	Dumar
20.	<i>Ailanthus excelsa</i>	Ch-orneem
21.	<i>Gmelina arborea</i>	Gamhar
22.	<i>Cochlospermum religiosum</i>	Galgal
23.	<i>Mitgrajyna parviflora</i>	Guri karam
24.	<i>Lanne coromandelica</i>	Jhingan
25.	<i>Terminalia chebula</i>	Harra
26.	<i>Tammarindus indica</i>	Imli
27.	<i>Syzygium cumini</i>	Jamun
28.	<i>Artocarpus integrifolia</i>	Kathal
29.	<i>Ponamia glabra</i>	Karanj
30.	<i>Miliusa velutina</i>	Kari
31.	<i>Acacia catechu</i>	Khair
32.	<i>Bauhinia purpurea</i>	Konar

33.	<i>Albizzia lebbek</i>	Kala siris
34.	<i>Banhinea variegata</i>	Kachnar
35.	<i>Bauhinia retusa</i>	Kath mahuli
36.	<i>Bridelia retusa</i>	Kajh
37.	<i>Scheechera oleosa</i>	Kusum
38.	<i>Sterculia urens</i>	Keonjhi
39.	<i>Anthrosphalus cadamba</i>	Kadam
40.	<i>Adina cardifolia</i>	Karam
41.	<i>Careya arborea</i>	Kumbhi
42.	<i>Clieistanthes collinus</i>	Karla
43.	<i>Garuga pinnata</i>	Kekar
44.	<i>Madhuca indica</i>	Mehua
45.	<i>Azadirachta indica</i>	Neem
46.	<i>Derdinia latifolia</i>	Papra
47.	<i>Buchanania lanzan</i>	Piar
48.	<i>Bute monosperma</i>	Palas
49.	<i>Ficus religioussa</i>	Papal
50.	<i>Ongennia oojeinesis</i>	Pandan
51.	<i>Trewla niduflora</i>	Pani gamhari
52.	<i>Flaeodendron glaucaum</i>	Ratangarur
53.	<i>Sapindus mukorossi</i>	Ritha
54.	<i>Albizzia procera</i>	Safel siris
55.	<i>Dalbergia latifolia</i>	Satsar
56.	<i>Bombax malabaricum</i>	Semal
57.	<i>Boswellia serrata</i>	Salai
58.	<i>Dalbergia Siso</i>	Sixso
59.	<i>Acacia auriculiformis</i>	Sanajhur
60.	<i>Oroxylum indicum</i>	Sonapatta
61.	<i>Shorea robasta</i>	Sal
62.	<i>Tectona Grandis</i>	Teak
63.	<i>Borassus flabellifer</i>	Tar
64.	<i>Sterculia villosa</i>	Udal

#### 4. List of climber in Hazaribagh East Division

Sl. No.	Botanical Name	Common Name (Local Name)
1.	<i>Acaccia pinnata</i>	Arar
2.	<i>Cascutta reflexa</i>	Amarbel
3.	<i>Macuna ruriata</i>	Alkusi
4.	<i>Zizyphus onenoplia</i>	Dithor
5.	<i>Millettia auriculata</i>	Gaj
6.	<i>Vetilago maderasatana</i>	Keoti
7.	<i>Smilax zeylanica</i>	Ramdatwam
8.	<i>Combretum decandrum</i>	Ratend

