

Executive Summary

1.00 This Management Plan of Yavatmal Forest Project Division envisages scientific management to the entire forest area, which has been transferred to the F.D.C.M. Ltd. vide Government Resolution No. FDC/1094/CN/578/F-5 dated 23th September 1997 and FDC-2014/CN/112/F-5 dated 19.06.2014. The scientific management of the forest areas of Yavatmal Forest Project Division has been proposed in the management plan for a period of ten years from 2016-17 to 2025-26. The total area of this division considered for present Management Plan is 27370.58 ha. (5 Range, 14 Round, 30 Beats) which is distributed in 98 compartments of Reserved Forests and 1 compartment of Protected Forests and lying between latitude of 19° 26' to 20° 42' North and longitude of 77° 18' to 79° 13' East. Out of the total area of division 9407.59 ha area is under PESA.

Yavatmal Forest Project Division was formed in the year 1981 with headquarter at Yavatmal. For revision of the previous management plan and to write up the plan for all these areas, the field works (Enumeration & stock mapping) were started during the year 2015-16 & completed in the same year. This management plan for Yavatmal Forest Project Division broadly follows the National Forest Policy of 1988 and Forest Policy of Maharashtra State 2008 with emphasis on conservation, preservation and protection of forests, wildlife and environment. Besides this, in order to enhance the productivity of the area by converting less valuable forest into a valuable Teak stand, the Silvicultural system of "Conversion to uniform system with supplemental artificial regeneration of Genetically superior stock" as per the recommendations of the committee appointed by Government of India, has been adopted in this management plan for Teak Plantation & Reboisement working circle. The idea is to convert suitable existing uneven aged forests to even aged teak forests to enhance the quality and productivity of the forest.

The present plan is the third Management Plan of Yavatmal Forest Project Division. It deals with an area of 27370.58 Ha. in 99 compartments. Out of which 27016.89 Ha. is Reserved Forest and 353.69 Ha. is Protected Forest. The division constitutes a forest area is in patches and scattered all over the Yavatmal district.

The area is hilly as well as plain. Geological formations pertain to Deccan trap and Basalt rock in varying formation is predominant. The climate is hot and dry. The rainfall per annum is around 911.34 mm. Water supply is scanty. Boundary demarcation

of R.F. is properly done while that of P.F. it is not so. Rights and concessions does not exist in R.F. but Nistar rights exist in P.F. as per village Nistar Patrak.

THE FOREST:- It is of the forest type – Southern Tropical Dry Deciduous Forest.

LABOUR SUPPLY:- It is fairly satisfactory, near about 70% labour force available locally but sometime local labours are not available then it is brought from outside the district.

WILDLIFE : Wildlife such as Tiger, Panther, Hyaena, Wild dog, Sambhar, Cheetal, Nilgai, Wild boar, Barking deer, Spotted deer, Common langoor, Porcupine, Jungle fowl, Painted sand grouse, Pigeon, Painted patridge, Golden back woodpecker, Black drongo etc. are seen in this tract.

PLAN PERIOD: This Management Plan has been prepared for a period of 10 year from year i.e. 2016- 2017 to 2025–2026.

BASIS OF PROPOSALS: In accordance with the postulates of National Forest Policy of 1988 and Forest Policy of Maharashtra 2008, the area management has been done.

The following Working circles have been constituted. As per the new National Working Plan Code 2014 Non-Timber Forest Produce (Overlapping) Working circle, Soil and Water Resource Management (Overlapping) Working circle, Encroachment management working circle, Planting stock improvement Working circle and a chapter on Biodiversity Development and Conservation are newly constituted in this present Management Plan.

- i. Teak plantation Management working circle
- ii. Teak plantation & Reboisement working circle
- iii. Afforestation working circle
- iv. Rehabilitation of degraded forest working circle
- v. Protection working circle
- vi. Planting stock improvement working circle
- vii. Encroachment management working circle
- viii. Area under Miscellaneous regulation
- ix. Bamboo Production (overlapping) working circle
- x. Wildlife Management (overlapping) working circle

- xi. Non-Timber forest produce (overlapping) working circle
- xii. Soil and water resource management (overlapping) working circle

1. PAST SYSTEM OF MANAGEMENT

1.1 BEFORE MANAGEMENT PLAN

In 1969, Forest Development Board within the Forest Department was created to convert large blocks of mixed forests into teak stands by clear felling the miscellaneous forest and planting it with teak.

In 1974, Forest Development Board was succeeded by an autonomous corporate body, the Forest Development Corporation of Maharashtra Limited with its H.Q. at Nagpur. The Forestry Programme as carried out by Forest Development Board was continued by the new body with wider scope. The programme up to 1980 was carried out on agency basis and thereafter with the institutional finance up to 1987.

Waste Land Development Programme was introduced from 1989 to 1991 with institutional finance on assigned areas. For this purpose vide G.R.No.FLD/1087/ 2462 GR/347/F2 dated 6/9/1990 Government of Maharashtra assigned and allotted 15223.73 ha. additional areas for FDCM. Under World Food Programme, some plantation activities were undertaken such as enrichment of failed patches of Teak plantations, bamboo underplanting in Teak plantations and fuel wood plantations in failed Teak plantation patches.

Bamboo underplanting was also carried out with the help of FDCM funds. This arrangement was relaxed from 1992 when FDCM was assigned work of plantations of Production Forestry and Rehabilitation of degraded forests under Maharashtra Forestry Project.

Teak plantation by overwood removal i.e. Conversion to uniform with supplemental artificial regeneration of genetically superior stock was started in the year 2007 and now it is successfully going on.

1.2 FIRST MANAGEMENT PLAN OF YAVATMAL FOREST PROJECT

DIVISION (1995-96 TO 2005-06)

First Management Plan of Yavatmal Forest Project Division was prepared in the year 1995. This Management Plan was written by Shri.D.C.Bhalerao, Divisional Manager,

Forest Project Division, Yavatmal for the period of 1995-96 to 2005-06 to utilized all productive land of earmarked, assigned and allotted areas with a view to improve the growing stock of low density area. For better scientific management of the areas, following working circles were constituted.

| Sr. No | Name of working circles | Area in Ha. |
|--------|--|-----------------|
| 1. | Teak plantations management working circle | 2980.00 |
| 2. | Protection and Soil, Moisture Conservation working circle. | 6940.62 |
| 3 | Bamboo Plantation working circle. | 4294.00 |
| 4 | Mixed Plantation Working Circle | 2247.00 |
| 5 | Afforestation working circle. | 10034.98 |
| 6 | Rehabilitation of degraded forest working circle. | 4449.56 |
| 7 | Miscellaneous working circle. | 481.00 |
| | Total | 31427.16 |
| 8 | Bamboo overlapping working circle | 9254.00 |

1.3 SECOND MANAGEMENT PLAN

The second Management Plan of Yavatmal Forest Project Division was written by Shri.V.B.Thakre, Divisional Manager, Yavatmal Forest Project Division for the period 2006-2007 to 2015-2016 and implemented after approval from Government of India vide letter no.1235/97/(FOR)/1861 Dt-18-10-2006. The total area 31627.01 Ha. under Management Plan was allocated to the following working circle.

