

CHAPTER NO.VIII

THE POTENTIALITY OF FOREST RESOURCE IN THE TARAPHINI RIVER BASIN.

The potentiality of forest as one of the valuable components of resource can be discussed mainly from the two view points :-

- 1) Nature Conservation
- 2) Economic Utility.

Nature Conservation

- 1) Forest prevents land from erosion of soil and loss of run-off. (Photo No. 25, 26)

So far as the total amount of soil loss is concerned, the barren land exhibits a much greater loss (about three times) than that of the forested land in the area (Table No. 37); since, forest binds the soil grains by spreading their roots, making it more compact against rain-wash or wind drift. Especially, the bushy sal forest, standing sal forests and two-tired forests favour minimum loss, only 15 percent on an average, as their roots are spread far into the soil, binding the soil grains in wider areas compared to the other varieties of forest species. Mention is made of Eucalyptus which lags far behind the other types of forest, mentioned above, because the usual spacing of trees at two metres, in the plantation areas and lack of abundant spreading of roots in the sub-surface, facilitate the rainfall or wind to remove soil grains leading to maximum amount of soil loss i.e. about 55 percent of the total amount of erosion caused in the areas, covered by the four types of forest (as mentioned above) and thirteen percent of the total amount of soil loss in the basin.

Run-off is also another vital problem of this region which drains off a significant amount of total rainfall in the peak period of monsoon i.e. from the first week of August to first week of October (Table No. 29). As a result a deficiency of water in the soil surface becomes prominent, particularly in those areas, lacking forest cover.

The forest in the region, in general reduces the amount of run-off to about one third as compared to that in the barren land. It is also recorded that different species of forest behave differently, in case of the total amount of run-off loss in the forested land. Tall tree with undergrowth, i.e. two tier forests show best measure against run-off loss, being responsible for only 0.71 percent of the total amount of run-off loss in this basin. The thick foliage of the upper storey intercepts rainfall; the raindrops which escape interception in the upper storey, are quickly arrested by the lower storey beneath.

Bushy sal coppice forest, compared to the two tier forest, shows an increase in the amount of run-off (about three-fold) as, the advantage of roof-like second tree level is absent here; however, the thicker mat-like surface of the bushy sal coppice forest, checks a considerable amount of soil loss in the area, being almost at par with that of the two tier forest, in the area (Table No. 37). Standing sal forest differs slightly from that of the bushy sal, being only one percent higher, (so far as the amount of run-off loss is concerned). The absence of mat-like protective cover near the surface is the chief cause.

Eucalyptus plantations as compared to other types of forest cover in the area do not show encouraging results since their leaves are not thick enough and the proportion of wood is larger than the leaf-foliage; moreover, undergrowth plants which could resist run-off are also absent to catch the run-off.

TABLE NO. 37

Amount of Soil-Loss and Run-Off-Loss in the Different Categories of Land in the Taraphini River Basin. *

<u>SOIL LOSS</u>	<u>Barren</u>	<u>Different Types of Forested Land</u>				<u>Total</u>	<u>Gross Total</u>
	<u>Land</u>	<u>Two-Tier</u>	<u>Standing Sal</u>	<u>Bushy Sal</u>	<u>Eucalyptus</u>		
<u>Amount (Kg)</u>	24.79	1.15	1.20	1.17	4.23	7.75	32.54
<u>Percent</u>	76.21	3.69	3.77	3.69	12.64	23.79	100.00
<hr/>							
<u>RUN-OFF LOSS</u>							
<u>Amount (Litre)</u>	123.56	1.17	6.06	3.34	31.39	40.96	164.52
<u>Percent</u>	75.58	0.71	3.68	2.03	18.00	74.42	100.00

* The area covered by each species in the experimental station of Sutan (village no. 153), in the river basin, run by the Forest Dept. are identical.

Source: Annual Research Report (1978) of Forest Dept. of West Bengal.

ii) Forests provide a natural habitat to wild animals.

Preservation of wild life is not only a luxurious aspect attracting tourists but is also helpful to create an environment which is vital for the future existence of mankind. An editorial comment in a monthly journal referring to a recent conference held on wild life protection in India, states :- "All life on earth is inter-dependent and man is only a strand in this delicately balanced web of relationship. Everytime a species becomes extinct, a strand is snapped and man the destroyer himself moves closer and closer to his own destruction". (The Competition Master, June, 1979).

