

## PART-II

### CHAPTER-I

#### FUTURE MANAGEMENT DISCUSSED AND PRESCRIBED

##### BASICS OF PROPOSALS

- i) To protect, improve and maintain the forests cover. Hill slopes and denuded areas are to be protected from soil erosion. Provisions are mentioned for better conservation of moisture.
- ii) To meet the domestic and agricultural requirements of the local inhabitants for small timber, bamboo and fuel woods.
- iii) To grow large size trees in some areas for meeting the demands of large size timber.
- iv) To afforest the blanks and miscellaneous scrub area to increase firewood production.
- v) To rehabilitate rooted waste areas for developing better crop.
- vi) To provide fodder to the local people in order to check grazing in the forests areas.

##### General methods of treatment:-

The forests of this division are in different stages of preservation and growth. However, most of the areas have become very much open and depleted. Large number of felling series which were worked under coppice working circle during the previous working plan are no longer fit for further exploitation.

The local demand is very intense all over the division. Even the raiyati lands have becomes treeless. The demand is mostly of timber, poles and firewood. Quite a large number of felling series which had been allotted to this working circle have now been reduced to rooted

wastes. So these areas are now kept under Rehabilitation Working Circle, coppice with selection areas are treated under 10 years rotation.

The areas which have been kuraooned in the R.Fs, where no rights for kuraoon cultivation exist and the areas reclaimed illicitly in the old P.Fs shall be allotted to the plantation working circle in order to restock them with tree species. This working circle will embrace all the raised plantations and other bland areas which require to be planted up.

The planted trees along the roadsides must not be felled except the uprooted and dead trees. More roadside plantations are to be taken up afresh.

On the above lines the following working circles have been prescribed:-

- i) The Coppice with selection working circle.
- ii) The Rehabilitation Working Circle.
- iii) The Plantation Working Circle.
- IV) The Sabai Grass Working Circle.
- v) Wild Life and Wetland Management Working Circle.
- vi) Plantation Working Circle for non-forest land.

Block and compartments:-

The subdivision of the forests into old reserve, old P.Fs and D.Fs into blocks have also been maintained in this plan. The division of old R.Fs into blocks have also been maintained in this plan.

Plan Period:-

The period of this plan will be from 1992 to 1992 i.e. 20 years. On the 10<sup>th</sup> year of the Plan, this should be reviewed on the basis of the results of working. The exploitation programme of plantations to be done during this plan period are also to be made that time.

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#### COPPICE WITH SELECTION WORKING CIRCLE.

##### General constitution of the working circle

This working circle consists of sal forests and sal mixed with miscellaneous species situated in valleys, plains and lower slopes of the hills. A large amount of area was kept under this working circle in the last working plan. However, a significant amount of forests of this category has now shifted to Rehabilitation working Circle. During the revision only such forests which have only been included for exploitation. This also includes areas which can be exploitable after 10 years are included under this working circle. Therefore, conservation being an important aspect a conspicuous decline in the area has been registered in this working circle.

##### Area of the working Circle

The area of this working circle is 9115.59 Acres. In such villages in which the forests occur in a number of patches scattered here and there each patch has been allotted a block number for quick location. The distribution of area in each village has been shown blockwise in Appendix-1 of the plan.

##### Objects of Management

The main objects of this working circle will be :-

- i) To exploit the forests in such a way that forest cover is maintained.
- ii) To meet the demand of the right holder as indicated in Khatihan part II and these will be the first charge on these coupes. The surplus, if any, will be exploited through the agency of State Trading.
- iii) To grow large sized trees, poles and firewood for meeting the local demands of such produce.

iv) To ensure soil demands of such produce.

v) As indicated in Government of Bihar's Forest Department notification no. 5244 date 8/11/90, part of the revenue obtained from selling the products will go to the development funds of the village van suraksha samiti.

#### Silvicultural system:-

The forests of the division are mostly of Dry peninsular type with the summer temperature rising well above 42 degree. The long spell of drought as well as severe biotic pressure makes the establishment of regeneration difficult. It has been that opening created by removal of trees has led to the invasion of Lantana and finally lantana does not allow any species to come up. Considering all these factors, it appears that annual removal of forests produce should be on a conservative scale, so that tree cover is not lost for all time to come. Hence it is being proposed that the forests of this working circle shall be worked under coppice selection system. This system has been standard system has resulted into large scale movement of area from coppice working circle to Rehabilitation on plantation working circle. Basically, the reasons for failure were (i) the area could not be closed for grazing (ii) the local inhabitants did not allow the coppice growth to come to pole stage and (iii) large scale removal of produce from the same stock depleted the capacity of root stock to grow properly. A total ban on felling is also not likely to secure freedom from felicity removal. Thus a system has to evolve so that a favorable working balance is maintained. This reason along has led to change the system from coppice with standard to coppice selection system.

#### Rotation and yield:-

Since it is proposed to have selection felling, the rotation is being kept at 10 years. the exploitable d.b.h. will be 6" inches for all species. It is also proposed to start felling after 10 years i.e. from years 2001 onwards.

The yield has been fixed of by area. The coupes have been shown in the management maps. the details of coupe working is being given at the end of this charter.