#### 5. Shrubs in Hazaribagh East Division

Sl. No.	Botanical Name	Common Name (Local Name)
1.	<i>Calotropis gigantea</i>	Akwan
2.	<i>Helicteres isora</i>	Airitha
3.	<i>Casearia tomentosa</i>	Beri
4.	<i>Loranthus species</i>	Banda
5.	<i>Hyptis suaveolens</i>	Bantulsi
6.	<i>Sida cardifolia</i>	Bariar
7.	<i>Zyzyphus mauratiana</i>	Ber
8.	<i>Woodfordia fruticosa</i>	Dhawai
9.	<i>Maghania spp</i>	Galfuli
10.	<i>Nyctanthes arbortristis</i>	Harsingar
11.	<i>Indigofera pulchella</i>	Jirhul
12.	<i>Ixora parviflora</i>	Khonta
13.	<i>Carissa opaca</i>	Kanod
14.	<i>Vallis salanacea</i>	Kokur-btur
15.	<i>Agave Americana</i>	Murabba
16.	<i>Lantana camara</i>	Putus
17.	<i>Asparagus recemosus</i>	Satwar
18.	<i>Vitex negundo</i>	Sindur
19.	<i>Agave sisalana</i>	Sissal
20.	<i>Wedlandia tintoria</i>	Tilai

21.	<i>Clerodendron viscosum</i>	Titbhant
22.	<i>Eulaliopsis binata</i>	Sabai grass
23.	<i>Vetiveria Zizanoides</i>	Khus-Khus grass

## FAUNA

- In the Division compact patches of dense forest exist & they are capable of harboring a good no. of herbivores & carnivorous.
- **Census Report of Hazaribagh East Division 2002 (Common Animal)**

Sn	Name	No	Sn	Name	No
1	Leopard	4	8	Monkey	64
2	Sabhar	10	9	Peacock	48
3	Chital	25	10	Sahi	10
4	Kotara	49	11	Wolf	10
5	Bear	03	12	Hyena	15
6	Elephant	04	13	Wild Dog	4
7	Wild pig	60	14	Fox	61

- **Indents of human & live stock injuries or death**

Sn	Date of Occurrence	Particulars	Remarks
1	25.9.2000	Death of one person Late Dinu Manjhi of Berum, Churchu Ps Panchagat-Kolhu Vishnugarh Block, Hazaribagh	By Elephant Compensation paid 1,00,000.00
2	14.11.2001	Injured by Elephant Sri Govind Prajapati of Dhampur, Po-Khambwa, Vishnugarh	Rs. 1,00,000.00 being paid

- Present status of wild life in the Division is not satisfactory wild life needs to be protected effectively.
- Potential habitat of wild life & water shade should be identified.

### List of Birds found in Hazaribagh East Division

Sn	Habit Birds	Zoological Name	Common Name	Local Name
1.	Omnivore	<i>Pavo cristatus</i>	Peacock	More
2.	Carnivore	<i>Pseudogyps bengalensis</i>	Vulture	Gidh
3.			Fishing kite	
4.			Kite King fisher	Gheel
5.	Herbivore	<i>Edynamis seolopaceous</i>	Koel	Koel
6.		<i>Francolinux</i>	Partridges	Panduk
7.		<i>Aeridotherees tristix</i>	Hill Myna	Hill Myna
8.		<i>Painocula krameri</i>	Parrot	Tota
9.		<i>Dryopates mahrat-tensis</i>	Wood picker	Wood picker
10.		<i>Gallus gallus</i>	Jungle fowl	Ban Murgi
11.			Canary or Golden oriole	Pealak
12.			Crane	Saras
13.			Duck	Batak
14.			Crow phasant	Mahakul
15.			Barbet	
16.			Drango	Koyler
17.			Blue jay	Nilkhant
18.			Red vented bulbul	Bulbul

### BAT CONSERVATION

Bata are not blind, they are not rodents and they won't tangle in your hair. The truth is bats are most gentle, beneficial & necessary animals on the earth. But

because of centuries of myths and superstitions they are also among the worlds least appreciated and most endangered animals.

Bats are an indispensable natural resource. As primary predators of insects they are essential for balance of nature. Bats also consume enormous quantities of insect pests that cost farmers and foresters billions of dollars annually. A single brown bat can catch 600 mosquitoes in just one hour. A colony of 150 big brown bats can protect local farmers from upto 180 lakh or more root worms each summer. Tropical bats are key elements in rain forest ecosystem for pollination and seed dispersal of summer. Tropical bats are key elements in rain forest ecosystem for pollination and seed dispersal of countless trees and shrubs. Agricultural plants like banana, cashew, mangoes, dates figs rely on bats for pollination & seed dispersal. Bat dropping in cave etc. support whole ecosystem of unique organisms including bacteria useful in detoxifying wastes, detergents and producing gasohol and antibodies.