DISTRIBUTION OF AREA AMONGST THE WORKING CIRCLES

| S. N. | Shri.V.B.Thakre, Divisional Manager, Forest Project Division, Yavatmal (2006-07 to 201516) | Area handed over to F.D. (Ha) | Balance Area (Ha) | Area taken over (Ha) 2014.15 |
|-------|--|-------------------------------|-------------------|------------------------------|
| 1 | Teak Plantation Management W.C. | 3249.75 | 1130.50 | 2119.25 |
| 2 | Teak Plantation & Reboisement W.C. | 9662.00 | 1988.00 | 7674.00 |
| 3 | Afforestation W.C. | 1517.75 | 578.00 | 939.75 |
| 4 | R.D.F. W.C. | 4148.34 | 289.00 | 3859.34 |
| 5 | Protection W.C. | 10526.75 | 2452.26 | 8074.49 |
| 6 | Area under Miscellaneous Regulation | 1859.58 | 1227.20 | 632.38 |
| 7 | Bamboo production (OL) W.C. | 662.84 | 127.00 | 535.84 |
| | Total | 31627.01 | 7791.96 | 23835.05 |
| 8 | Wildlife Management (OL)W.C. | 31627.01 | -- | -- |

Successful Teak Plantation included in TPMWC and area taken over is distributed in other working circle

3535.53

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1.4 RESULT OF SECOND MANAGEMENT PLAN

1.4.01 TEAK PLANTATIONS MANAGEMENT WORKING CIRCLE

Successful old established Teak plantations raised by Forest Department and FDCM Ltd. which were fit for thinning were allotted to this working circle. The total area of this working circle was 3249.75 Ha. It consists of following types of areas.

1. Successful old Teak plantations raised by FDCM. Ltd from 1984 to 2001
2. Successful old Teak plantation raised under Forest Development Tax Scheme with the area 1745.00 Ha.
3. Successful old Teak plantation raised under EGS Scheme with an area 520.00 Ha.
4. Successful old Teak plantation raised under Maharashtra Forestry Project with an area 259.25.00 Ha.
5. Successful old Teak plantation raised under NABARD with an area 350.50 Ha.

SPECIAL OBJECTIVES OF MANAGEMENT

1. To properly thin the Teak plantation for silvicultural improvement of the stand and obtain revenue from the produce realized in thinning.
2. To get intermittent yield and revenue.
3. To carry out tending operations to produce good quality and big size Teak timber.
4. To obtained maximum sustained yield of teak timber of commercial value.

METHODS OF TREATMENT

The working circle prescribed tending operation mainly thinning of teak plantations with specific thinning cycle. Tending operations such as cleaning and thinning were carried out in established plantation raised after removal of overwood. This had resulted in improvement in the growth of the established regeneration. The objective of management has been fulfilled to a great extent. Annual series of even aged Teak plantations formed top canopy.

During last plan period, the details of work carried out under this Working Circle are given as under :

| Sl. No. | Year of Working | Area as per Management Plan (Ha) | Area H.O. (Ha) | Area Balance (Ha) | Area worked (Ha) | Reason for shortfall |
|---------|-----------------|----------------------------------|----------------|-------------------|------------------|---|
| 1 | 2006-07 | 373.00 | 175.00 | 198.00 | 151.00 | In Remaining area was unfit due to less besal area. |
| 2 | 2007-08 | 743.00 | 272.00 | 471.00 | 351.00 | In Remaining area was unfit due to less besal area. |
| 3 | 2008-09 | 302.00 | 57.00 | 245.00 | 170.00 | In Remaining area was unfit due to less besal area. |
| 4 | 2009-10 | 685.00 | 140.00 | 545.00 | 267.50 | In Remaining area was unfit due to less besal area. |
| 5 | 2010-11 | 480.00 | 199.50 | 280.50 | 120.50 | In Remaining area was unfit due to less besal area. |
| 6 | 2011-12 | 373.00 | 130.00 | 243.00 | 225.00 | In Remaining area was unfit due to less besal area. |
| 7 | 2012-13 | 764.00 | 157.00 | 607.00 | 210.00 | In Remaining area was unfit due to less besal area. |
| 8 | 2013-14 | 385.25 | 57.00 | 328.25 | 145.00 | In Remaining area was unfit due to less besal area. |
| 9 | 2014-15 | 817.50 | 140.00 | 677.50 | 345.00 | In Remaining area was unfit due to less besal area. |
| | Total | 4922.75 | 1327.50 | 3595.25 | 1985.00 | |

The percentage of worked area is 55.21%

Average yield per hector :-

Expected = Poles – 120 Nos., 2 M³(Approx)

Actual = Timber – 1.588 M³, Beat- 0.34 Beats

RESULTS : Due to tending and thinning operations crop quality is improved. Sustained yield of teak timber of commercial value is obtained. The crop thinned has responded well to the thinning regime and intermittent yield and revenue obtained hence the working circle has been retained as Teak Plantations Management Working Circle in current management plan.

1.4.02 TEAK PLANTATIONS AND REBOISEMENT WORKING CIRCLE

Total area identified for this working circle was 9662.00 ha. and it included following areas :

- A. Untackled forest areas which were fit for raising teak plantations.
- B. Areas which were under planted by miscellaneous species but failed, which otherwise potentially suitable for raising good quality teak plantations.

C. Failed teak plantation where human failures and natural calamity was the reasons for failures, otherwise these sites were potentially fit for raising teak plantation.

D. Teak Plantations raised from 2002 rains onwards that require tending were included in this working circle.

SPECIAL OBJECTS OF MANAGEMENT WERE AS UNDER :

1. To enhance the productivity of area by converting less valuable forest into valuable Teak stand.
2. To convert existing uneven aged forest to even aged Teak forest.
3. To convert gradually coppice forest into high forest.
4. To provide employment to the local people.

