

EXECUTIVE SUMMARY

1. FOREST TYPE:

- ❖ 3B/c 1b South Indian moist deciduous forests
 - ❖ 3B/c2 Southern Tropical dry deciduous forests
- Group 5 A :Southern Tropical dry deciduous forests
- 5A/c1b Southern Tropical dry deciduous Teak forest
 - 5A/c3 Southern Tropical dry mix deciduous forest

2. GEOLOGY, ROCK AND SOIL:

Geology

The main geological formations in the tract are:

- i) Sub-Recent-Recent : Soil
- ii) Pleistocene-Recent : Laterite
- iii) Upper cretaceous-Eocene : Deccan Trap

Rock

The Deccan Trap covers almost entire tract and consists of horizontal layers of Basaltic lava. The rocks are generally gray to dark green in color.

Soil

The typical soil derived from Deccan Trap is the Regur or Black Cotton Soil. The soil is generally porous and swells considerably on addition of water and develops cracks after loss of moisture. This type of soil is found in flat areas on Western plains. In hilly areas soil is loamy, darkish brown in color, fairly deep and rich in humus.

3. CLIMATE

The climate of the tract is generally hot and humid. The maximum and minimum temperature varies between 35° C. to 12° C.

4. RAINFALL

The rains are brought by South-West monsoon, which generally breaks by 2nd week of June. Regular rainy season commences from 3rd week of June and lasts till middle of October. Heaviest rainfall occurs during July-August.

5. WILD ANIMALS

Animals commonly found in the tract are as under.

- a) Carnivore- Leopard, Jungle cat, Hyena, etc.
- b) Herbivore- Rabbit, Wild boar, etc.
- c) Rodents- Porcupine, Hare, etc.
- d) Birds- Peafowl, Pond Heron, Crow, Crow Pigeon, Drongo, Woodpecker, Red vented bulbul, Robin, Common Maina, Red wattled lapwing, Peratya, Cattle Egret, Cuckoo, Common Kingfisher etc.

6. PAST SYSTEMS OF MANAGEMENT

The Management Plan for the Dahanu Forest Project Division was prepared by Shri. S. B. Khairnar, The Divisional Manager for the period 2006-07 to 2015-16 and implemented. Total area of 39528.67ha. was allocated to following working circles.

Sr. No	Name of working Circle	No. of Compt	Area under Working Circle
1	Protection Working Circle	158	12627.57
2	Plantation Management Working Circle	128	9671.00
3	Improvement Working Circle	89	4005.00
4	Rehabilitation of Degraded Forests Working Circle	148	13138.10
5	Wild-life Conservation Over lapping Working Circle.	160	39528.67
6	Miscellaneous Regulation.	1	87.00
	Total Area (1 to 6)	160	39528.67

7. FUTURE MANAGEMENT SYSTEM

Constitution of working circles:

The important considerations for the constitution of the Working Circle are

- The condition of growing stocks, its quantity and productivity.
- Site quality,
- Crop composition,
- Objectives of management
- Suitability of areas for the particular type of treatment and Optimum utilization of the area to meet the objectives.

8. THE PLAN PRESCRIPTIONS OF THIS DIVISION ARE AS UNDER:

In accordance with the postulates of National Forest Policy of 1988, Forest Policy of Maharashtra 2008 and National Working Plan Code - 2014 ,

Working Circle wise Allocation of Area

Sr.No.	Working Circle	Area (ha.)
1	Plantation Management Working Circle	6454.00
2	Rehabilitation of Degraded Forest Working Circle	6409.00
3	Selection-Cum-Improvement Working Circle	2745.00
4	Protection Working Circle	5681.967
5	Encroached Area Management Working Circle	2714.996
6	Planting Stock Improvement Working Circle	58.500
7	Miscellaneous Working Circle	50.472
8	Wildlife Management (Overlapping) Working Circle	24113.935
9	NTFP (Overlapping)Working Circle	24113.935
10	Soil and Water Resources Management (Overlapping) Working Circle	24113.935
11	Biodiversity Conservation (Overlapping) Working Circle	24113.935

Work Prescribed During the Plan Period

Detailed information of work prescribed during 2016-17 to 2025-2026 and annual target is given in Vol- II.

9. MANAGEMENT PLAN FOR PLANTATION MANAGEMENT WORKING CIRCLE

General Constitution:- Successful Teak plantations raised by Forest Department & F.D.C.M. Ltd up to 2015 which are fit for thinning are allotted to this working circle. Total area allotted of this working circle is **6454.000ha**. It consists of following types of areas.

Objects of management.

Following are the objects of management:

- To carry out tending operations to produce good quality Teak timber.
- To carry out thinning as per the yield table on the basis of age and site quality.