#### Demarcation of annual coupes

The coupes for the full rotation have been shown in 4"=1 mile management maps. All the coupes are more or less equal in area. Coupes will be demarcated on the ground approximately at 20 metres interval will be double ring marked with coaltar. All the trees marked on the boundary line shall be treated as standards and shall not be allowed to be felled. Demarcation of coupes shall in the management maps. Where the coupline meets a road or prominent foot-path, the name of the felling series and number of coupe will be shown on a signboard. Each coupe will be divided into more than one section for systematic of working and for safeguarding revenue. The section lines will be delineated on the ground by double coaltar half rings.

#### Rules for marking

All trees having a dbh of more than 6 inches in the annual coupe will be marked for removal provided these trees are silviculturally available.

A tree is said to be silviculturally available for felling when

- i) Its removal does not cause any lasting break in the coupes or
- ii) There are sufficient number of seedlings, saplings or poles of the same or superior species to take place after removal; or
- iii) It forms part of a congested crop and its removal may be justified on principle of thinning.

All dead, dry, hollow and heavily diseased trees will also be marked for removal. Making in each coupe will be done one year advance.

#### Execution of felling

Felling shall start from one end of the section of the coupe and proceed systematically haphazard and selective felling must not be allowed. Felling shall be confined to one section at a time and start in the next section only after completion of work in the preceding section.

If the felling series is right burdened then first the demand of the felling holders will be met as per norms and only the rest of the material will be taken out by the State Trading division to their depots.

Entire felling will be done departmentally by the state trading wing of the department.

Subsidiary silvicultural operations:-

In the year following the main felling the following tending operations shall be carried out in each coupe.

- i) All the stems damaged in the course of main felling should be cut back.
- ii) All the stems of undesired species whose removal is desirable to foster young regeneration of sal and other species of economic importance or group of sal saplings are present
- iii) Cleaning and creeper cutting shall be done in patches where sal regeneration or groups of sal saplings are present.
- iv) All climbers shall be cut.
- v) The Divisional Forests officer will decide if thinning is to be done in any patch of the coupe.

General treatments

The annual coupes shall be scrupulously protected from grazing for 8 years after the year of felling. It should not be allowed in eroded areas. The Divisional Forests officer may close any other areas against grazing for silvicultural reasons. In areas open for grazing the operation shall be allowed only during the winter and summer. Lopping should be prohibited. Regenerated crop should be fully protected from fire.

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CHAPTER-III

REHABILITATION WORKIGN CIRCLE.

General constitution

This working circle includes all the derelict, road waste, gullied and eroded sites including ravines. Crop contains sparse sal or miscellaneous growth and also thorny scrub forests containing carissa species, Zyzyphus species, Lantana, Croton etc. Fairly stocked rooted wastes are included in this working circle. Such areas have preponderance of rooted stocks of sal and miscellaneous species with the average height of the plant not exceeding 3 metres and diameter below 5 cm.

Area Statement

The total area allotted to this working circle is 15.788.99 acres. Its Range wise distribution is given below:-

| Name of the Range | Area Under                  |          |  | Total    |
|-------------------|-----------------------------|----------|--|----------|
|                   | Protection Cut Back-Fencing |          |  |          |
| Pakur Damin       | 845.43                      | 4384.08  |  | 5238.51  |
| Rajmahal Damin    | 348.19                      | 10202.29 |  | 10550.48 |
|                   |                             |          |  | 15788.99 |

Object of management

The objects of management area:-

- i) To rehabilitate the rooted waste areas.

ii) To check soil erosion and conserve moisture to get better growth of crops.

#### General description

The main line of approach towards the management of such areas will be as follows:-

i) Fencing and cutting back of the rooted waste and operation of soil conservation measures.

The areas allotted to this working circle have complete stocking of sal or miscellaneous species. The only thing lacking is protection from hacking by men and intensive grazing. To get a healthy crop out of it the area should be fenced and protected religiously from the adverse factors.

Regular soil conservation measures will also have to be under taken. These would include gully plugging, contour trenches, checkdams, silk detention structures, diversion channels etc.

#### Methods of treatment

Fencing will be done by cattle proof trenches, barbed wire fencing, brush wood fencing according to the fund position. As possible cattle proof. On steep slopes and stony areas barbed wire fending or brushwood fending shall be done. Barbed wire fencing or brushwood fencing should be of such height that cattle cannot jump over i.e. 5ft. high.

As soon as fencing is completed the areas shall be cut back departmentally. The cut produce shall be given to the right holders. This operations will be conducted as per year wise prescribed areas. Required soil conservation measures will be taken up simultaneously. All the area allotted to this working circle must be rigidly protected against grazing and fire.

The areas are to be selected carefully for the treatment to take care that they fall in compact and less problematic blocks in a concentrated way. This will make the job of organizations and supervision more convenient. The treatment would consist of cutting back malformed crop of sal on a rotation of 10 years. The places requiring only tending operations

are to be carried out. The treated areas should be kept under strict vigilance through cattle watchers. Well grown saplings will be retained.