Due to loss of natural roosts in cave & old forests because of unscientific old beliefs, hunting for flesh & pleasure. The conservation of natural roosts of bats have become important for ecological balance and protection of bats species.

A bat conservation project has been submitted by the Divisional Forest Officer, Hazaribagh East Division for conservation of bats and bio-diversity of the project area.

It is unique project which aims to help the agriculture as well as the forest by maintaining a balance of ecosystem and sustainability.

The project proposes Bat Conservation Plots for providing safe a secure place for the roost of the Bat Colony already existing and for further studies on Bats.

**The Objectives of the projects are:-**

1. To conserve the depleting bats of the area.
2. To protect and enhance the natural forests.
3. To rehabilitate the forests for creating community assets.
4. To create congenial conditions in the forest fringe areas for the co-existence of human & wildlife.

The project is a 5 year plan comprising of 63 villages at a cost of 128.745 lakh. It shall be a 100% centrally sponsored scheme.

## CHAPTER – VI

### DEMAND AND SUPPLY

#### AGRICULTURAL CUSTOM AND WANTS OF PEOPLE

Majority of the population is rural whose main source of livelihood is agriculture. Of late a number of industrial belts connected with coal mining and other industries have developed. A giant industrial complex has developed at Bokaro Steel City. The Coal mines and the Bokaro Steel consume all type of timber and other forest produce in any quantity.

The rural population is of mixed type the majority belonging to the backward class. Adivasi population is small. Their want of timber is mainly for agriculture house construction and fuel wood. The demand for agricultural purpose is for plough and for brushwood (ghoran) for fencing the homestead land. Latha & Khambha are in great demand in areas where vegetable cultivation is done. The timber for house construction consists mainly of wooden poles for rafter (10-15cm, dia), ridge pieces of 20 cm dia, bamboo and some sawn timber for door grange and shutters.

Many of the houses in the villages have homestead land attached to them. Maize and vegetable crops are grown on these lands. Cattle population in villages is very high. They live only by grazing for which they are let loose. Hence fencing of the homestead land against cattle is a must in order to grow something on it. Therefore large quantity of brush wood (ghoran) is used every year. The villagers prefer to use young sal saplings for this purpose. The green saplings are thickly woven and fixed to ground supported by thicker posts and horizontal members. Sometimes thorny shrub of Ber and other species are also used. The brushwood of the ghoran is subsequently used as fuelwood when it becomes ineffective.

This Division is situated right in midst of large number of industries which require variety of forests produce. The coalmines require various sizes of props, tramline and coggig sleepers and sawn timber for civil works.

#### MARKETS AND MARKET PRODUCE

Due to industrial development on large scale all over the country on the whole and particularly in and around Hazaribagh District a vital timber famine has developed. There is market for any type of forest produce.

The forest of Hazaribagh East Division produce mostly poles of Sal miscellaneous hardwood. The poles of all sizes have ready hot market in the collieries of Hazaribagh and Dhanbad District.

The production of timber i.e. round logs of 20 cm. in dia and up is very small and its production is far short of the local demand. The softwoods have ready market in the Forest Department.

The small timber like the Tramline and cogging sleepers has a very big market in the collieries. These items always remain in short supply in spite of heavy imports from other adjoining district and from outside the state. Fencing post of which the Jharkhand Forest Department is the major consumer is always in short supply.

Forest being situated in the colliery belts, there is not much urban demand for firewood. The villagers get firewood for their domestic use either from the right holders coupe or they bring it free of cost from the forest on headload. Since the trucks going out of Hazaribagh district carry coal. The transport charges of fire wood from Hazaribagh district to non-forest district of the north are very high. Though there is everyday market for firewood in non-forest districts the high transport charges by road renders it unsaleable in distant markets and thus creates a slump in the firewood market of Hazaribagh district. Due to high handling cost, heavy strain on the transport and comparatively smaller turnover per truck load the Department Working Division sometimes find it uneconomical to extract firewood from distant coupes.