- To improve the crop by carrying out required silvicultural operations so as to achieve growth parameters comparable to those in the yield table.
 - To obtain maximum sustained yield of Teak timber of commercial value.
- To get intermittent yield and revenue

METHOD OF TREATMENT

First thinning will be carried out in 10th year of planting and second thinning will be carried out at 15th year of planting. Second and subsequent thinning in teak plantation will be carried out as per the revised instructions for thinning in Teak Plantation vide Managing Director letter No.PLN/05/F-III/2874, Nagpur dated 02/09/1999. Third and subsequent thinning will be carried out at an interval of 5 years.

ROTATION

The rotation period of Teak in F.D.C.M. Ltd is fixed at 80 years vide Managing Director's Letters No.PLN/11/2004-05/984, Nagpur, dated 2.06.2004. However none of the plantations will complete rotation period during the period of this plan.

SUBSIDIARY CULTURAL OPERATIONS.

The following operations will be carried out in the year following the year of thinning as per requirement.

- Worked area will be protected from fire.
- Felling of badly damaged or broken trees.
- Cutting back of malformed advance growth of teak.

10. MANAGEMENT PLAN FOR SELECTION CUM-IMPROVEMENT WORKING CIRCLE

GENERAL CONSTITUTION:-

This working circle constitutes the following areas :-

- Area of linear strips retained as natural surround of earlier plantation and un-worked areas that need proper tending. Density varying from 0.4 to 0.6 and crop is mainly of miscellaneous species.

- (ii) Partially successful areas tackled after 1987, as under planting of Teak, without removal of over wood and where growth of the established teak plants will be encouraged by removing over wood tree cover and
 - (iv) Area of linear strip near nallah boundary that need proper tending. Crop is mainly of miscellaneous species.
 - (v) Area having adequate natural regeneration.
- Total area allotted to this working circle is **2745.000 ha**.

OBJECTIVES OF MANAGEMENT: -Following will be the objects of management

- (i) To improve the forest in terms of composition and density.
- (ii) To promote natural regeneration of various species.
- (iii) To maintain biodiversity.
- (iv) To remove dead, dying and diseased trees with a view to facilitate establishment of natural regeneration of important species.

METHOD OF EXECUTING THE FELLING

Before commencing marking, a stock map and a treatment map of the area will be prepared by a Gazetted officer or by the Range forest Officer. The method of preparation of treatment map and the marking rules are given below;

Preparation of treatment map: After the coupe is demarcated, the whole area will be thoroughly inspected by a responsible officer not below the rank of a Range Forest Officer, who will prepare the stock map by using standards conventional signs and a treatment map showing the (a) unworkable and (b) the plantable areas.

a) Unworkable areas would include the following :-

- i) Precipitous and very steep slopes.
- ii) Under stocked areas with density below 0.4 including half a chain wide strip surrounding such areas.
- iii) Eroded areas and areas liable to serious erosion.
- iv) One chain wide strip along either side of main water courses, well defined nalas and public roads.

Plantable areas:-

Patches of two Hectare or more in extent, suitable for raising artificial regeneration of Teak and other valuable species will also be shown on the treatment map. The total area of such patches should be at least 5 percent of the area of the coupe. Sites with better quality (III) and gentle slopes should be preferred. Existing plantable gaps should be considered first. The plantable areas will be demarked by giving three tar bands on selected trees on the periphery.

Marking Rules:-

The following rules are laid down for the guidance of the marking officer:-

A) All over the coupe except the plantable areas

- i) All climbers should be cut at the time of marking.
- ii) Bamboos interfering or likely to interfere with the growth of promising young Teak and other timber species should be cut back at the time of marking.
- iii) All sound fruit trees like *mango, Phanas, chinch, moha, tembrun, tad, char, kajush* should be reserved.
- iv) All sound trees of economic and medicinal value such as Bibla, Koshimb, Hirada, Ritha, Kudi, Kala-Kuda, Behada, RaktaRohida, Bel and ArjunSadada should be reserved.

B) In the unworkable areas

- i) All dead trees will be marked for felling.
- ii) In the one chain wide strip on either side of nallas and roads, in addition to the dead trees. Half dead, over mature and very unsound trees may be marked for felling, if their removal is not likely to result in erosion.

C) In the plantable areas all trees will be marked for felling.

D) In the rest of the areas

- i) All dead and over mature unsound, diseased and malformed or otherwise defective trees of Teak and other timber species should be marked for felling irrespective of their girth.

Note :- A tree will be considered as : (i) Unsound when its bole emits a hollow sound when struck with the back of an axe or when it has not got any marketable timber; (ii) Malformed when it is defective or abnormal either in crown or bole and includes conditions

like stag headedness, twists or constrictions by climbers beyond recoument or crookedness etc. (iii) Otherwise defective means conditions other than the above such as heavily burnt by fire at its base and likely to fall down within a couple of years, with general cavities dug in its stem for taking out honey or has many ant-holes or fungus, rots or other diseased portions.