#### Method of execution of cutting

After fencing the area cutting shall start from one end and progress systematically. Young healthy and well framed saplings will be left as it is while felling old high stumps and pollards also shall be coppiced. The stumps shall not be more than 15 cms. height.

#### Soil conservation measures

Mostly two types of erosions are met with sheet erosion and gully erosion. Erosion is mostly due to rainwater. The gradual depletion of the forest cover depletes the organic matter content in the soil. The organic matter (humus) improves the aeration of the soil and increase its capacity to conserve moisture and deliver it readily to the plant roots. It improves these soil conditions favouring root penetration and the growth of beneficial micro-organisms and larger organisms. It aids in processing the inorganic constituents of the soil, changing unavailable material into forms available as plant nutrients. It aids in conserving the easily soluble constituents of the soil as nutrient. Erosion speeds up as the more absorptive humus charged top soil is washed off to expose sublayers, which are generally of lower absorptive capacity. The continuous biotic pressure has resulted in the loss of topsoil as well as subsoil exposing the parent rocks at places. In these areas the rains are quick and heavy in the monsoon period. Due to the stripping up off the absorptive top soil exposing the sublayers, 90% of the rainfall is lost as run off thereby aggravating the problem of gully erosion.

#### Prevention of sheet erosion

Sheet erosion shall be prevented by contour trenching. In the sloppy hills several contour trenches are to be dug up to prevent soil loss as well as helping in retention of water. The size of each contour trench should be 15' x 1' x 1'. The longitudinal interval between two contour trenches shall be 10'. The vertical distance between the adjacent contours should not be more than 20'. However, these measurements will vary according to the degree of slopes. The dug out soil shall be kept on the lower side of the trench. On these dug out soil babul, and ber seeds are to be sown just before the monsoon. The contour trenches prove very effective

for checking removal of subsil. It also retains water and help in percolation. The area kept under Rehabilitation working circle must be treated with this.

### Prevention of gully erosion

Innumerable number of gullies are present in all sloppy hills and adjoining, plains almost throughout the division. Gullies may be controlled by terracing on the gully heads. However, according to the terrain it is not a practical solution. It becomes very cumbersome and needs well planning which may be difficult to implement in the field. Hence it is prescribed that gullies are to be stabilized with structures. Again structures may be permanent or temporary. Structures are used in gully control work either to facilitate the establishment of vegetation or to provide protection for those critical sections which can not be adequately protected by other measures. When our aim is only soil conservation and improvement of vegetation, temporary structures are preferred. When aim is to provide for small water reservation and improvement of vegetation, temporary structures are preferred. When it is to provide for small water reservoirs meant for drinking, bathing and minor irrigation purposes brick cement mortar or stone cement mortar structures are required. The temporary checkdams cost less and is cost effective for 5 to 6 years.

Temporary checkdams are made of brush wood, loose stones and wire mesh. Temporary checkdams constructed across the bed of gully have two uses:-

- i) To collect enough soil and water to ensure eventual growth of protective vegetation.
- ii) To check channel erosion until sufficient stabilizing vegetation can be established at that critical point.

The number of temporary checkdams to be constructed across a particular gully will depend on the depth and length of the gully. Low checkdams are more preferred to high checkdams. Low dams are much less subject to failure than high ones, and after they silt up and not away they can be better protected from over falls. With vegetative cover. These temporary dams should be extended far enough into the bottom and sides of the gully to prevent washouts underneath around the ends and shall have sufficient spillway capacity to convey the maximum expected runoff. Generally an apron of rock will be needed immediately

below the dam to protect the structure from the under mining action of water discharged from the spillway. The requisite capacity of the spillway notch can be determined in the field by estimating the probable rate of runoff on the basis of the size and nature of the watershed. The height of the temporary checkdams need not exceed 3 ft.

In order to preserve water after 3 or 4 temporary check dams built along the gully, a permanent structure shall be built when the gully reaches the plain or at suitable sites along the hills. The temporary checkdams will be affected by silting which can be desilted every year. In the process the permanent check dam will remain free of this problem and will contain enough water.

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### CHAPTER-IV

#### PLANTATION WORKING CIRCLE

##### General constitution

This working circle comprises of all the raised plantations, illicitly kuraoned area and other blanks within the demarcated forests of this Division.

##### Area Statement

The total area allotted to this working circle is 6718.42 acres. The Range wise distribution of the area is given below:-

| Name of the Range | Area of Existing Plantations | Area fit for Plantations | Total   |
|-------------------|------------------------------|--------------------------|---------|
| Pakur Damin       | 731.82                       | 2039.25                  | 2771.07 |
| Rajmahal Damin    | 1992.94                      | 2024.41                  | 3947.35 |
|                   |                              |                          | 6718.42 |

##### Management Objectives

- I. To plant up the kuraoned areas and other blanks with suitable fast growing species and some hardy species which can tolerate the adverse biotic and nonbiotic factors.
- II. To tend the existing plantations and harvest the mature plantations.
- III. To develop pasture lands for all villages so as to protect the Rehabilitation and new plantation areas from grazing pressures.
- IV. To plant fodder species to meet the fodder demand.