Keeping these facts in mind, the Forest Department of West Bengal has planned to establish a wild life sanctuary covering almost a continuous area of 514 km² in the tri-junction of Purulia, Bankura and Midnapur Districts, out of which the Taraphini basin shares only three percent of land. At present only six mouzas in the north-western corner of Ranibundh police station in Bankura District have been selected for wild life preservation, and young stocks have already been planted to increase the density of forest for attracting animals. The adjacent two mouzas in Midnapur District covering an area of three square kilometres have also been chosen for preservation, but plantation work has not yet started.

TABLE NO. 38

Villagewise Distribution of Forest for Wild Life-Reserve
in the Taraphini River Basin.

<u>No. of Village (J.E.No.)</u>	<u>Name of the village.</u>	<u>Total Forest km²</u>	<u>Percent to total area</u>	<u>Area under wild- life.km²</u>	<u>Percent of area under wild-life to total forest.</u>
150	Kowalanga	2.68	80.63	1.79	68.43
151	Burisal	2.79	83.53	2.79	100.00
152	Goalmuri	2.81	90.12	1.85	61.82
153	Sutan	3.90	86.93	3.35	86.39
146	Harangarh	2.69	86.93	2.18	80.64
147	Maisamura	3.08	93.99	1.90	60.27

Source: Census Handbook of Bankura (1971) and Forest Dept.Govt.of W.B.

iii) Forest species help to reclaim the waste land.

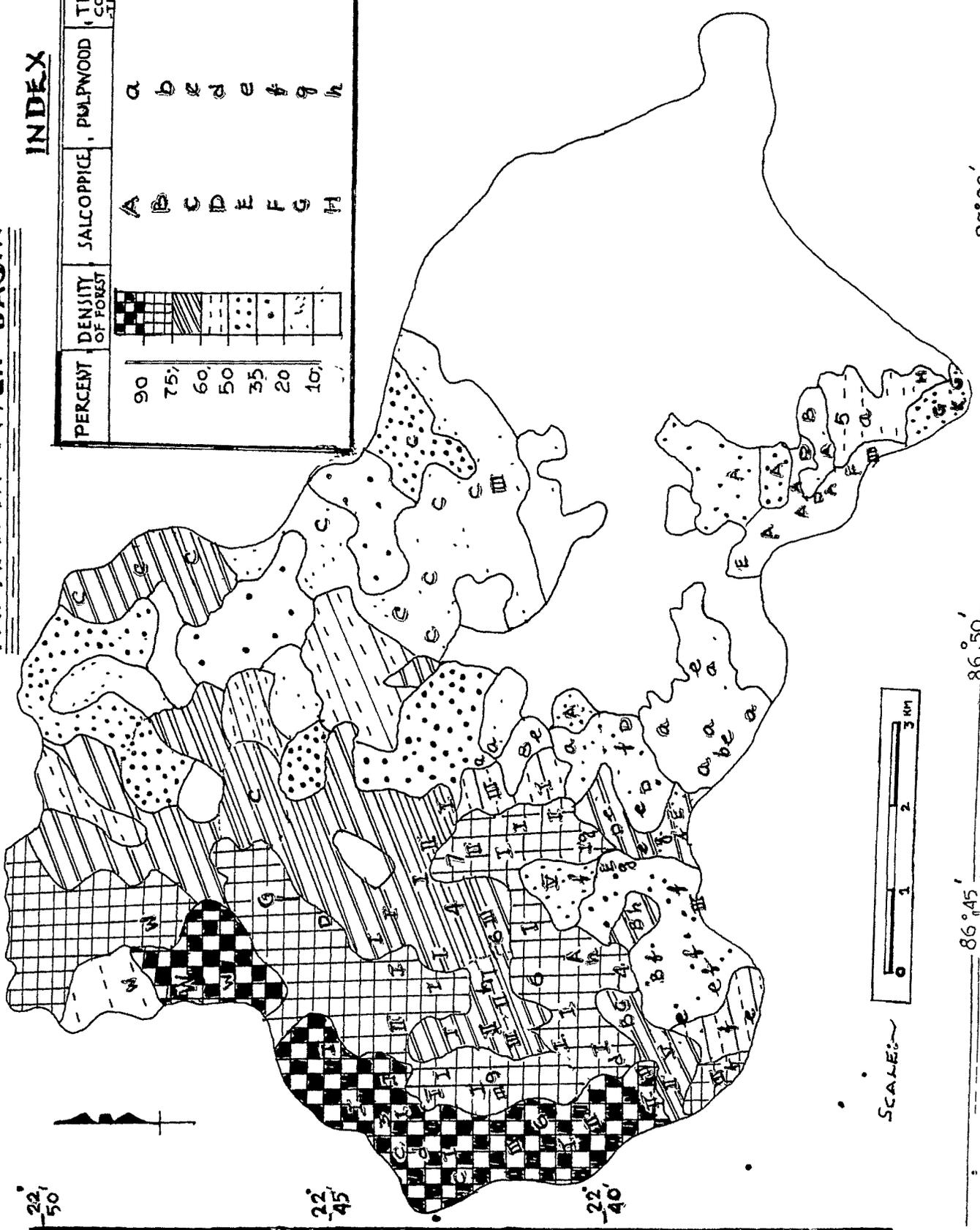
The waste land which is mainly comprised of gully eroded land, sheet eroded land and rocky outcrop in the tract under consideration, is no less significant than forest cover of agricultural land, accounting for about 6 percent of the total area (Census, Midnapur and Bankura 1971 and Agriculture Department, Govt. of West Bengal, 1976). The amount of waste land predominates, chiefly in the northeastern part of the region which falls within Raipur Police Station of Bankura District and also in the western side of the Sildah-Raipur road, within Binpur block II of Midnapur District.