- ii) Timber species i.e. Shisham, Tiwas, Bibla, Hed, Ain, Dhavada, Bondara, Kalam, etc. of and over 90 cm. in girth at b.h. and 105 cm in case of Teak will be marked for felling.
- iii) All live stools of illicitly felled trees should be marked for felling.

11. MANAGEMENT PLAN FOR REHABILITATION OF DEGRADED FORESTS WORKING CIRCLE

GENERAL CONSTITUTION :-

- 1 Tackled and un-tackled area.
- 2 Density below 0.4.
- 3 Area fit for plantation for miscellaneous species and Medicinal Plants.
- 4 Following areas are allocated to this working circle.
 - a) Failed plantation areas fit for the plantation of miscellaneous / local species accounts for an area of **6409.00** ha.

OBJECTIVES OF MANAGEMENT

- To maintain the biological diversity of forests by introducing mixture of species & restore eco-balance.
- To check soil erosion and improve moisture regime.
- To reclaim the area by
 - a. Intensive soil and moisture conservation works.
 - b. Afforestation works to enhance the productivity through artificial regeneration by mainly medicinal plants, the indigenous species of small timber and suitable species of Bamboo.
- To ensure maximum land utilization so as to generate additional revenue and employment.
- To enlist participation of local communities in order to develop awareness regarding medicinal plants, their cultivation, harvesting and marketing.

METHOD OF TREATMENT: -

The primary object of management of these areas is to restore the soil fertility and increase the productivity of land. Therefore, soil and moisture conservation works will be taken up and the areas will be afforested with suitable indigenous species. The species to be planted will depend upon the soil type, its depth and local requirement. The following operations will be carried out

- Planting of suitable species at suitable spacement will be done
- Weeding along-with soil working will be carried out up-to third year after planting viz. three weeding in 1st year, two in 2nd and one in 3rd year.
- These plantations will be subjected to cleaning and climber cutting in the 4th & 7th year.
- Fire tracing works will be taken up extensively in and around the area up to completion of five years of plantation.

12. MANAGEMENT PLAN FOR PROTECTION WORKING CIRCLE

GENERAL CONSTITUTION OF THE WORKING CIRCLE

Unworkable areas on account of reasons such as steep undulating slopes, rocky and refractory sites, nalla banks, river banks & encroachments etc. are included in this working circle. The extent of area of this working circle is **5681.967** ha.

SPECIAL OBJECTS OF MANAGEMENT

- To protect the available crop from any further deterioration.
- To reclaim this area by adequate soil and moisture conservation works along with seed sowing.
- To Protect vegetative cover along the nala and river banks and to minimize further erosion and to keep forest belt intact around water bodies.
- To reclaim encroachment areas and to prevent any further encroachment.
- To ensure maximum land utilization so as to generate additional revenue and employment by conservation of medicinal plants.
- To enlist participation of local communities in order to develop awareness regarding medicinal plants, their cultivation, harvesting and marketing.

METHOD OF TREATMENT

- The primary object is to protect available crop from further deterioration.
- To restore the soil fertility, to check further soil erosion by intensive soil and moisture conservation works along with the suitable tending operation.
- As area allotted to this working circle is unworkable due to various reasons.
- No harvesting work will be as area is unworkable.
- Area will be completely protected from fire, grazing & illicit cutting etc.
- Soil & moisture conservation work like continuous contour trenches, gully plugging and Nalabunding.

Seed sowing on trenches of suitable local indigenous species such as Neem, Khair, and Babul including species of medicinal plants and non-wood forest produce.

13. MANAGEMENT PLAN FOR ENCROACHED AREA MANAGEMENT

WORKING CIRCLE

This working circle comprises of all the encroachment areas of the Dahanu Forest Project Division in which offence is booked and proceedings are pending under Forest Right Act, 2006. The entire encroachment areas are under cultivation. The reported area of this encroachment is **2714.996** ha.

METHOD OF TREATMENT

(A) ENCROACHMENT REGULARIZATION

- i) To survey and demarcate the area which has been approved by the competent authority as eligible for regularization, and hand over the same to eligible encroachers.
- ii) To pursue pending cases of encroachment under Forest Right Act, 2006 and to obtain final judgments in said cases, as expeditiously as possible. If cases are decided in favor of encroachers, the encroached area shall be handed over to encroachers within one month of survey and demarcation by surveyor within one month of said order of getting finality of the order against the encroachers.

RECONILIATION OF RECORDS

- i) Survey of the encroachments and assess the actual extent of encroachment compartment wise.
- ii) Reconciliation of the Forest land records and Revenue records.