V. To improve the economy of local people by planting medicinal plants and Agave sislana for rope making.

VI. To provide employment to the local people through these forestry operations.

#### General Prescriptions

Plantations shall be raised according to the approved afforestation techniques. The choice of species shall depend on the locality factors. But main emphasis will be on fruit species, medicinal plants and Agave sisblana which has been tried successfully in the division. As there is a proposal to set up a decertification plant for sisal firbe in the division, a detailed technique for this plantations being given.

In open thorny scub, khair and other miscellaneous species of economic importance may be tried. The coppice shoots of sal and other valuable species nursed and tended. Fire and grazing shall be totally prohibited in the fenced and planted areas.

#### Problems and lines of approach

The total populations of Sahebaganj district as per 1981 census is 10,79,703. The details of populations figures are given in the appendix. Taking into consideration, the pecipita fuel wood consumption is 1 ton per year. So the total requirement or fuelwood in Division is atleast 10.80 lakh tons.

Again the cattle population of Sahebaganj Forest Division. is including sheep, goats and pigs. On the basis of these the fodder plantations as well as pasturelands are to be developed.

The plantation raised in previous years have failed miserably in the division. One of the main reason for their failure is lack of people's involvement. Hence it is prescribed that local village committee should be formed as per Govt's directive before taking up any plantation and they should be involved in to right form planning to harvesting stage.

The following species will be preferred in plantations:-

1. Cassia siamia.
2. Acacia auriculiformis.
3. Eucalyptus species.
4. Subabul.
5. Sisam.
6. Terminalia arjuna.
7. Fruit trees like Mnago, Jamun, Mahua, Aonla, Bel etc.
8. Acacia tortlis.

Chakundi, Acacia and Eucalyptus can serve the purpose to fuel wood. Subabu and babul are to be planted as toddler species. Sisam to be planted along river banks. Arjun tree plantations shall be taken up in consultation with the villages to introduce sericulture. Fruit bearing trees are to be planted throughout the plantation area so that people will be attracted to save the plantations. Good breeds of fruit trees are to be planted to give early return.

Plantation of sisal shall be taken up in compact blocks in drier areas. The technique of sisal plantation is described later.

| Class of stock            | General fodder in kg. | Dry fodder in kg. |
|---------------------------|-----------------------|-------------------|
| Milking cow               | 30-35                 | 3-4               |
| Milking buffaloes         | 40-45                 | 3-4               |
| Dry cows & buffaloes      | 15-20                 | 4-8               |
| Pregnant cows & buffaloes | 40-50                 | 1-2               |
| Growing calves            | 15-20                 | 1-3               |
| Buffaloes working         | 30-40                 | 3-4               |

On the average it can be assumed that the green fodder requirement of a cattle per day is 30 kgs. For the total cattle population villagewise fodder requirements should be worked at and accordingly fodder plantations and pasture lands can be developed.

#### Pasture land Development

The details of 5 types of grasses have been mentioned here. According to the suitability and water availability the plantation of grasses shall be taken up.

#### Anjan *Cenchrus ciliaris*

The grass grows better in light to medium well drained soil. Sowing time is June-July. 5-6 kgs of seeds are needed per hectare. When the grasses attain a height of 6-10 cms. It is cut and used as fodder. In the first year one cut is permissible and in the 2<sup>nd</sup> year, 2-3 cuts can be done. This grass yields 300 to 350 quintal per hectare. This is a perennial grass. Seeds are sown after minor soil working.

#### *Cenchrus setigerus*

This is a good grass for sandyloam soil. Sowing time is June-July. The amount of seed required is 8-10 kg. per hectare. The grass is cut one in the first year and two to three times in also a perennial grass. The fodder yield of this grass is 250 to 300 quintal per hectare.

#### Dinanath (*Pennisetum pedicellatum*)

This grass grows well in clayloam to sandyloam soil. Sowing time is June-July. Amount of seed required per hectare is 8-9 kg. the first cut is done after 90 days.

The second cut is made after 60 days. Grass is cut when it attains a height of 6-10 cms. Fodder yield is 700-800 quintal per hectare. This grass is annual.

#### Stylo (*Stylosanthes humilis*)

This grown well in sandy surface soil. Sowing time is June-July. Seed rate is 6-8 kg. Per hectare. The first cut is done after 70-90 days when the grass attains a height of 6-8 cms. The second cut is made after 60 days. Fodder yield is 200-250 quintal per hectare. This is annual.

#### Bankulthi ( *Alysicarpus Scarabaeoides*)

This grows well in sandy loam, well drained and gravelly soil. Sowing time is June-July. 10-12 kg. perennial grass. A single cut is given in the 2<sup>nd</sup> year, cutting height is 8-10 cms. Fodder yield is 70-125 quintal per hectare.

Local people shall be allowed to cut and take away the grasses at a nominal rate of 10 paise bundle.