METHODS OF TREATMENT: In A, B, C type areas the silvicultural system of "Conversion to uniform system with supplemental artificial regeneration of genetically superior Stock" as suggested by Government of India was adopted. The broad prescriptions for overwood removal for raising teak plantation had been adopted as per the guidelines of Government of India issued vide Managing Director Letter No.PLN/26(2001-02)/5154 Dt-04 Feb 2002.

In D type area the cleaning & thinning operations had been carried out as per the existing practices in F.D.C.M. Ltd. Tending and cleaning operation had been carried out in fourth year and seventh year while first thinning had been carried out in the tenth year and subsequent thinning in five year interval.

During last plan period, the details of work carried out under this Working Circle are given as under :

| S. N. | Year of Working | Area as per M.P. (Ha) | Area H.O. (Ha) | Reboisement Area (Ha) | TPT Area (Ha) | Balance Area (Ha) | Worked Area (Ha) | Reason for shortfall |
|-------|-----------------|-----------------------|----------------|-----------------------|---------------|-------------------|------------------|---|
| 1 | 2006-07 | 1133.00 | 128.00 | 260.00 | -- | 745.00 | 160.00 | In remaining area Crop girth was less than C.C.G. |
| 2 | 2007-08 | 1095.00 | 215.00 | 200.00 | -- | 680.00 | 63.00 | In remaining area Crop girth was less than C.C.G. |
| 3 | 2008-09 | 1100.00 | 115.00 | 195.00 | 50.00 | 740.00 | 72.00 | In remaining area Crop girth was less than C.C.G. |
| 4 | 2009-10 | 1167.00 | 140.00 | 262.00 | 110.00 | 655.00 | 81.50 | In remaining area Crop girth was less than C.C.G. |

| | | | | | | | | |
|---|---------|---------|---------|---------|--------|---------|---------|---|
| 5 | 2010-11 | 1120.00 | 172.00 | 170.00 | 135.00 | 643.00 | 416.00 | In remaining area Crop girth was less than C.C.G. |
| 6 | 2011-12 | 1010.00 | 128.00 | 193.00 | -- | 689.00 | 586.00 | In remaining area Crop girth was less than C.C.G. |
| 7 | 2012-13 | 1017.00 | 181.00 | 207.00 | -- | 629.00 | 409.00 | In remaining area Crop girth was less than C.C.G. |
| 8 | 2013-14 | 847.00 | 147.00 | 217.00 | -- | 483.00 | 441.00 | In remaining area Crop girth was less than C.C.G. |
| 9 | 2014-15 | 636.00 | 65.00 | 155.00 | -- | 416.00 | 290.00 | In remaining area Crop girth was less than C.C.G. |
| | Total | 9125.00 | 1291.00 | 1859.00 | 295.00 | 5680.00 | 2518.50 | |

OWR 1126.50 Ha.

Improvement Work 1392.00 Ha.

The percentage of worked area is 44.34%

Average yield per hector :-

Expected = Timber- 10.000 M³ (Approx)

Actual = Timber – 9.588 M³, Beat- 7.53 Beats

The successful Teak plantations raised during plan period have been included in Teak Plantation Management Working Circle in the next plan.

RESULTS :- The main objectives under this working circle was to convert low value uneven aged mixed forest to uniform even aged stand of Teak removal of overwood and planting the area with superior teak was the main prescriptions. During the plan period, the teak plantations raised under this working circle was 1126.00 Ha. The results of Teak plantations are highly successful. This areas of successful Teak plantations have been allocated to the Teak plantation management working circle in the next management plan. The plantations raised under this working circle shows good results and productivity of the area is enhanced, hence this working circle is continued in this Management Plan.

1.4.03 AFFORESTATION WORKING CIRCLE

Tackled and un-tackled area with density below 0.4 and area fit for plantation of miscellaneous species other than Teak was included in this working circle. The plantations of miscellaneous species were also included in this working circle, which need proper further treatment. The extent of area included in this working circle was 1517.75 Ha. and divided in two categories -

- The area tackled and successful plantations, where plantations were not needed. The extent of such area 237.75 ha.

b) The area tackled and unsuccessful plantations, where plantations were needed. The extent of such area 1280.00 ha.

SPECIAL OBJECTS OF MANAGEMENT WERE AS UNDER :

1. To control soil erosion and improve moisture regime.
2. To improve the productivity of land through intensive soil and moisture conservation works and afforestation works by artificial regeneration consisting of mainly indigenous species of small timber, firewood and fodder value to meet the local demand.
3. To maintain the biological diversity of forests by introducing suitable mixture of species and restore eco-balance.

METHOD OF TREATMENT: The following operations had been carried out-

- (i) Removal of dead and dying trees as a part of hygienic operation.
- (ii) Tending of coppice growth, if any with preference to fruit trees and important species.
- (iii) Intensive soil and moisture conservation works had been carried out in the area.
- (iv) Afforestation with suitable species.

During last plan period, the details of work carried out under this working circle are given as under

| S.N. | Year of Working | Area as per Management Plan | Actual work done | Reason for shortfall |
|------|-----------------|-----------------------------|------------------|--|
| 1 | 2006-07 | 205.00 | 75.00 | 88.00 Ha. area was handed over to F.D. and remaining area covered by coppice crop |
| 2 | 2007-08 | 200.00 | 60.00 | 100.00 Ha. area was handed over to F.D. and remaining area covered by coppice crop |
| 3 | 2008-09 | 212.75 | 57.75 | 105.00 Ha. area was handed over to F.D. and remaining area covered by coppice crop |
| 4 | 2009-10 | 170.00 | 45.00 | 45.00 Ha. area was handed over to F.D. and remaining area covered by coppice crop |
| 5 | 2010-11 | 125.00 | 40.00 | 80.00 Ha. area was handed over to F.D. and remaining area covered by coppice crop |
| 6 | 2011-12 | 85.00 | 25.00 | 50.00 Ha. area was handed over to F.D. and remaining area covered by coppice crop |
| 7 | 2012-13 | 155.00 | -- | 50.00 Ha. area was handed over to F.D. and remaining area covered by coppice crop |
| 8 | 2013-14 | 155.00 | 130.00 | 25.00 Ha. area was handed over to F.D. |
| 9 | 2014-15 | 125.00 | -- | 35.00 Ha. area was handed over to F.D. and remaining area covered by coppice crop |
| | Total | 1432.75 | 432.75 | |

The percentage of worked area is 30.20%

Average yield per hector :-

Expected = Nil

Actual = Timber- 0.594 M³, Poles – 15 Nos, Beat- 0.423 Nos.