- iii) Collect the revised 'Gutt' numbers and each old survey numbers of Forest from TILR office.
- iv) Collect 7/12 of revised Gutt numbers from Talathi and find out the discrepancy, if any, in the entries of 7/12 regarding Forest areas legal status, ownership etc.
- v) All the incorrect 7/12 should be properly mutated as per A-1 entries of Forest land record.
- vi) Divisional Manager will complete records reconciliation process in the shortest possible time and Collector will be consulted regularly in the matter.

(B) ENCROCHMENT EVICTION PHASE

For illegal encroachers and in the cases, decided in favor of Government under Forest Right Act, 2006, it is necessary to first evict the illegal encroachments. These area will be treated in following manner :-

- i) It is necessary to first evict the illegal encroachments. The Forest areas under illegal encroachments will be evicted as soon as possible. The period of the phase will be decided.

EVICTION PROCEDURE

- i) Each encroachments should be scrutinized as per the provision of Forest Conservation Act 1980 and other relevant orders of Maharashtra Government for regularization of encroachments on Forest areas and a list of ineligible encroachers will be prepared by the concerned Range Forest Officer.
- ii) The details of encroachments should be properly recorded in the Forest documents like POR, spot/ panchnama, location map etc.
- iii) The cases of ineligible encroachments should be submitted by the concerned Range Forest Officer to the Assistant Conservator of Forest in charge of the Range under the provision of section 53,54 and 54 (a) of Maharashtra Land Revenue Code 1966.
- iv) The Assistant Conservator of Forests will process the case as per the provisions of section 53,54 and 54 (a) of Maharashtra Land Revenue Code - 1966 and pass the necessary eviction orders.
- v) Provisions of Indian Forest Act 1927 will also be invoked while dealing with encroachment case.
- vi) The local villagers should be motivated to evict their encroachments willingly. In this process, the help of Forest protection committees will be taken.

- vii) The confrontation with local villagers should be avoided while evicting the encroachments.
- viii) In unavoidable circumstances, the help of local Police force will be taken to evict the encroachments.

14. MANAGEMENT PLAN FOR PLANTING STOCK IMPROVEMENT WORKING CIRCLE

GENERAL CONSTITUTION

The areas of Central Teak Nursery Kasa and Seed Production Areas of Khair are included in this working circle.

- **Central Teak Nursery :** The Central Teak Nursery was established in the Dahanu Division in the year 1974-75. The present area under nursery activities is 35.00 Ha.
- Kasa Nursery is the central nursery of the Division which is located in Comptt. No. 239 near village Kasa.
- Teak beds and Root Trainer seedling are raised in the nursery as per the requirement of forestry sector.
- Total 500 Teak beds are raised annually to meet the requirement of plantation programme.
- Also root trainer seedlings are raised as per the requirement for the planting programme of the Division.

SPECIAL OBJECTS OF MANAGEMENT

- i) To supply quality seeds for the plantation activities in the forestry sector.
- ii) To produce seed for superior timber quality, fast growth & higher disease resistance by selection and breeding technology.
- iii) To establish best possible seed producing areas and seed stands.
- iv) To collect quality Khair seeds from seed producing areas.
- v) To produce improved variety of planting stock.
- vi) To raise Khair seedling in the root trainers / polybag nursery and to supply quality planting stock.

METHOD OF TREATMENT

Demarcation of area of SPA

1. Fixing of sign Board at the site.
2. Cleaning - Cutting of unwanted coppice, bushes, climbers etc and removal of the same before harvesting of seed.
3. Affixing numbered, triangular metal labels to seed bearers, once in 5 years, if required.
4. Soil and moisture conservation works as per standard specifications.
5. Green manuring, sowing of sun-hemp seed in three rows on mounds of C.C.T., once in five years.
6. Recording of flowering and fruiting every year.
7. Fire protection works, cutting and burning of fire lines.

15. MANAGEMENT PLAN FOR MISCELLANEOUS WORKING CIRCLE

- The areas which could not be covered in any working circles, since the areas are diverted to other activities such as (A) Roads (B) Buildings (C) Depot are included in miscellaneous working circle.
- This working circle also includes areas of nurseries. The total area under this working circle is **50.472 ha.**

Distributions of the area of this working circle into various Ranges are as under.

Distribution of the area of this Working Circle is as under:

Kasa Depot	30.472 ha.
Buildings & Roads	20.000 ha.
Total	50.472 ha.

16. MANAGEMENT PLAN FOR WILDLIFE CONSERVATION (OVERLAPPING) WORKING CIRCLE

Comprises of entire forest area covered in this Management plan. Total area is 24113.935 ha.