#### Sisal plantation techniques

a) Sisal fibre is obtained from *Agave sisalana* ( Ver. name Mooraba, Rambana). It is native of Mexico. The fibre is used where tensile and in manufacture of articles of daily uses such as brushes, carpets, bags etc. India imports about Rs. 50.00 lakhs to 100.00 lakhs worth of sisal fibre annually.

b) Object:- The plantations of sisal is also a soil conservation measure. This requires very less moisture. Hence sisal plantation is a good utilization of soil which is neither fit for agriculture nor tree plantations.

c) Soil and climate requirements :- Sisal has been found to grow on a soil depth of less than one foot. It can develop on any type of soil. It is a drought resistant plant by nature and rainfall of 30"-40" is just sufficient for it.

d) Planting materials:- Sisal can be raised either by bulbils or by suckers. Bulbils are borne on ploes, which appear only once in the life cycle of a sisal plant. These bulbils are small in size and are nurtured in nursery beds of standard size at a spacing of 20x20 cm. for twelve to fifteen months. They are transplanted in fields when they attain the size of 20-30 cm. Suckers are thrown out every year around a sisal plant from the roots of the plant. Suckers

usually become available from the third year at the rate of an average 2-5 per plant. These suckers are transplanted when they attain the size of 25-30 cm. They do not need any rearing up in nursery beds and can be transplanted directly. Normally a sucker is a better planting material. In this plantation only protection against trampling by cattle for two years is needed.

#### e) Soil working

Pits of 30 cm x 30 cm x 30 cm are dug up in the plantation areas during October to March. The soil is heaped by the side of pit for weathering. Alternatively the soil is hoed in strips 150 cm. ( 5 ft.) wide and the cods of earth are up turned for weathering. Soil working may be completely abandoned and the plants can be transplanted directly in the field with the break of monsoon in good sites, where the top soil is light loam or loam. The spacing adapted is of double row of plants that is 1m x 1m. Every double row of 1m. x 1m. is separated by a 2.5m. wide strip to facilitate intercultural operations, harvesting and carriage of leaves. The number of plants per acre is 2300.

#### f) Transplantations:-

Before actual transplanting uprooted suckers or nursery raised bulbils are carried to the transplanting sites. Adventitious roots are trimmed by a sharp axe. Then the outermost layer of leaves are removed exposing the cream color. This process is called root trimming. Trimmed plants should be transplanted immediately. The entire operation from uprooting to transplanting may be completed within 48 hours.

Suckers are transplanted preferably with the onset of monsoon. By July all transplanting operation must be over. The cream colored portion of the bulb is planted in the soil. Soil around is tightly pressed.

#### g) Weeding and hoeing:-

In a strip of 150 cm. Width where the double row of plants have been planted, all weeds may be removed for a period of atleast 2-4 years consecutively. Soil is loosened upto a depth of 150 cm. 20 cm. in the 150 cm. Wide strips without disturbing the soil in the

radius of 15-20 cm. around the plant. This is essential for the healthy growth of plant and to promote production of suckers.

h) Manu ring:-

Sisal plants are calciphilluous. Hence calcium fertilizers must be applied to it, besides nitrogen, phosphorous and potassium. Dose per plant needed.

|                     |   |    |        |
|---------------------|---|----|--------|
| Urea                | : | 28 | grams. |
| Muriate of potash   | : | 8  | grams. |
| Dicalcium phosphate | : | 36 | grams. |

Mixture of fertilizer is supplied in a radius of 15-29 cm. from the centre of the plant after 15-20 days from transplanting. Single super phosphate and dolomite may be substituted for dicalcium phosphate.

Extraction of fibers:-

Sisal plants become mature to yield leaves from the fourth year. In the first harvest only the peripheral leaves are cut leaving 20 leaves in the centre. The unfurled column of leaves in the centre is not taken into count. In the subsequent harvest only 15 leaves are left excluding central column of unfurled leaves.

Leaves are cut by a curved saw with a long handle as close to its are as possible, but without inuring the trunk of the plant. This instrument is called sisal leaf cutter. Sisal leaves contain only 3% fibre. harvested leaves are decorticated on sisal Decorticator machine. The fibre is washed and dried in the sun. Dried fribre is baled in balling machine into 50 kg. or 100 kg, bundles. This now becomes ready for sale. Harvesting of leaves is continued from 4<sup>th</sup> year to 10<sup>th</sup> year after which plants uprooted and new plantations are raised. This usually coincided with the poling, after which plants die out.

Area Demarcation:-

The areas to be planted with sisal should be decided by the concerned Divisional Forest Officer.

## PART-II

### CHAPTER-V

#### SAVAT GRASS WORKING CIRCLE

##### HISTORICAL BACKGROUND: -

Sahebanj has remained more famous for sabai grass than forests since the beginning of the century. Since 1930 various methods of raising and utilizing the sabai grass have been tried in the division. Even the 1938 Gazetteer mentions of sabai scheme and has been reported to be closely linked with the local tribal population. The grass was grown on the lands of pahariyas and Santhals. The Forests Department was actively associated with it as main executing agency since 1970-71 and it remained the main activity of the division till 1983. Two ranges namely Mandro and Rajmahal Sabai Range were created to take up this work.

As per survey and settlement report of the district, 14,370 acres of tribal raiyati land is available for sabai grass plantation. But these two ranges could only 5817.95 acres due to paucity of fund.

In the year 1970-71, the Forest Department started Rs. one lakh "Sabai Grass Rassi Batai Yojna" and it was funded by the welfare department. Gradually the outlay for the scheme increased and the department covered a maximum of 5817.95 acres of plantation. At the following six places, training cum production centres for making of sabai rope were set up by the department.