RESULTS : During the plan period, the total area tackled for hygienic improvement work was 432.75 Ha. In tackled areas hygienic improvement work and tending operations were carried out. In suitable areas Afforestation is carried out. Biological diversity of Forest is maintained and areas are reclaimed by intensive soil and moisture conservation works hence this working circle is continued in this Management Plan.

1.4.04 REHABILITATION OF DEGRADED FOREST WORKING CIRCLE

Area allotted to this working circle was consists of degraded forest areas with good rooted stock of teak and other miscellaneous species and the density is generally below 0.4 area was under stocked with stunted growth of miscellaneous species. Some unsuccessful teak plantations were also included in this working circle where plantation was suppressed due to inferior growth. The area can be rehabilitated by establishing coppice growth, supplemented by artificial regeneration in available gaps. The extent of area of the working circle was 4148.34 ha.

SPECIAL OBJECTS OF MANAGEMENT WERE AS UNDER :

1. To satisfy the local demand in respect of small size timber, poles and firewood without affecting adversely the productivity of the site.
2. To increase the proportion of bamboo and other industrially valuable species by suitable treatment and planting.
3. To obtain the maximum sustained annual yield.
4. To improve moisture regime in the soil.
5. To improve the condition of degraded forest area.

METHOD OF TREATMENT: The following operations had been carried out

- i] Removal of dead and dying trees as a part of hygienic operations.
- ii] Tending of coppice growth.
- iii] Intensive soil and moisture conservation works had been carried out.
- iv] Gap planting with suitable species.

During last plan period, the details of work carried out under this working circle are given as under :-

| S.N. | Year of Working | Area as per Management Plan | Actual work done | Reason for shortfall |
|------|-----------------|-----------------------------|------------------|---|
| 1 | 2006-07 | 351.00 | -- | 35.00 Ha. area was handed over to F.D. remaining area covered with coppice growth |
| 2 | 2007-08 | 335.00 | 165.00 | 35.00 Ha. area was handed over to F.D. and remaining area covered with coppice growth |
| 3 | 2008-09 | 350.00 | -- | 55.00 Ha. area was handed over to F.D. and remaining area covered with coppice growth |
| 4 | 2009-10 | 310.00 | -- | 25.00 Ha. area was handed over to F.D. and remaining area covered with coppice growth |
| 5 | 2010-11 | 320.00 | 97.00 | 73.00 Ha. area was handed over to F.D. and remaining area covered with coppice growth |
| 6 | 2011-12 | 514.34 | 424.00 | 25.00 Ha. area was handed over to F.D. and remaining area covered with coppice growth |
| 7 | 2012-13 | 551.00 | 205.00 | 41.00 Ha. area was handed over to F.D. and remaining area covered with coppice growth |
| 8 | 2013-14 | 525.00 | 155.00 | Remaining area covered with coppice growth |
| 9 | 2014-15 | 452.00 | 330.00 | Remaining area covered with coppice growth |
| | Total | 3708.34 | 1376.00 | |

The percentage of worked area is 37.10%

Average yield per hector :-

Expected = Nil

Actual = Timber - 0.880 M³, Poles- 30 Nos., Beat - 0.90 Nos

RESULT :- Hygienic improvement work and tending operations, soil and moisture conservation works and gap planting with suitable species were carried out. Due to which moisture regime is improved and condition of degraded forest is improved hence this working circle is continued in present Management Plan.

1.4.05. PROTECTION WORKING CIRCLE

This working circle includes steep slopes, exposed rocks, refractory area, water logged areas and nalla bank areas etc. Area allotted to this working circle was 10526.75 Ha.

SPECIAL OBJECTS OF MANAGEMENT WERE AS UNDER

1. To maintain and improve quality and density of forest
2. To maintain the biodiversity
3. To protect the available crop from any further deterioration
4. To protect vegetative cover along with Nalla and river bank and to minimize further erosion and to keep forest belt intact around water bodies

METHODS OF TREATMENT

In this working circle soil and moisture conservation measures such as C.C.T. of size 60 cm x 30 cm at an interval of 8 to 12 meters had been carried out depending upon the topography of the area. Nalla bunding, Gully plugging had been undertaken at suitable sites. Seed sowing of various species like *Agave spp.* suckers, *Azadirachta indica*, *Ailanthus excelsa*, *Gliricidia spp.* had been carried out on C.C.T.

RESULTS: The crop is protected from further deterioration as well as quality and density of forest is improved. Area was protected from fire, grazing and illicit cutting by regular patrolling, hence this working circle is retained in current Management Plan.

1.4.06 MISCELLENEOUS REGULATION

The areas reserved for Timber and Firewood depot, Nurseries, Seed Plot, area under various project and the areas which could not be covered in any working circle were included in this regulation. The extent of area was 1859.58 Ha.

Objects of Management were as under :

1. To maintain existing Buildings, Roads, Jungle and Sale depots and Nurseries

2. To maintain roads for extraction of forest produce as well as for intensive patrolling of forest areas for effective protection.

RESULTS : Buildings, Roads, Jungle and Sale depots were maintained as and when required depending upon the availability of funds.

As the harvesting works are carried out every year and the forest produce obtained are being transported to sale depots for its final disposal by open auction, sale depots will be maintained and are included in Miscellaneous regulations in the third Management Plan.

1.4.07. BAMBOO PRODUCTION (OL) WORKING CIRCLE

This working circle includes mainly the area of successful Bamboo plantation raised from 1982 to 2000. All established Bamboo plantations which are capable of giving marketable bamboo were included in this working circle. The total area allotted to this working circle was 919.84 ha.

SPECIAL OBJECTS OF MANAGEMENT WERE AS UNDER :

1. To enhance the productivity of bamboo
2. To sustainably harvest bamboo area following established silvicultural system
3. To meet the demand of the local population

METHOD OF TREATMENT:

Bamboo had been harvested on a three years cycle basis so as to remove congestion in the bamboo clumps and enhance the productivity on a sustained basis. The crop had been treated on clump basis i.e. each clump had been treated independently as per the requirement. A cutting cycle of 3 years had been fixed and as 1st and 2nd year Bamboo culms provide food and nourishment to the rhizomes under soil the same had not been cut. They are also deficient in lignifications and were brittle and highly vulnerable to fungal attack. Only 3rd year culms were fit for harvesting.