WILD LIFE FOUND IN THE AREA

- a. Carnivore –Hyena, Jackal, Wildcat, Mungoos, etc
- b) Herbivore- Barking deer, Wild pig,etc
- c) Rodents- Three stripped palm squirrel, Hare,etc.
- d) Birds- Peafowl, Pond Heron, Crow, Crow Pigeon, Drongo, Woodpecker, Red vented bulbul, Robin, Common Maina, Red wattledlapwig, Peratya, Cattle Egret, Cuckoo,Common Kingfisher etc.

SPECIAL OBJECTIVES OF MANAGEMENT

- i) To conserve the wildlife found in the area & also to improve their habitat.
- ii) To conserve the biodiversity of the area.
- iii) To develop infrastructure for existence & development of wild animals.
- iv) To educate & motivate people for protection & conservation of wild animals & thereby providing an environment of security to the wild animals.
- v) To reduce man animal conflict situation.
- vi) To train the staff & to strengthen the infrastructure for wild life emergencies.

METHOD OF TREATMENT

- Marking of 2 dead trees / 1 ha. in any felling coupes will be done and reserved.
- Existing water holes will be maintained & new water holes will be created.
- Salt licks will be developed.
- A vigilant watch will be kept on poachers
- Estimation of the wildlife population will be carried out.

17. MANAGEMENT PLAN FOR NON – TIMBER FOREST PRODUCE (OVERLAPPING) WORKING CIRCLE

- This is an over lapping working circle.
- Total area is 241 13.935 Ha.
- Non-Timber Forest produces (NTFP) include all forest produce other than timber and firewood of both plant and animal origin, occurring naturally or sometimes as augmentation in forests.

- As compared to animal products like honey and wax, plant products natural and man-made are much diversified depending upon the availability of forest types
- Species grown in man-made forests and also the extent of forest in a given area or region.
- NTFP is an output from the forest without disturbing the eco-system.
- Reduction in revenue from timber could be compensated.

SPECIAL OBJECTS OF MANAGEMENT

- To manage the Non-Tiber Forest Produce on a sustainable basis.
- To integrate the developmental activities for the welfare of local people to improve their standard of living
- To develop and adopt a package of scientific practices for sustainable extraction and usage of medicinal plants.
- To ensure holistic development and welfare of local people of the region

METHOD OF TREATMENT:

- All climbers except medicinal valuable species interfering with trees and advance growth would be cut.
- Mature and fruit bearing trees should be freed from over head and lateral shade.
- These species will be planted in regular plantation programme as well as gap filling operations.
- Wherever possible plantation of these species be done to the extent of 5 % in the harvesting.

18. MANAGEMENT PLAN FOR SOIL AND WATER RESOURCE MANAGEMENT (OVERLAPPING) WORKING CIRCLE

- This is an overlapping working circle covering the entire area of the division.
- Total area is **24113.935 ha**.
- This tract represents large number of water tanks available in the division.

SPECIAL OBJECTS OF MANAGEMENT:

- To improve the water regime.
- To reduce the soil erosion.

CONTROL MEASURES

- The problem of soil erosion is caused by variety of factors and hence diversified approach is necessary for its control. Following are the two types of measures which can be taken up for reducing soil erosion:
 - i. Preventive measures
 - ii. Remedial measures

PREVENTIVE MEASURES

Prevention is better than cure should be the guiding principle on control of soil erosion, because the damage once done can only be partially recovered later on and that too require heavy investments. Following steps should be taken for preventing occurrence of soil erosion:

- Steep slopes and the areas besides river, nalas and natural water sources should have permanent green cover and no felling should be done in such places.
- Eroded areas should be treated on priority to prevent channel and gully formation to widen and to spread in adjoining areas.
- Grazing should be controlled in such areas & they must be protected from repeated fire.
- Control of human activities which lead to soil erosion in and around forest area by effective enforcement of rules, regulations and relevant laws.

REMEDIAL MEASURES

- In places where soil erosion is taking place very speedily or has already taken place, remedial measures in the form of soil & moisture conservation works are prescribed to be taken up on priority. The approach should be “**Top to bottom**”. After proper field survey, micro watershed wise detailed plan of treatment will be prepared by RFO and to be checked by Assistant Manager. Thereafter, most effective and economical method for soil conservation will be selected and estimates will be prepared. Normally two types of remedial measures will be adopted and both the measures can be applied to the same area simultaneously.

19. MANAGEMENT PLAN FOR BIO-DIVERSITY IMPORTANCE AND CONSERVATION (OVERLAPPING) WORKING CIRCLE

Biodiversity includes the genetic variability (for which different varieties of species have appeared in the course of evolution) and diversity of life forms such as plants, animal microbes, etc. living in a wide range of ecosystems. The area of this working circle with the entire area of the Division (i.e. 24113.935 ha.)