Name of Block

Centre at

- |               |             |
|---------------|-------------|
| 1. Kathikund  | a) Nalot    |
| 2. Gopikandar | b) Posaldih |
| 3. Littipara  | c) Durgapur |
| 4. Sahebganj  | d) Littipar |
|               | e) Betani   |

Apart fro rope making, the grass was being utilized in paper making also.

But this scheme was abandoned by the welfare department in the year 1983 on the recommendation of the state committee for welfare of the tribals, as the labour cost increased and market dit not commensurate with the expenditure.

#### General Constitution :-

It is proposed to start the scheme of planting, weeding and cutting of sabai baries in the entire division. It is also proposed to revive all abandoned training cum production centres for rope making in the division. The scheme can be taken up with at any additional establishment in all the four ranges.

The detailed scheme with area distribution among ranges and annual targets can be drawn up by the Divisional Forests Officer.

#### General Object of the Management.

The divisional office record shows that this scheme was a tremendous success and was of great attraction. The varlous studies conduced by institutes like A.N. Sinha Institute of Social Studies, by several renowned sociologists and NGO's bear testimony to this and

have conclusively recommended its revival. Thus, though the land meant for this scheme, is not a forest land, still this working circle is being proposed with the following objectives.

- i) To bring nearly 14,000 acres of private lands of tribals under permanent cover.
- ii) To put these unutilized lands into optimum productive use.
- iii) To improve the economic condition of the tribals by providing them implement and royalty for the grasses.
- iv) To establish the credibility of the government among tribals especially pahariyas relating to their welfare.

## PART-II

### CHAPTER-VI

#### WILDLIFE AND WETLAND MANAGEMENT WORKING CIRCLE.

##### Wildlife:-

Though Sahebganj Division does not have any notified wildlife sanctuary or national park. Occasional sighting of wildlife like leopard, hyena, jackals, Bear and other small games has been reported. Especially in the forests of Bunglow Alubera, Dumarchir, Simlong, Maharajpur, bajghi and Sakrogarh, Therefore in these areas, a lot of survey work should be taken up first to know the actual static. Brief technique for this survey is being given.

##### Animal Survey:-

For biological and management needs, in most cases it is not necessary to know the total population size. For example, many censuses are to determine trends or to make comparisons between different areas, season of different treatments.

##### Objectives of animal survey:-

- i) To determine whatever a population of a species is increasing, stable or decreasing i.e. the trend.
- ii) To determine how well introduced stock is doing before and after management intervention, like burning, developing water resources etc.

iii) To compare densities in different ecological zones.

The animal survey may be of direct or indirect type. Since the species occurring in Sahebganja Division are in low density direct count is not possible here. Pellet counts and pugmarks impressions are the suitable methods of indirect survey that can be conducted in this Division. For occasional visits of leopards pugmark impressions can be taken. For the survey of bears and wild boars pellet counting will give a picture of the density of the animals. Gradual reintroduction of these Chitals and Sambhars shall be taken up in due course.

#### Food availability survey:-

Presently for the four major animals bears, Wild boars, Mongoose and langurs food survey shall be conducted.

The food habits of the animals are mentioned here in order to make easier the survey operations.

#### Bears:-

Wild fruits like figs, mangoes, Jamun bel etc. are relished by the bears. During summer season they attack the honey combs located in tree hollowed. Bears main insect food is termite. Bears living near human settlements. have the opportunity to raid the ripening sugarcane and maize crops. They also relish mahua flowers.

The wild boars are omnivores living on crops, roots tubers, insects, snakes etc. They mainly feed early in the morning and late in the evening.

Accordingly, the food availability can be surveyed area wise and a correlation be established amongst the three variables e.g. the abundance of animals, the food availability and the water resources.

### Population Census:-

The human and cattle population in and around the forest area are to be calculated. In accordance with this management must be oriented. Keeping in full view of the requirement of the be oriented. Keeping in full view of the requirement of the villager, which has been dealt in this working plan separately, the conservation measures for the wild lives shall be taken. Food, water resources and habitat improvements are the major areas of wildlife management. Water facilities are to be developed either by digging or bunding small checkdams. Plantations shall be done in conformity with the requirement of wild lives.

### Survey of poaching:-

Poaching areas in the forest can be easily demarcated. Regular antipoaching operation will keep the poaching at a minimum level. Regular persuasion of tribal for not organizing melashikars may yield some better results.

One the whole if the management is done keeping the welfare of the people around mind then conservation of wildlives will also be successful venture.

In addition to the wild life development measures, a vigilant eye is needed to protect the migratory bires in winter visiting the in winter a large number of migratory ducks and cranes visit this area. Presently very little protection is afforded to then resulting in gradual decline of the w9inter visitors. The working plan strongly advocates that heavy antipoaching operations must be taken up in winter to stop shooting of birds have also been sighted at these lakes. Important among then are commented and Red crested Popard. The lakes are also very rich in acquatic floras. The main species identified by Botany Department of Bhagalpur University are-

- 1) marsilia minotex ( floating)
- 2) Salvinia succulata "
- 3) Impomea acquavtica "

- 4) Idmanthemum eristatum "
- 5) Hygroryza aristate "

Chief wild life warden, Bihar vide his letter No. 476 dated 17.02.1990 addressed to Government of Bihar has suggested to connect these tow lakes by canal to keep up the water level in berhale take which otherwise starts drying up by the end of December. The lack of water forces all birds to shift to Pataura lake.