During last plan period, the details of work carried out under this working circle are given as under :-

| S.N. | Year of Working | Area as per Management Plan (Ha) | Actual H.O. (Ha) | Area Balance (Ha) | Area worked (Ha) | Reason for shortfall |
|------|-----------------|----------------------------------|------------------|-------------------|------------------|---|
| 1 | 2006-07 | 135.00 | 25.00 | 110.00 | 100.00 | In remaining area saleble Bamboo was not available hence area was unfit for working |

| | | | | | | |
|---|---------|---------|--------|---------|---------|---|
| 2 | 2007-08 | 480.00 | 22.00 | 458.00 | 321.00 | In remaining area saleble Bamboo was not available hence area was unfit for working |
| 3 | 2008-09 | 304.84 | 80.00 | 224.84 | 159.84 | In remaining area saleble Bamboo was not available hence area was unfit for working |
| 4 | 2009-10 | 135.00 | 25.00 | 110.00 | 85.00 | In remaining area saleble Bamboo was not available hence area was unfit for working |
| 5 | 2010-11 | 480.00 | 22.00 | 458.00 | 187.00 | In remaining area saleble Bamboo was not available hence area was unfit for working |
| 6 | 2011-12 | 304.84 | 80.00 | 224.84 | 200.00 | In remaining area saleble Bamboo was not available hence area was unfit for working |
| 7 | 2012-13 | 135.00 | 25.00 | 110.00 | 90.00 | In remaining area saleble Bamboo was not available hence area was unfit for working |
| 8 | 2013-14 | 480.00 | 22.00 | 458.00 | 316.00 | In remaining area saleble Bamboo was not available hence area was unfit for working |
| 9 | 2014-15 | 304.84 | 80.00 | 224.84 | 100.00 | In remaining area saleble Bamboo was not available hence area was unfit for working |
| | Total | 2759.52 | 381.00 | 2378.52 | 1558.84 | |

The percentage of worked area is 65.54%

Average yield per hector :-

Expected = 800 Nos. (Approx)

Actual = Bamboo -730 Nos. Bamboo bundle – 4 Nos.

RESULT :- In Harvesting of bamboo 730 per ha. yield was obtained. Demand of the local population is fulfilled. It is noticed that there is congestion in some bamboo clums. The bamboos of this clums could not be harvested. Such area are proposed for clums cleaning. In some areas no saleable bamboos are available. It is essential to enhance the productivity of bamboo and to meet the demand of local population this working circle is continued in current Management Plan.

1.4.08. WILDLIFE (OL) WORKING CIRCLE

Being the overlapping working circle the entire area 31627.01 Ha was allotted to this working circle. General condition of vegetation was described in the respective working circles. The position of wildlife in Yavatmal division was fairly good. The following operations were prescribed during plan period.

1. Monitoring and Wildlife Census as per the guidelines of wildlife wing.

2. Regular maintenance and protection of existing water holes.

3. Creation of new water holes.

The census of wild animals has been carried out. As per the census for the year 2011 and 2015, the presence of wild animals in Yavatmal Forest Project Division is as under.

| Sr No. | Name | Scientific Name | 2011 Census count | 2015 Census count |
|--------|----------------|--------------------------------|-------------------|-------------------|
| 1 | Tiger | <i>Panthera tigris</i> | -- | 5 |
| 2 | Peacock | <i>Pavo cristatus</i> | 235 | 209 |
| 3 | Fox | <i>Vulpes bengalensis</i> | 17 | 5 |
| 4 | Neelgai | <i>Borelaphus tragocemelus</i> | 176 | 239 |
| 5 | Wild boar | <i>Sus cristatus</i> | 178 | 202 |
| 6 | Hare | <i>Lepus nigricolles</i> | 18 | 22 |
| 7 | Owl | <i>Athena brama</i> | 2 | 6 |
| 8 | Langur/ Monkey | <i>Presbytis entellus</i> | 279 | 328 |
| 9 | Wild dog | <i>Cuon alpinus</i> | 9 | 11 |
| 10 | Mongoose | <i>Herpestes edwardsii</i> | 5 | 3 |
| 11 | Serpent Eagle | <i>Spilornis cheela</i> | 1 | 4 |
| 12 | Jungle Cat | <i>Felis chaus</i> | 6 | 6 |
| 13 | Cheetal | <i>Axis axis</i> | 10 | 187 |
| 14 | Hyena | <i>Hyaena hyaena</i> | -- | 2 |
| 15 | Sambhar | <i>Rusa unicolor</i> | 31 | 42 |
| 16 | Barking deer | <i>Muntiacus vaginalis</i> | 33 | 51 |
| 17 | Chausinga | <i>Tetracerus quadricornis</i> | 2 | -- |
| 18 | Bat | <i>Desmodus rotundus</i> | 3 | -- |

During plan period following habitat augmentation works were carried out in CAMPA fund.

| S.N. | Range | Creation of new water hole (Nos) | Desilting of water holes |
|------|----------|----------------------------------|--------------------------|
| 1 | Yavatmal | 1 | 1 |
| 2 | Ladkhed | 1 | 2 |
| 3 | Pusad | -- | 2 |
| 4 | Mohada | 1 | 4 |
| 5 | Wani | -- | 2 |

RESULT :- Desilting of existing waterholes, creation of new water holes, database collection was carried out. Due to scientific management of forest and wildlife habitat, abundant presence of wildlife is noticed in Wani, Mohada & Yavatmal Ranges.

To ensure wildlife protection and conservation of wildlife in the forest of the division the working circle is continued in current Management Plan

1.5 THIRD MANAGEMENT PLAN, PERIOD 2016-17 TO 2025-26

1.5.01 PROPOSED WORKING CIRCLES AND THEIR AREA

DISTRIBUTIONS FOR PRESENT MANAGEMENT PLAN :

Statement showing the distribution of areas in different working circles for the current plan (2016-2017 to 2025-2026)

| S. N. | Name of the working circle | Total |
|-------|---|-----------------|
| 1 | Teak Plantation Management W.C. | 3235.75 |
| 2 | Teak Plantation & Reboisement W.C. | 8386.23 |
| 3 | Afforestation W.C. | 1816.39 |
| 4 | Rehabilitation of Degraded Forest W.C. | 3296.21 |
| 5 | Protection W.C. | 9065.12 |
| 6 | Planting stock Improvement W.C. | 18.00 |
| 7 | Management Plan for Encroachment W.C. | 311.13 |
| 8 | Area under Miscellaneous Regulation | 800.75 |
| 9 | Bamboo production overlapping W.C. (M.P.) In standing forest area | 441.00 |
| | Bamboo production overlapping W.C. (I.P.) In Teak plantation area | *120.00 |
| | Total | 27370.58 |
| 10 | Wildlife Management (OL)W.C. | 27370.58 |
| 11 | Soil and Water Resources Management (OL)W.C. | 27370.58 |
| 12 | Non-Timber Forest Produce (OL) W.C. | 27370.58 |