BASIC OBJECTIVES OF CONSERVATION OF BIODIVERSITY

- (a) To maintain essential ecological processes and life supporting systems.
- (b) To preserve the diversity of species.
- (c) To make sustainable utilization of species and ecosystems

20. CHAPTER ON FOREST PROTECTION

Objectives of management:

- To maintain environmental stability through preservation and restoration of ecological balance.
- To conserve natural flora and fauna.
- To maintain and improve natural forest structure and growth.
- To protect the forest from illicit felling, encroachment, fire and grazing
- To sensitize local people about forest protection and involve them in preventing forest offences.
- To raise moral of staff and strengthen their capabilities to deal with illicit cutting and all forest related offences.

Strategy For Forest Protection

- The above objects are achieved by way of strict protection, monitoring and proper plan and its execution. For effective protection there is need to seek the co-operation and involvement of local people.

Strategy should be practical, field oriented, participatory and time bounded

- **Fire Protection**

A detailed scheme for fire protection for this Project Division is prepared annually. Provision for fire protection was made in plantation estimates up to 5 yrs, while in compensatory afforestation up to 10th year cleaning and burning of fire lines at compartment boundary, along the internal roads and keeping firewatchers in fire season was proposed in the Fire Protection Scheme

21. MISCELLANEOUS REGULATIONS

DIVERSIFIED ACTIVITIES

TURN-KEY ACTIVITIES AND CSR PLANTATION

The forest area of this Division are near to developing cities and industrial areas like Palghar, Boisar etc. There is scope for Turn Key related activities and CSR plantations. This will help in employment generation to local populace and also to generate more revenue.

All effort should be made to implement such Turn Key projects and CSR Plantation activities.

VERMI-COMPOST ACTIVITY IN KASA NURSURY

Kasa nursery area is having plenty of leaf litter and raw material that can be collected easily. Such raw material can be effectively used in the preparation of vermicompost . Nowadays, vermicompost have great demand for agricultural crops. This activity will also be helpful in revenue generation.

PREPARATION OF SEEDLING OF MEDICINAL AND ORNAMENTAL PLANTS

Medicinal and Ornamental plant seedling will be raised in Kasa nursery. These plants can be used to fulfill plantation needs of the surrounding areas, like grampanchayat and other govt. organizations. These activities will also be helpful in employment generation and also in revenue generation.

22. HIGHLIGHTS OF THE PLAN

- Regular patrolling by mobile squad and effective monitoring and time to time reporting by forest staff, Police staff.
- Joint patrolling with staff of adjoining forest department. Checking illegal felling, trade of NTFP, Wildlife offences and other forest offences.
- Surprise checks and monitoring activities of habitual offenders.
- Inspection and regular checking of water holes.
- Special patrolling of sensitive areas and creating information system.
- Provide training to field staff in order to operate gadgets like GPS, supply of Mobile sets for easy access of information to Beat Guards, Round Officers, and RFO's in sensitive area. Providing field staff with vehicle for effective patrolling (jeeps, motor, cycle etc)

23. CONCLUSION

- Biodiversity conservation through forest protection and silvicultural operations.
- Protection of flora and fauna of the region.
- Special emphasis will be given on preservation and augmentation of Medicinal and aromatic & RET species.
- Carbon sequestration through improving health of forest by artificial regeneration and providing boost to existing natural regeneration through proper silvicultural techniques.
- Meet the local demand for timber, fuel and poles by adhering scientific techniques of sustainable harvesting practices.

- To provide gainful employment to local populace, through various activities under taken according to prescriptions of this plan.
- To ensure that provisions of FRA and PESA are implemented in its true spirit.
- To create awareness for forest protection and Biodiversity conservation.

24. CONSTRAINS FACED DURING WRITING OF PLAN

- 1) Writing of Management Plan as per new Working Plan Code 2014 was challenging task, as existing field staff of this division is not well conversant to new Working Plan Code.
- 2) As compared to forest department there is no separate wing for preparation of Management Plan.
- 3) Lack of expertise to deal with caring out various types of surveys, laying of sample plots, recording of data, preparation of digital gird map, GIS based mapping and handling of GPS device.
- 4) There is no facility of GIS mapping software and trained IT staff for creating interface between field data and plotting digital data. Due to this reasons every time help from working plan officials was required. Because of their busy schedule, timely digitization of data was not possible.
- 5) Newly recruited forest field and office staff are not trained to deal with the above problems.
- 6) The area is 30 km. away from division head quarter, created difficulty in logistics.
- 7) Capacity building for new Working Plan Code 2014 was not properly dealt by FDCM Ltd.