DISTRIBUTION & DENSITY OF FOREST ALONG ITS ECONOMIC UTILISATION, IN TARAPHINI RIVER BASIN

Map No. 12

INDEX

PERCENT	DENSITY OF FOREST	SALCOPPIE	PULPWOOD	TIMBER & HIGH CONSERVATION FOREST	WILDLIFE RESERVE
90		A	a	I	W
75		B	b	II	W
60		C	c	III	W
50		D	d	IV	
35		E	e	V	
20		F	f	VI	
10		G	g	VII	
		H	h	VIII	



SCALE

22° 50'

22° 45'

22° 40'

86° 45'

86° 50'

87° 00'

The Forest Department of West Bengal has already planted the following species or has planned to plant either to check the land from erosion or to convert the land into a productive one. The choice of species according to the nature of waste land are as follows :-

i) Rocky Outcrop

Alstonia-Scholaris or Chatiwam (whose roots can extend downward even through the rock), Sal spaced (4 m-7 m apart), Peasal Pterocarpus Marsupium (6 m apart) and species like Samuel, Dhaw, Parasi, Hardwickia, Xylia Xerocarpa, are being planted. Chatiwam is widely seen in the Dalma Lava country in the west of Belpahari and Dhaw and Parasi are found covering about 10 percent of the total forested area in the northeastern part of the basin lying within Bankura District.

ii) Sheet-eroded Areas

a) Porus Soil: Peasal, Sal, Teak, Gamar, Haritaki and Asan.

b) Clayey Top Soil: Peasal, Asan, Sal, Gamar and Jack fruit.

c) Clay Soil: Arjun and Hango specially on the waterlogged condition in the soil.

iii) Gulley eroded Areas

a) Gulley bed: Peasal, Kytia Kerocarps, Chatiwam, Mahua, Sal, Rosewood are planted where deep soil is found on the gulley bed.

b) On the bottom and side of a/gulley: Babul (Acacia Catechu) is planted on the clayey loam soil.

c) Gulley edge: Bamboo and Semul.

At present, the afforestation works for the reclamation of waste land are going on in 10 villages from Raipur Police Station in the northeastern part of the area viz. village J.L. No.86, 87, 93, 94, 156, 158, 159, 161, 163 and 315, six villages in the southern part in the Taraphini-Dulung river watershed viz. 328, 329, 336, 335, 307 and 309, three villages in the southwestern part in lava terrain viz. 88, 103, 142, and six villages scattered over the crystalline rock basement within the middle basin of the river Taraphini viz. 115, 117, 191, 197, 199 and 200.

Economic Utility

About 60 percent of the total forested area has been scheduled by the Govt. of West Bengal for economic exploitation (Forest Department, Working Plans, from the period of 1966-'69 and 1977-'79)

The region has been classified into four types of forest from the point of economic management. These are :-

- i) Pulpwood, ii) Sal Coppice, iii) Timber conservation,
- iv) High forest.