* Bamboo Overlapping Area

1.5.02 DISTRIBUTION OF WORKING CIRCLES AMONG RANGES:

Total area of Yavatmal Forest Project Division is divided into five ranges. The working circlewise distribution of area in different ranges has been given as under:

| S. N. | Name of the working circle | Range (Area in Ha.) | | | | | Total |
|-------|---|---------------------|----------------|----------------|----------------|----------------|-----------------|
| | | Yavatmal | Ladkhed | Pusad | Wani | Mohada | |
| 1 | Teak Plantation Management W.C. | 404.00 | 423.50 | 328.50 | 584.00 | 1495.75 | 3235.75 |
| 2 | Teak Plantation & Reboisement W.C. | 2025.21 | 1749.02 | 1439.00 | 790.00 | 2383.00 | 8386.23 |
| 3 | Afforestation W.C. | 666.60 | 35.00 | 144.79 | 422.00 | 548.00 | 1816.39 |
| 4 | Rehabilitation of Degraded Forest W.C. | 375.92 | 1165.00 | 427.50 | 794.79 | 533.00 | 3296.21 |
| 5 | Protection W.C. | 2440.25 | 2037.72 | 380.15 | 1289.04 | 2917.96 | 9065.12 |
| 6 | Planting stock of Improvement W.C. | -- | 18.00 | -- | -- | -- | 18.00 |
| 7 | Management Plan for Encroachment W.C. | 44.20 | -- | -- | 266.93 | -- | 311.13 |
| 8 | Area under Miscellaneous Regulation | 44.84 | 432.80 | 102.33 | 13.45 | 207.33 | 800.75 |
| 9 | Bamboo production overlapping W.C. (M.P.) In standing forest area | -- | 100.00 | 85.00 | 145.00 | 111.00 | 441.00 |
| | Bamboo production overlapping W.C. (I.P.) In Teak plantation area | 30.00 | -- | -- | 15.00 | 75.00 | *120.00 |
| | Total | 6001.02 | 5961.04 | 2907.27 | 4305.21 | 8196.04 | 27370.58 |
| 10 | Wildlife Management (OL)W.C. | 6001.02 | 5961.04 | 2907.27 | 4305.21 | 8196.04 | 27370.58 |
| 11 | Soil and Water Resources Management (OL)W.C. | 6001.02 | 5961.04 | 2907.27 | 4305.21 | 8196.04 | 27370.58 |
| 12 | Non-Timber Forest Produce (OL) W.C. | 6001.02 | 5961.04 | 2907.27 | 4305.21 | 8196.04 | 27370.58 |

* Bamboo Overlapping Area

1.5.03 TEAK PLANTATION MANAGEMENT WORKING CIRCLE

All successful teak plantations raised by FDCM Ltd., upto 2015 under various scheme which will due for thinning and tending are allotted to this working circle. Area allotted to this Working Circle is 3235.75 Ha. Which includes established plantation raised from 1984 to 2009. The area is 2404.25 Ha. and the young plantations raised from 2010 to 2015. The area is 831.50 Ha. Thus the total area allotted is 3235.75 Ha. which is distributed in 47 Compartments.

METHOD OF TREATMENT: First thinning will be carried out at the end of 10th year of planting as per standard silvicultural practice of teak plantation and as per the instruction of MD, F.D.C.M. Ltd. in this regard. Second thinning will be carried out in 15th year of planting. Third and subsequent thinning will be carried out at an interval of 5 years. And final thinning will be carried out only up to 70th year of the Plantation.

The cleaning and tending operations will be carried out as per the existing practices in FDCM Ltd. Tending and cleaning operation will be carried out in 4th and 7th year while first thinning will be carried out in the 10th year and subsequent thinning at 5 year interval.

As to how many number of trees per hectare are to be retained and those to be removed in different girth classes will be decided as per yield table & stand table of that site quality.

REGULATION OF YIELD

Yield is regulated by area and also by number of Tress to be retained per ha depending upon the age of plantation and site quality as per Stand table. The total projected yield is Timber 26220.576 Cum., Poles 1934066 Nos and Fuel wood 34953 beats (approximate).

1.5.04 TEAK PLANTATION & REBOISEMENT WORKING CIRCLE

This working circle includes following types of areas.

- A. Untackled forest areas which are fit for raising teak plantations.
- B. Failed teak plantation where human failures and natural calamity are the reasons for failures, otherwise these sites are potentially fit for raising teak plantation.
- C. Areas which are under planted by miscellaneous species but failed, which are otherwise potentially suitable for raising good quality Teak plantations.

The total area included in this working circle is 8386.23 Ha.

METHODS OF TREATMENT:

A type Areas:- The silvicultural system of "Conversion to uniform system with supplemental Artificial regeneration of Genetically superior Stock" as suggested by Government of India shall be adopted. The broad prescriptions for overwood removal for raising teak plantation will be as under and these are in consonance with the guidelines of Government of India.

- (i) All young to middle aged fruit bearing Trees up to 20 Trees per ha will be retained.
- (ii) Young to middle aged trees of Semal, Khair, Resewood and other superior miscellaneous species up to 20 trees per ha uniformly spread over the areas will be retained.
- (iii) No felling will be done on either side of Nallas, streams, River banks up to a distance of 20 meters.
- (iv) The section size at a place should not exceed 20 ha.
- (v) 20 meter wide strip of natural forest will be retained around a section.
- (vi) Effective measures will be adopted to protect the plantation from fires for all times to come.
- (vii) Improved Planting stock will be used in order to increase the productivity of the area.

In B & C type areas :- Required hygienic improvement work and plantation works will be carried out.

REGULATION OF YIELD

Yield will be regulated on area basis. Sizeable yield is expected from overwood removal from un-tackled areas. Yield from reboisement areas will be negligible. The total projected yield is Timber 153828.371 Cum., Poles 1502525.84 Nos. and Fuel wood 91219.99 beats (approximate).

1.5.05 AFFORESTATION WORKING CIRCLE:

Tackled and un-tackled area with density below 0.4 and area fit for plantation of miscellaneous species other than Teak are included in this working circle. The extent of area included in this working circle is 1816.39 ha.

METHOD OF TREATMENT: In this working circle soil and moisture conservation works will be taken up and the areas will be afforested with suitable species. The species

to be planted will depend upon the soil type, its depth and local requirement. The following operations will be carried out

- (i) Removal of dead and dying trees as a part of hygienic operation, leaving 2 trees per Ha. which will act as snag and den to wildlife.
- (ii) Tending of coppice growth, if any with preference to fruit trees and important species.
- (iii) Intensive soil and moisture conservation works will be carried out in the entire area.
- (iv) Afforestation with suitable species
- (v) Elaborate fire protection measures have been prescribed.
- (vi) Meadow development

REGULATION OF YIELD

Since most of this area is degraded and under stocked, no appreciable yield will be available. The total projected yield is Timber 222.95 Cum. and Fuel wood 223.50 beats (approximate).