SPECIAL OBJECT OF MANAGEMENT

- To conserve biodiversity of the area
- To educate people.
- Hunting and poaching shall be stopped and existing wild animals shall be protected
- To protect and develop the existing wild life in this track.
- To maintain & develop infrastructural facilities for wildlife habitat. viz. water hole, anicuts, Meadows etc. where needed.

GENERAL HABITAT MANAGEMENT

- Existing water holes will be maintained and new water holes will be constructed.
- A vigilant watch will be kept on poachers by deploying existing staff and labourers on Machans.
- Census survey for estimation of the wildlife population will be carried out.

HABITAT DEVELOPMENT WORKS

- Water hole development.
- All the perennial water holes will be identified, recorded and marked on range maps.
- De-silting shall be carried out during summer to provide adequate drinking water.
- Creation of additional water holes at regular intervals of the areas.
- Food /Pray base
- Areas along small & large water bodies shall be developed into Meadows for the herbivores

PROTECTION MEASURES FOR WILD LIFE

- Proper sensitization of staff
- Protection from poaching and trade.
- Protection of forest from overgrazing and fire.
- Reducing man-animal conflict.

EXISTING WATERHOLES:

- Water is a major limiting factor during the summer in these forests.

- De-silting, repair or site clearance of waterhole will be carried out as per requirement.
- Number of existing waterholes - 17

NEW CREATION OF WATERHOLES:

- The Waterhole density shall be commensurate with the density of wild animals found in the area.
- Undisturbed Waterholes are available within 2 to 3 Km. of the areas frequented by the large herbivores.

Sr. No.	Range	Compt. No.	Name of new waterhole	Creation Period (Year)
1	Junona	483	Earthen bund	2015-16
2	Mamla	412/411	Cement bandhara	2015-16
3	Mamla	409	Cement bandhara	2015-16

LEGAL POSITION:

- Indian Forest Act, 1927
- The Wildlife (Protection) Act, 1972

MAJOR WILD LIFE FOUND IN THE AREA

- **CARNIVORA** : Tiger, Panther, Wild dog, Wolf, Jackal, Fox and Jungle cat, Sloth bear, etc.
- **HARBIVORA** : Bison, Sambhar, Cheetal, Neelgai, Barking deer, Wild boar etc.
- **RODENTS** : Flying squirrel, Porcupine and Hare, etc.
- **BIRDS** : Peafowl, Common sand grouse, Grey jungle fowl, Painted partridge, Grey partridge, Jungle bush quail, Black breasted quail, Indian bustard quail, Indian button quail, Painted sand grouse, Red spur fowl, Crane, Spotted bill duck, etc.
- **REPTILES** : Cobra, Viper, Pythons, Dhaman, Chameleon, Krait, Ghorpad, Common Lizards, etc.

STATISTICS OF WILD ANIMALS:

- Counting of Tigers & Panthers was done by using Camera Trap.
- Population estimates for various wild animals.
- The statement showing wild animals observed during 21.05.2016 to 22.05.2016 in the year 2016 at water hole count in the West Chanda Forest Project Division, Chandrapur is given below –

Sr. No.	Animals Name	Junona	Mamla	Chichpalli	Khadsangi	Total
1	Spotted deer	43	13	04	22	82
2	Sambhar	14	03	00	02	19
3	Wild Boar	53	20	12	24	109
4	Jungle peafowl	11	03	00	00	14
5	Sloth bear	03	15	01	02	21
6	Monkey	44	79	47	59	229
7	Nilgai	06	00	00	12	18
8	Moongos	03	00	00	00	03
9	Bison	15	02	01	00	18
10	Wild Dog	05	00	00	00	05
11	Wild Cat	01	00	00	00	01
12	Barking deer	03	04	06	13	26
13	Peacock	08	06	00	03	17
14	Porcupine	00	00	00	01	01
15	Total :-	209	145	71	138	563

- The detailed count of wild animals in the month of May – 2017.

Sr. No.	Animals Name	No. of Individuals
1	Sloth bear	01
2	Wild boar	26
3	Sambhar	03
4	Spotted deer	53
5	Bhedki	26
6	Bison	04
7	Nilgai	25
8	Peacock	02
9	Rankombadi	109
10	Wild dogs	06
	Total	255

23. NON TIMBER FOREST PRODUCE MANAGEMENT **WORKING CIRCLE (NTFP)**

- This is an over lapping working circle
- Non-Timber Forest produce (NTFP) include all forest produce other than timber and firewood of both plant and animal origin, occurring naturally or sometimes as augmentation in forest.
- A) Plant origin – Medicinal plant produce, Tendu leaves for Bidi patta, Moha flowers, Gum, etc
- B) Animal origin – Honey, Wax, Lac, etc.
- NTFP is an output from the forest without disturbing the eco-system.
- Reduction in revenue from timber could be compensated.