TABLE NO. 39

The Distribution of the Different Types of
Economic Forests, in the Taraphini River Basin.

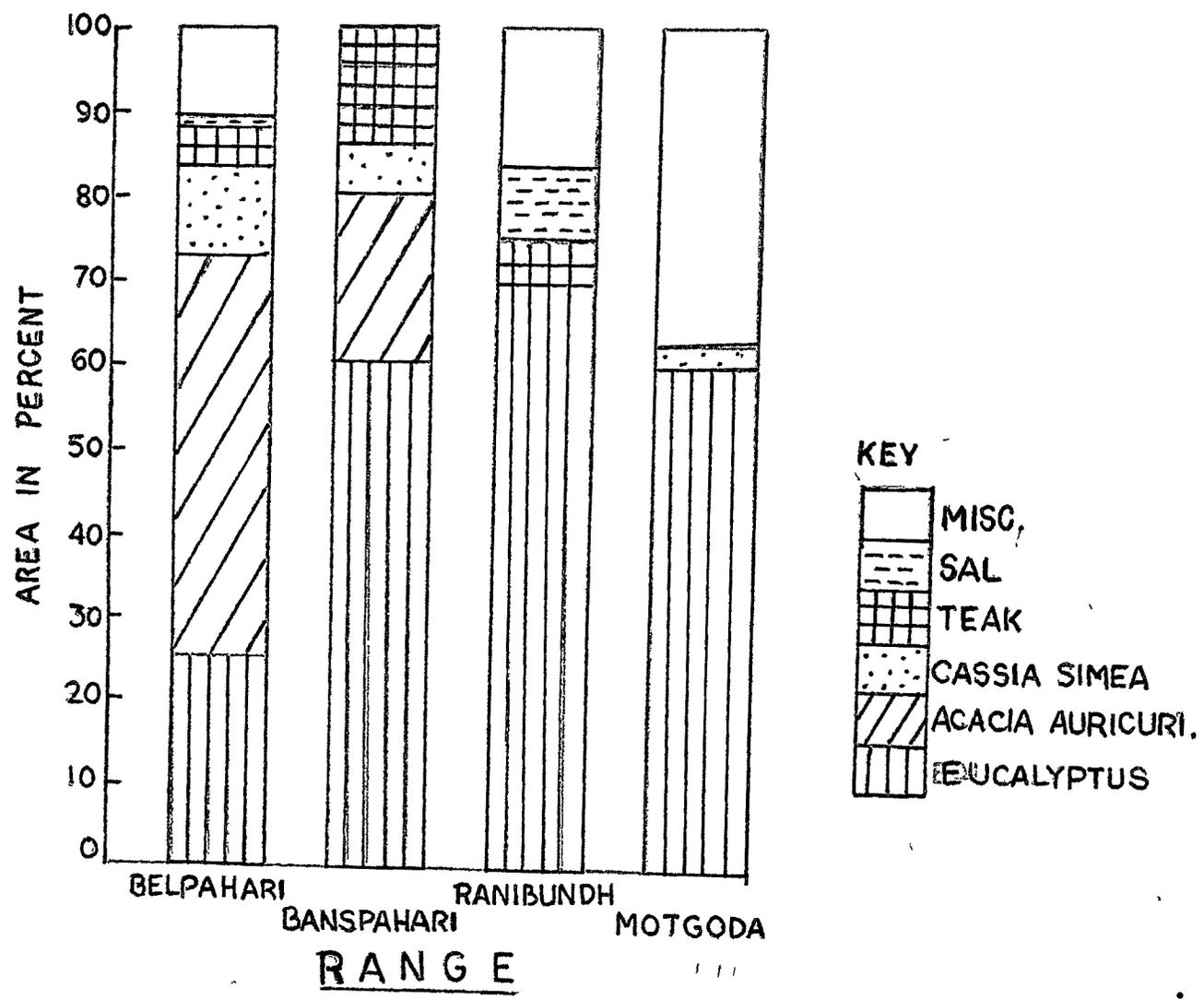
Types of Economic Forest.	High Forest	Pulpwood	Sal coppice	Timber Conservation
Percent to the total area under Economic Forest.	3.0	18.5	64.5	14.0

A precise note on each category is given below :-

Pulpwood:

Pulpwood is the most important economic product of forest in the area. About 25 percent of pulpwood product of the two combined forest divisions of West Midnapur and Bankura is supplied from the forests of the Taraphini river basin. Chiefly the three species viz. Eucalyptus, Acacia Auriculiformis and Cassia Sinea, are used as pulpwood in Bengal Paper Mill, Titagar Paper Mill and India Paper Mill.