1.5.06 REHABILITATION OF DEGRADED FORET WORKING CIRCLE

Area allotted to this working circle consists of degraded forest areas with good rooted stock of teak and other miscellaneous species and the density is generally 0.4 to 0.5, area is under stocked with stunted growth of miscellaneous species. Some unsuccessful teak plantations are also included in this working circle. The area can be rehabilitated by establishing coppice growth, supplemented by artificial regeneration in available gaps. The extent of area of the working circle is 3296.21 ha.

METHOD OF TREATMENT: In this areas cleaning operations i.e. singling of multiple shoots retaining one leading shoot, dressing of illicitly cut stumps, cutting of climbers, felling of dead, dying, diseased, malformed pollarded trees will be done. And hacked rooted inferior species will be cut back. Following operation will be taken up

- (i) All dead and dying trees will be removed, leaving two trees per hector which will act as snag and den to wildlife.
- (ii) The singling of multiple shoots of coppice origin will be done. All malformed rooted stock will be cut back and stools will be dressed
- (iii) In permanent gaps planting of suitable species will be carried out.

(iv) Soil and moisture measures like gully plugging, continuous contour trenches etc will be taken up wherever necessary.

REGULATION OF YIELD

Yield will be regulated by area. The total projected yield is Timber 3845.29 Cum. and Fuel wood 4006.50 beats (approximate).

1.5.07 PROTECTION WORKING CIRCLE:

This working circle include unworkable areas on account of various reasons such as steep slopes, exposed rocks, refractory areas, water logged areas and nalla bank etc. This working circle includes mostly the areas of refractory sites, scattered and dwarf tree growth or blanks, areas of inferior site quality unfit to sustain good tree growth or blanks areas of inferior site quality which need protection from further deterioration of the site. The extent of area included in this working circle is 9065.12 ha.

METHOD OF TREATMENT: Dead, dying, diseased and wind fallen trees will be removed, leaving two trees per ha. and intensive protection works will be carried out.

1.5.08 PLANTING STOCK IMPROVEMENT WORKING CIRCLE

This working circle includes Seed stands, Seed production areas & seed orchards mainly of Teak. The area of these sites varies from 1.00 Ha. to 10.00 Ha. Miscellaneous seed stand of Shiwan is raised in this division from 1982 to 1985. Central nursery at Pathrad Devi having 7.00 Ha. is also included in this working circle.

METHODS OF TREATMENT:

1. Demarcation of seed stand and seed orchard area
2. Fixing of sign board at the site
3. Cleaning and cutting of unwanted coppice, bushes, climbers before collection of seed.
4. Affixing numbered, triangular metal labels to seed bearers, once in 5 years.
5. Application of Bordeaux mixture to seed bearers.
6. Soil and moisture conservation works.
7. Fire protection works.
8. Thinning of seed area at an interval of five years. This will be done in consultation with D.M. Nagpur.

OTHER REGULATIONS

Protection from fire and grazing :- The success of the prescriptions of this working circle will depend upon the protection of all areas from fire and grazing. The vulnerable areas will be specifically protected from illicit cutting.

1.5.09 MANAGEMENT PLAN FOR THE ENCROACHMENT MANAGEMENT WORKING CIRCLE

This working circle comprises of all the encroachment areas of the Yavatmal Forest Project Division. The entire encroachment areas are under cultivation since last 15 to 20 years. Total area of this working circle is 311.13 Ha.

METHOD OF TREATMENT:

1. Encroachment regularization:-

- i) To survey and demarcate the area
- ii) To pursue pending cases of encroachment under Forest Right Act, 2006

2. Encroachment eviction phase:-

- i) Afforestation phase: The phase will start as soon as Trench cum mound (TCM) of size 1.90 m x 1.00 m x 0.60 m will be taken at Forest boundary.
- ii) The Forest boundary will be demarcated permanently at site.
- iii) Jatropha seeds will be sown on TCM.
- iv) The pits planting at 4 m x 4 m spacing of pit size 30 cm x 30 cm x 30 cm will be done in first year.
- v) Local fruit species will be planted in the pits.
- vi) Soil & moisture conservation works will be taken as per the requirement of the area.
- vii) The entire area will be protected from fire and grazing upto 5th year of plantation.

1.5.10 BAMBOO PRODUCTION (OL) WORKING CIRCLE

This working circle includes mainly the area of successful Bamboo plantation raised from 1982 to 2014. Natural Bamboo clumps are not found in Yavatmal District. Established Bamboo plantations which are capable of giving marketable bamboo are included in this working circle. The total area allotted to this working circle is 561.00 Ha. The area of this working circle includes overlapping bamboo area (M.P.) of 441.00 ha. and 120.00 ha. area of interplanting.

METHOD OF TREATMENT: The harvesting of Bamboo will be done on a cutting cycle

of 3 years, area divided into 3 coupes viz. A, B & C.

METHOD OF HARVESTING

- (a) No harvesting works shall be taken up between 15th June to 30th September.
- (b) No culms below the age of two years will be felled.
- (c) In a mature culms the following type of culms will be retained.
 - 1] Less than one year old culms.
 - 2] From the rest of the culms equal in number to the current season's (i.e. less than one year old) culms or 8 which ever is more.
- d) The cutting height of culms will be between 15 cm to 45 cm above ground level.
- (f) Following acts will be strictly prohibited-
 - 1) Digging of rhizomes.
 - 2) Lopping Bamboo culms for fodder
 - 3) Use of tender bamboo culms for bundling
- (g) After cutting, all debris will be collected from the culms & stacked at a distance not less than two meter away from the outer periphery of each clumps.
- (h) Facilitate working of congested culms, wedge shaped opening will be created & width of the wedge will not be more than 75 cm.
- (i) Felling will start from center to periphery.

The trenches at the upper side of clump will be dug up and intensive soil work will be done at the base of Bamboo clump. It will help to increase the water retention capacity and productivity of clump.

At suitable places the plantation of *Bamboosa balcooa* will be carried out where the irrigation facilities are available.

REGULATION OF YIELD

Yield regulations will be done by area , However these are not likely to be equi-productive in strict sense, since the crop varies in density and clump formation further growth is often restricted by the biotic interference. The projected total yield is 1291600 Bamboo (approximate).