SPECIAL OBJECT OF MANAGEMENT

- To manage the Non-wood Forest Produce on a sustainable basis.
- To integrate the development activity for the welfare of local people to improve their standard of living.
- To develop and adopt a package of scientific practices for sustainable extraction and usage of medicinal plants.
- To ensure holistic development and welfare of local people of the region.
- To ensure maximum land utilization so as to generate additional revenue and employment.
- To ensure improved quality raw material of Medicinal plant to users agency for manufacturing medicine

UTILIZATION OF THE FOREST PRODUCE

- **TIMBER:** Teak, Bhera, Bija, Saja, etc. are most valuable timber which is used for agricultural implements & household furniture.
- **FIREWOOD:** It is used for cooking as well as for keeping warm in hut during winter.
- **BAMBOO:** Bamboo is utilized for making Mats, Baskets and Building.
- **GRASS:** Thatching grass continues to be extensively used by the Villagers.

- **TENDU LEAVES:** Large numbers of labourers get employment from Tendu leaf plucking bulk of which is exported for the manufacture of Bidi.
- **OTHER PRODUCE:** Edible fruits and flowers of Mahua, Tendu, Char, Khirmi, Jamun, etc.
- **MEDICINAL PLANTS :** Medicinal plant like Awala, Hirda, Ain, Biba, etc. are used for curing various ailments by the local people and therefore occupy an important position in the socio-cultural, spiritual and medicinal arena of local villagers/tribes.
- **MARKET AND MARKETABLE PRODUCE:** Ballarshah on the Central railway is an all India market for Teak and Non-Teak Timber, where timber is sold in large quantity.

LINE OF EXPORT

- **ROADS :** There is an adequate network of Roads through the division these Roads are maintained by Public work department and Zilla Parishad

METHOD OF TREATMENT

- Out of the listed non timber forest produce Behada (*Terminalia bellirica*), Moha (*Madhuca longifolia*) etc. shall give reasonable revenue annually. Hence for the systematic harvesting of the non timber forest produce, following recommendations are made.
- All climbers except medicinal valuable species interfering with trees and advance growth would be cut.
- Mature and fruit bearing trees should be freed from over head and lateral branches
- These species will be planted in regular plantation programme as well as gap filling operations.
- Wherever possible plantation of these species be done to the extent of 5 %.

24. SOIL AND WATER RESOURCE MANAGEMENT

- This is an over lapping working circle.
- Total area of the Working Circle is 23896.930 ha.

SPECIAL OBJECT OF MANAGEMENT

- To improve the water regime.
- To reduce the soil erosion.

SOIL AND WATER CONSERVATION WORKS

- With the increase in biotic interference in view of this adequate soil, moisture and water conservation works will be taken to minimize soil erosion and water scarcity.
- Steep slopes, under stocked areas and the areas eroded or liable to erosion are excluded from working in all working circles.
- Reservation of trees to a width of 20 meter is prescribed along Nala banks, Tanks and Water sources.
- Plugging of small Nala and Gullies will be carried out in under stocked and eroded areas in all the working circles.

Elaborate fire protection measures have been prescribed.

TYPES OF SOIL EROSION

- Raindrop erosion Sheet erosion.
- Rill erosion. Gully erosion

FACTORS AFFECTING SOIL EROSION

- Rainfall Topography
- Soil surface cover Biological factors:

IMPACT (NEGATIVE) OF SOIL EROSION

- Loss in productivity
- Increase of surface runoff & decrease in infiltration
- Reduction in water holding capacity
- Loss of nutrients
- Reduced transport and storage capacity
- Reduction in water supply
- Impact on wild life

PREVENTIVE MEASURES

- Steep slopes and the areas besides river, nalas and natural water sources should have permanent green cover and no felling should be done in such places

- Eroded areas should be treated on priority to prevent channel and gully formation to widen and to spread in adjoining areas.
- Grazing should be controlled in such areas & they must be protected from repeated fire.
- Control of human activities which lead to soil erosion in and around forest area by effective enforcement of rules, regulations and relevant laws.

REMEDIAL MEASURES

- Soil and moisture conservation works. The approach should be from top to bottom.
- Rain water harvesting.

CONSTRAINTS FACED DURING WRITING OF PLAN

- Field staff is not well conversant to new Working Plan Code 2014, so it was challenging task.
- In Forest department there is separate Working Plan wing for Management plan but there is no separate wing in FDCM.
- In FDCM staff there is lack of experience and newly recruited staff to deal with various types of surveys, preparation of digital maps, GIS mapping etc.
- Because of all this we need help from Forest Department, Working plan department. That's why timely digitization of data was not possible.
- Division area is scattered it create difficulty in logistics.