DISTRIBUTION OF PLANTED SPECIES IN
PLANTATION AREAS OF RANGES IN
TARAPHINI RIVER BASIN



Among all the planted species, which are raised for economic output in the region, the above three pulpwood species altogether account for about 85 percent (out of which Eucalyptus alone shares 50 percent (Graph No. 9)). Eucalyptus, here, is not indigenous but is mainly of Mysore-hybrid type. These species are fast grown and have wide adaptability to the soil and climate of the region. However, where water table is deep or rainfall is erratic, box trenches for trapping the rain water is used; also the application of chemical fertilizer for proper growth is made in the areas where the soil is poor. The expenses involved, appear to be quite nominal when the ultimate benefit from the species are considered. Another facility of Eucalyptus is that it achieves workable condition after a rotation period from 8 to 10 years and the young wood contains less extraneous material, a high percentage of long fibre, lighter colour and low basic density.

Sal Coppice:

Sal coppicing is carried on covering 57 forested villages, in the southwestern, southern and north-northeastern part of the region in comparatively lesser elevation belt of 325 m to 133 m. Sal coppice work covers largest area, about 65 percent of the total economically exploitable forests. (Table No. 39, Graph No. 10).

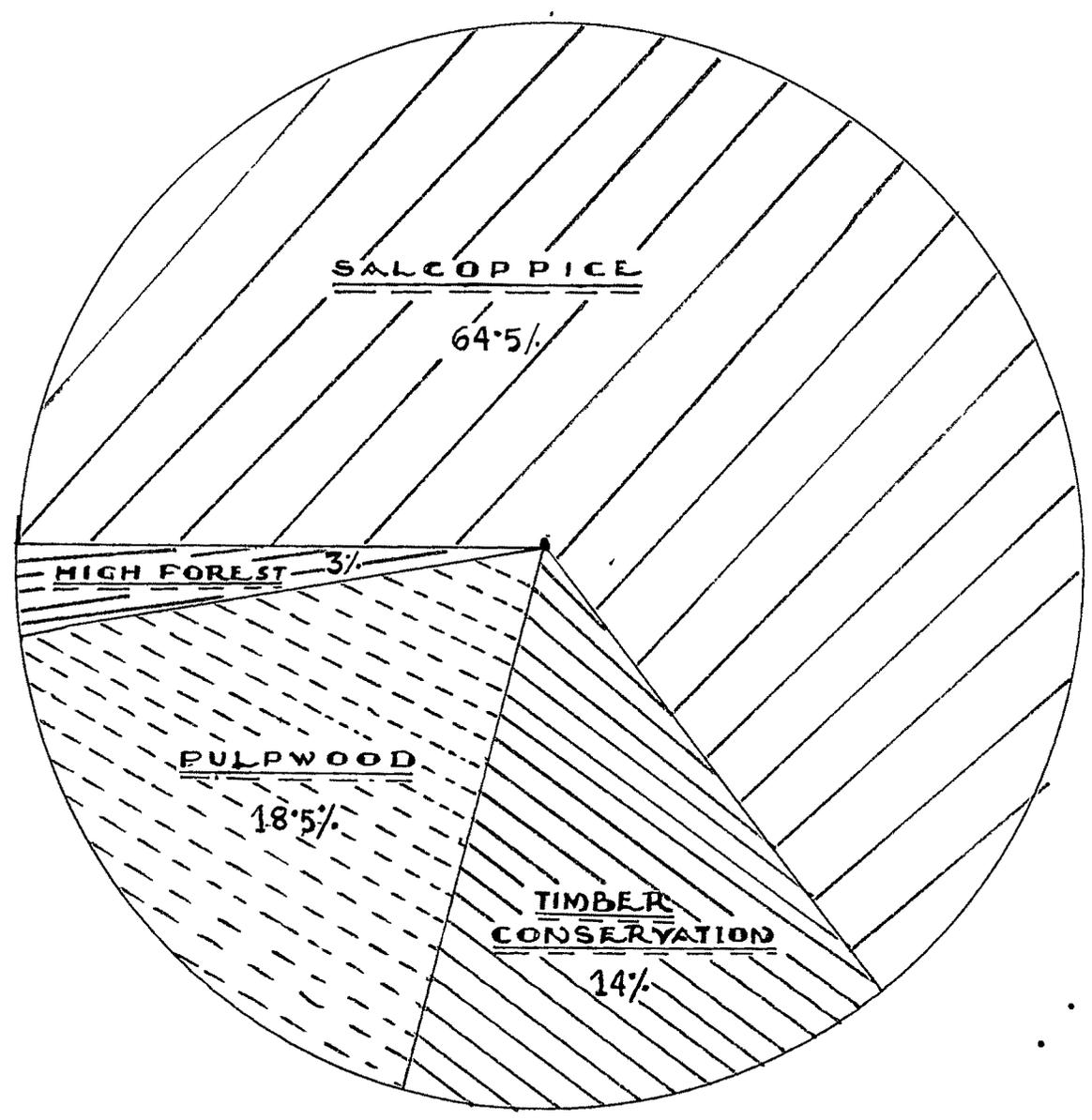
It is the only economic exploitation of forest in the north-eastern part of the region (within Hatgoda range) where 90 percent of the total number of 10 forested villages is under rotational felling of sal for firewood and further regeneration of sal.