There is no local market for charcoal but there is a fairly good market outside the state charcoal burning is not a regular practice in this Division.

Bamboo has good market outside the district with the paper industry, The local demand is mainly for basket making and for house construction. Kendu leaf is not locally used because BIRI making has not developed as a cottage industry in the village. The Kendu leaves collected from the forests of this Division are generally exported out of the district and also outside the state for manufacture of BIRI.

Sal seed has assumed commercial importance. The sal seed is at present being collected departmentally through Jharkhand Forest Development Corporation. Though there is one small oil solvent plant for extraction of oil from sal seed at Ranchi most of the produce is exported out of the state.

The Mahua flower & its seeds (Kernds) is in great demand locally. It serves as food material for the poor population in the villages. It is collected free of cost by the villagers from the forest. The surplus Mahua flowers after meeting the local demand find market in the distilleries and the seeds are sold for soap industry.

Of late a number of other minor forest produce like Myrobalans, Chiranjhi (nut of Buchannia lanzan), Kahua (T. Arjuna) bark, gums etc. have developed industrial demand but their systematic collection and marketing has not taken proper shape as yet.

#### LINES OF EXPORT

This Division is served by two rail lines, the Grand-Chord and the Gomoh-Barwadih section of Eastern Railway. Since most of the timber is locally consumed either in Hazaribagh district or in the adjacent Dhanbad district. Export of timber by railway is rather insignificant. Even for the transport of bamboo produce in this Division to Dehri-on-sone the road transport is preferred to rail transport. Thus the main line of export is by road.

A network of well maintained National and State Highways pass through this Division. The important ones are given below.

1. Grand Trunk Road- National Highway -2
2. Patna Ranchi Road - National Highway-33
3. Hazaribagh-Bagodar Road - State Highway (Recently made NH-27)
4. Bishungarh-Gomia –Petarbar Road - -do-
5. Bagodar-Saria Road - -do-

A network of forest roads all over the Division adequately serves the purpose for extraction of forest produce from the forest. Besides, there are a number of other roads. Many forest roads are being black topped by REO under Prime Minister Road Plan & other schemes.

## CHAPTER VII FOREST EXTENSION & SOCIAL FORESTRY

### INTRODUCTION

Afforestation work in the Division on the non-forest land is largely limited to the premises of the central and State Government institutions, organizations and schools, colleges and university campuses. Such sites are selected for safe and successful planting as a part of general environmental awareness under the annual Van-Mahotsav Programmes which is held usually during rainy season by the Forest Department.

Plantation on non-forest land in the Division is of very small scale and has been raised by the owner and authorities themselves. The Raiyati Lands which one other than the habitation and cultivation, one mostly vast fallow chunks spotted occasionally with weedy and shrubby vegetation.

### AFFORESTATION ON COMMUNITY LANDS

Afforestation efforts on the community lands in the Division usually the village panchayat land are found to be very limited extent and those too made by other than the Forest Department. However, it would not be difficult to find out the reasons of the Department failure in afforesting the community lands which can be described as a consequence of social incongruities of villages, poor and irregular funding as well as weak liaisoning among the villagers with Forest Department and the Revenue Administration.

A number of the VFMPs constituted in the Division are a supposedly to seed their available community lands afforested Forest.

### AVENUE PLANTATION ON ROAD MARGIN

Among the major roads of the Division there are five prominent viz.