Apart from it, the river ganges falling in Sahebganj district in full of dolphins. But the dept. of Forests and Environment has notified only the areas falling between Bhagalpur to Kahalgaon as Dolphin Sanctuary vide its notification no. 382 dt. 17.08.1991. This area statement needs modification and entire stretch of Ganges from Bhagalpur to Sahebganj-Bengal border should be included in the Dolphin sanctuary. As such DFO, Sahebganj should submit a proposal to the Government.

#### Fossil Park :-

Almost entire Rajmahal hills has been reported to contain rare and peculiar fossil assemblages. Map showing the plant fossil localities in the Rajmahal hill is annexed. The fossil flora of the Rajmahal hill has been chronologically investigated in the past by several renowned geologists and Botanists including McClelland (1850) , Oldham and Merris (1862), Feistmantel (1877), Seward and Sahni ( 1920), Sahni ( 1922,28,31,32,48) etc.

But no attempt in past was made to preserve these rich fossiliferous area. Recognizing these localities as priceless natural heritage, the Forests and Environment Department, Government of Bihar has directed the Divisional Forests Officer, Sahebganj to submit a proposal declaring this area as Fossil Park Sanctuary. The proposal is already in an advanced stage. Once notified, it will be unique park in the country.

## PART-II

### CHAPTER-VII

#### PLANTATION WORKING CIRCLE FOR NON-FOREST LAND

##### General constitution:-

This working circle will play an important role in Sahebganj Division as more vulnerable and equally large areas compared to forest land is either owned by Pahariyas or Santhals or is under the control of Revenue Department.

The latest survey report of the district indicates that more than 39,000 has of land are under jungle-jhar category. This figure was more than 44,000 ha. in the last survey report. The continuous decrease is probably due to settlement of this category of land by pradhans who are empowered under the act to do so.

This working circle will include all such Government lands which can not be otherwise utilized productively. It is also proposed to include private lands of Pahariyas and Sasnthal which are not being used in any form by them. these private lands of the tribals

will taken up for plantation only after there written consent and will belong to them for all purposes .

Objectives of the management:-

- i) To improve the ecology of the area by putting all unutilized barren lands under permanent vegetative cover.
- ii) To meet the local demand of the people for fodder, firewood and small timbers from these are thereby reducing the biotic pressure on forest.
- iii) To provide employment to local people.
- iv) To improve the economy of the local tribals by planting such species like fruit plants, medicinal plants, sisal etc. Which will provide cash to them in short period.
- v) Since most of the forests of the division is sandwiched between pahariyas and Santhal's lands, Plantation on their land with their involvement will provide automatic protection to the forest.

Detailed 20 years perspective plan for plantation on such lands will be prepared by the divisional Forests Officer after detailed preliminary survey of the division regarding availability of such lands. Funding for the Plantation on tribals lands should not be problem as 100% funding can be secured from various schemes like special component programme etc. Since entire cost of such plantation and maintenance for next two years is to be borne by the Government, the involvement of tribals should not be a problem.

Quite a large area of this category has already been convened through National Rural Employment Programme/ Rural Employment Programme / Rural Landless Employment Gurantee Programme/ Jawahar Rojgar Yojna/ Special Component Programme since 1983-84. This scheme will include a plan for its Exploitation and regeneration either natural,

coppice or replanting. A list of such plantations raised in the division is enclosed in the Appendix.

## PART-II

### CHAPTER-VIII

#### MISCELLANEOUS REGULATIONS

##### Fire Protection:-

On silvicultural ground it essential that the entire forest should be protected from fire particularly the younger cut-back coupes, till they are 10 years old. For this, it will be necessary to fire trace the exterior boundary lines, all the roads and the line around 1 to 10 years old worked coupe. Fire tracing, whenever to be done, must be doe in small strips in which all steps have previously been taken to ensure that fire will not sprees outside the strips to be burnt. The exterior boundary liens of all the forests will be effected in the following manner.

- i) All grasses and shrubs growing on the line must be cut in December-January and left lying in situ for drying.

ii) The dry grass, leaves etc. should be swept and collected in the middle of the line in small heaps.

iii) Fire should then be set lightly on both sides of the line keeping the boundary or the edges of the line clear of all inflammable materials to a width determined" by local circumstances so that fire does not spread anywhere outside the cleared line and advances gradually towards the middle of the line.

iv) Burning should be done small strips. If necessary guidelines should be cut at intervals of 20 or 30 meters.

All roadsides must be fire traced to width of 5 to 8 metres. In the case of the Damin, P.W.D. and R.E.O. roads this width will be taken from the boundary pillars and not from the edge of the road. The following precautions will be taken when fire tracing the road.

i) Only one side of the road should be burnt at one time.

ii) Strips of 20 to 30 meters long to be burnt at a time.

iii) All other precautions taken for burning the boundary lines should also be taken while fire tracing the roads.