Timber Conservation:

The timber conservation work occupies about 14 percent of the total forest area scheduled for economic exploitation. (Graph No. 10 and Map No. 12). Due to prolonged drought and also the interference of man and animal, the quality of timber has deteriorated and good quality timber-producing species viz. Sal and Teak are confined only in 36 percent of the total forest area scheduled for timber reserve.

Miscellaneous species including Mohua (*Madhuca Latifolia*), Atang (*Cambretum Decandrum*), Asan (*Terminalia Tomentosa*), Kurchi, (*Hellazhena Antidysentrica*) etc. are used as inferior quality timber and firewood. in the area. The total number of Mohua tree is at present about 22,000 (Forest Dept, Govt. of West Bengal) and density is remarkable in southwestern part where the soil is calcium rich. Mohua is abundantly used in rural housing. Kurchi is widespread through the area, especially in the northwestern

DISTRIBUTION OF ECONOMIC FOREST



corner, where vegetation has almost become retrograde; this type of species alone covers 5 percent of the total forest area under the timber conservation.

Diospyros Melanoxylon (Kend) is also used as a third grade class of timber, covering 15 percent of the total miscellaneous species. These have mainly originated due to the replacement of the original sal by biotic factors and so almost in every ranges, about 30 percent of the total forested area, is under kend.

High Forest:

High forest is located only in six villages, covering only one percent of the total economic forest area (Graph No. 10). High forest means dense forest composed of tall trees with undergrowth, which are kept chiefly as timber reserve for future need, for observing the trend of changes in the nature of trees along their condition of growth, quality and the ecological factors favouring the development of tall, well-girth species. Several isolated hillocks have been selected for high forest reserve because, owing to steeper slope cultivation practices are difficult; grazing, is retarded due to the sharp rise from adjacent level land and thus the biotic interferences get checked. Also, the soil is comparatively freely workable and friable for tree root penetration mainly because these isolated hillocks are the residual products of long continued process of surface degradation.

The importance of the existing forest cover in the region is quite evident from the foregoing discussion. So far as the proper land-use planning of the region is concerned, forests prove to be suitable for the gravelly type of soil which occurs in patches in the northeastern and southern region in the area. A comparative study between paddy land and Eucalyptus plantation area in one of the gravelly nodular soil near Kapatkata village(22°43'N; 86°49'E), as given below, emphasizes the role of forest plantation.

The cost of paddy cultivation in a plot of 0.40 hectares is only Rs. 250/- per year while in case of an Eucalyptus plantation it is about Rs. 450/- per year. But considering the long term period of eight years, when a forest crop is mature for proper exploitation, paddy cultivation is quite unfavourable economically. At the end of the eighth year, the total cost behind Eucalyptus plantation remains almost the same i.e. Rs. 450/-, as the initial investment, whereas, for paddy cultivation the amount goes upto Rs. 2,000/-. Therefore from the economic point of view Eucalyptus plantation gets preference.