1. The Grand Trunk Road (NH2) ... of approx 31 kms
2. Hazaribagh-Ranchi Road (NH33).. of approx 4.8 kms
3. Hazaribagh –Bagodar Road (SH27)... of approx 50 kms

4. Bagodar-Dhanwar via Saria Road (SH )... of 20 kms
5. Bishungarh-Gomia Road (SH ) ... of approx 23 kms.

As most of the roads of the division pass through forest area, roadside avenue plantation (2002) of mostly indigenous ornamental species over 10 kms length between Ambadih and Saria of Bagodar -Dhanwar road is impressive. The year 1999 avenue plantation along Hazaribagh.

Bagodar road is presently not in a good shape. Most of other roads of the Division pass through good forest.

#### STRIP PLANTATION ON OTHER PUBLIC RIGHTS SUCH AS RAILWAYS

There are two railways lines passing through the Division viz one along the north-eastern boundary of the division joining Koderma and Gomoh Junctions railways Hazaribagh Road station of approx 30 kms length falling in the Saria Beat of Bagodar Range and another near south-eastern of the divisions boundary joining Barkakana and Gomoh Junctions via ranchi Road station of approx 24 kms length in the kuju beat of Mandu Range. Most Parts of these two railways cross through forest of the division. Plantation along these two railways through the revenue area was done by the railways department earlier. Unfortunately due to illicit cutting the survival of such unprotected plantation is strikingly inconspicuous. Another new railway line Koderma-Ranchi being construction which will consume nearly 125 ha notified & Gair majurua unnotified forests of Mandu Range.

#### CANAL BANK PLANTATION

The Konar Dam, one of the total five major water reservoir-dams of the Damodar River Valley Multipurpose Project is built upon the Konar River and lies in the Chatrochatti beat of Gomia Range falling in the Bokaro revenue district. There are several irrigation channels outcropping from the Konar Dam in the area. Plantaion works over the Dams embankment slope and along maintained by the Damodar Valley Corporation has been done.

The planted species are Mahua (*Madhuca indica*), Karanj (*Pongamia pinnata*), Kahwawa (*Terminalia arjuna*), Peltophoram, Chahandi (*Cassia siamea*), Arkesia (*Acacia*), *Eucolyptus* app etc.

## FARM FORESTRY ON REVENUE WASTE LANDS

In Hazaribagh East Division the topographical land profile is largely undulating. The common soil type is murumy to sandy loam of superficial depth overlying the granitic bed rock and the irrigation sources are almost nil except seasonal rains. These conditions combined together could hardly support even the limited regular planting of forest species on revenue waste-land and their harvesting scheme taken up either by the forest department or by any other in the division.

## BLOCK PLANTATIONS : INSTITUTIES (SCHOOLS, COLLEGE, HOSPITAL, etc

The instances of block plantation in schools , colleges, hospitals and other such compuses are negligible in the Division. Yet the iron-net gabion or wooden fenced or all unfenced plantation of individual ornamental and shade-bearing tree species in the campus of educational, health, administrative or other institute buildings have been done every year during annual occasions on Van Mahotsavs, at Hazaribagh, Mandu, Kuju, Bishungarh, Bagodar, Saria, Jarkunda and several other smaller places. Unfortunately, at very few places the past work of Van-Mahotsavs could not be traced except the institutions lying in the colliery areas like Kuju, West Bokaro, Gidi etc. In 2002 Van Mahotsawa was celebrated in Meru Forests at Kalibari, Saria.

## PERIODIC EVALUTION OF ABOVE PLANTATIONS

Systematic record keeping of previous year's plantations in the Division is poor. The Division should maintain detailed and systematic records of all plantations and to evaluate their success on failure so as to improve the conditions of the survival in years to come.

## EXTENSION, PUBLICITY & TRAINING

The division time and again organizes the forest-based cottage industries training programmes through the VFMPs in various places to impart techniques of patta-plate (Leaf-plate) making, apiculture etc. During the meeting of the VFMPs the forest personnel appraise the village about importance of collection time, selling points of the commercial MFPs like oil seeds gums, resins edible wild fruit etc.

However the extent and reach of the training programmes conducted by the Division and the NGOs regarding the financial gain of MFP is very insignificant due to poor socio-economic level of the people as well as weak marketing network.