Coupes of 1 to 10 years should be fire traced by lines 7 meters wide taking the same precautions as for the boundary line burnings. In addition to this such lines will be regularly swept of all dry leaves etc. and kept clear after the burning throughout the fire seasons i.e. middle of February to meddle of June.

Fire watchers will be appointed during the fire season specially for the protection of the younger crops.

General Conservancy:-

The instruction laid down by the Government in their letter no. 1725-IIIF-283-F dated the 19<sup>th</sup>/20<sup>th</sup> of February, 1931 embodied in rule 70 of the forest Manual Vol. II will be followed strictly for the control of the fire conservancy operation in all the RFs and PFs. The fire lines

will be fire traced, maintained, fires fought reports sent and maps and records maintained according to these rules. Special attention of the forest staff is drawn to rule (12) there of which is given below:-

Forest subordinate who see smoke rising anywhere in or near the forest, shall get together with whatever aid they can and proceed themselves to the spot. They must not sit quiet and send somebody else to enquire and report. The forest official who arrives at the spot where a fire is burning shall at once proceed to put it out. Should it be outside his own beat or range he will continue there till relieved by local personnel unless the fire is so strong as to demand all possible help.

No camping should be allowed inside the forest. Due publicity should be made about the dangers of fire, losses caused there by and methods for fire fighting to gain sympathy and support of the local people. Reward system should be there for dedicated work to the staffs and to the local people.

Fire patrols may be appointed during the fire season for watching fire and assisting the permanent staff in fire conservancy measures. The strength may be one fire patrol in every two sub-beats.

#### Fire-Maps:-

A record of fires with fire maps on a scale of 4"=1 mile be prepared for individual felling series. Each map will be for 5 year's period.

#### Quarrying:-

Quarrying is one of the main reasons of destruction of forests in the Division. the problem is more acute in Pakur Range because of the quality of chips this area produces.

There is a need to stop illicit quarrying in the area. Even legally granted leases on forest land should be properly examined in the light of the provision of the Forest Conservation Act, 1980. The areas already worked up and abandoned should be expeditiously reclaimed.

With the enactment of Forest Conservation Act, 1980 and Environment Protection Act 1986 there is enough provision to control the illegal quarrying in the division.

Kuraon:-

Brief History:- Kuraon is a practice legally allowed to pahariyas under the settlement of 1914-28. Though the practice was supposed to be confined to the areas specially set apart for the purpose, it has been done all over the places by them for last 70 years. It is one of the major causes for the degradation of Forests in the division. It is worth-while to quote from Sri B.N. Prasad's Plan to know the causes and extent of damage.

In Pakur Damin the condition were still, worse, and the devastation of forests continued. There are pahariya villages in this subdivision, and Pahariyas are permitted to carry on kuraon under settlement of 1914-28, though it was supposed to be confined to the area specially set apart for the purpose. These such areas were not concentrated on one side of the forest but were scattered all over the place. Paharias were also permitted to sell the timber from the Kuraon area in the prescribed hats. For lack of staff neither illicit fellings in undemarcated protected forests were controlled, nor the encroachment. Later on in 1928-29, three foresters were appointed to mark timbers in Kuraon areas before removal to the hat for sale. This proved successful in checking the theft and encroachment in undemarcated Protected forests. In 1932-33, a survey of kuraon areas was timber left in kuraon areas which could be sold in Hats. As a result of this survey the services of the Kuraon foresters were dispensed with, there being not single pole more than 2"-3" in diameter in any kuraon areas in bungalows surajbera, Hiranpur, Parar kola and Amrapara. The kuraon areas in other bungalows, Simlong and kunjbona has only a few poles of 4" to 6" diameter and it was considered that the beat guards could keep check on removal of these few places. The effect of dispensing with the services of the marking foresters has a detrimental effect, so far as the encroachments were concerned as there was no special staff for this purpose.

Kuraon cultivation thus extended well into the under marcated protected supposed to exist at the time of settlement in 1914-28, there is only acres of these forests left now, which could be demarcted, the forests from the remaining area having disappered during

this period of about 27 years. The spate of destruction has thus been colossal. For checking the above speed of retrogression and destruction the whole area of the undermarked protected forests has now been demarcated. Now to reclaim the barren hills under forests and to regulate the exploitation under scientific management is the task.

The solution of this problem is not as easy one. But nonetheless serious attempt is required to stop this destructive practice. Few suggestions are as following.

- i) To educate the pahariyas about the ill effect of such a practice.
- ii) To once cover up the pahariyas land by tree species so that they do not come to forest land to meet their personal requirement.
- iii) To provide them employment so as to keep them engaged throughout the year.
- iv) To provide them suitable facility and technique so that they practice regular agriculture practices rather than kuron on area earmarked for it.

#### Minor Forest Produce.-

The minor forest produces are being collected by the Forest Development Corporation. The main produce being collected kendu leaf. there is one Range of Minor Forest produce Division. Bhagalpur at Sahebganj to supervise this work. Altogether there are 25 units of kendu leaf in the division and total estimated yield is approx. 22090 standard size.