1.5.11 WILDLIFE MANAGEMENT (OL) WORKING CIRCLE

This is an overlapping working circle covering the entire area of the division i.e. 27370.58ha. This tract represents a great variety of wild animals as the area is adjacent to Tipeshwar Wildlife Sanctuary.

PROTECTION MEASURES FOR WILDLIFE :

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

A.WILDLIFE (OL) WORKING CIRCLE PROPOSED WORKS AND EXPENDITURE

| Sr. No. | Particulars ↓ Ranges → | Yavatmal | Ladkhed | Pusad | Wani | Mohada | Total |
|---------|------------------------------------|-----------------------------|---------|-------|------|--------|-------|
| | | | | | | | |
| 1 | Meadows development | 1 | 0 | 1 | 3 | 1 | 6 |
| 2 | Creating of new water hole | 1 | 1 | 1 | 2 | 2 | 7 |
| 3 | Maintenance of existing water hole | 2 | 3 | 3 | 4 | 6 | 18 |
| 4 | Watch Tower | 0 | 0 | 0 | 1 | 1 | 2 |
| 5 | Trap cages | 0 | 0 | 0 | 2 | 0 | 2 |
| 6 | Treatment cages | 1 | 0 | 0 | 0 | 0 | 1 |
| 7 | Camera traps | 4 | 4 | 2 | 6 | 4 | 20 |
| 8 | GPS | 6 | 6 | 4 | 6 | 8 | 30 |
| 9 | Census/ data collection | Entire area of the Division | | | | | |
| 10 | Awareness | | | | | | |
| 11 | Compensation | | | | | | |

B. Quantity and Expenditure (2016-17 to 2025-26)

| Sr. No. | Particulars | 2016-17 | | 2017-18 | | 2018-19 | | 2019-20 | | 2020-21 | | 2021-22 | | 2022-23 | | 2023-24 | | 2024-25 | | 2025-26 | | |
|---------|------------------------------------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|-------|
| | | Qty | Exp | Qty | Exp | Qty | Exp | Qty | Exp | Qty | Exp | Qty | Exp | Qty | Exp | Qty | Exp | Qty | Exp | Qty | Exp | |
| 1 | Meadows development | 0.00 | 0.00 | 2.00 | 3.00 | 2.00 | 3.00 | 2.00 | 3.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | Creating of new water hole | 0.00 | 0.00 | 2.00 | 4.00 | 2.00 | 4.00 | 2.00 | 4.00 | 1.00 | 2.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3 | Maintenance of existing water hole | 11.00 | 3.30 | 11.00 | 3.30 | 13.00 | 3.90 | 15.00 | 4.50 | 17.00 | 5.10 | 18.00 | 5.40 | 18.00 | 5.40 | 18.00 | 5.40 | 18.00 | 5.40 | 18.00 | 5.40 | 18.00 |
| 4 | Watch Tower | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 20.00 | 1.00 | 20.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | Trap cages | 1.00 | 1.75 | 1.00 | 1.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6 | Treatment cages | 0.00 | 0.00 | 0.00 | 0.00 | 1.00 | 3.50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7 | Camera traps | 8.00 | 0.00 | 8.00 | 0.00 | 4.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8 | GPS | 10.00 | 1.20 | 10.00 | 1.20 | 10.00 | 1.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 | Census/ data collection | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 |
| 10 | Awareness | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 |
| 11 | Compensation | 0.00 | 12.00 | 0.00 | 12.00 | 0.00 | 12.00 | 0.00 | 12.00 | 0.00 | 12.00 | 0.00 | 12.00 | 0.00 | 12.00 | 0.00 | 12.00 | 0.00 | 12.00 | 0.00 | 12.00 | 0.00 |
| | Total | | 20.25 | | 27.25 | | 49.60 | | 45.50 | | 21.10 | | 19.40 | | 19.40 | | 19.40 | | 19.40 | | 19.40 | |

Total expenses 260.70 lakhs.

1.5.12 NON-TIMBER FOREST PRODUCE (OVERLAPPING) WORKING CIRCLE

This working circle is constituted for the first time in this division with the aim of conservation, development and sustainable harvesting of minor forest produces other than MAP. It overlaps the entire division i.e 27370.58 ha. and aims at ensuring planned and scientific management and harvesting of the important items of the Non-Timber Forest Produce.

METHODS OF TREATMENT

1. Fire protection measures
2. Training for NTFP collection
3. Documentation for NTFP collection
4. Non destructive collection
5. Regeneration and improvement in stocking

1.5.13 SOIL AND WATER RESOURCE MANAGEMENT (OL) WORKING CIRCLE

This working circle overlaps the entire area of the division i.e. 27370.58 ha. The problems of erosion is assuming a serious dimension on account of continuance of practices which slowly and inevitably lead to the loss of surface soil and exposing in due course of time the underlying unstable gravel structure resulting in the formation of new ravines. The problem is further aggravated by the ever increasing human population. Rau and gully control through engineering structures augmented by vegetative measures will be the main works done under this working circle.

Rainwater harvesting structures are recommended as per site selection criteria and requirement for different areas in Yavatmal division.

Methods of rainwater harvesting:

1. Rooftop rainwater harvesting
2. Artificial ground water recharge
3. Percolation tanks

The large numbers of water tanks are available outside of the Forest area this tanks belong to minor irrigation department Zilha Parishad and some are old Malgulari tanks. The water is available throughout the year.

The proposed works are as under :

| Sr.No. | Range | Comptt No. | Name of work | Period |
|--------|----------|------------|-----------------|---------|
| 1 | Yavatmal | 693 | Cement bandhara | 2016-17 |
| 2 | Yavatmal | 330 | Cement bandhara | 2017-18 |
| 3 | Ladkhed | 465 | Cement bandhara | 2018-19 |
| 4 | Pusad | 359 | Anicut | 2019-20 |
| 5 | Mohada | 154 | Cement bandhara | 2019-20 |

1.5.14 BIO-DIVERSITY DEVELOPMENT AND CONSERVATION

The main aim of this chapter will be to provide directions and guidelines to the field staff in Scientific Management of Traditional Forestry with due consideration of Biodiversity.

STRATEGIES FOR CONSERVATION OF BIODIVERSITY:

The following strategies should be undertaken in order to conserve biodiversity:

- (1) All the possible varieties (old or new) of food, forage and timber plants, live stock, and microbes should be conserved.
- (2) Critical habitats for each species should be identified and safeguarded.
- (3) There should be sustainable utilization of resources.
- (4) The poaching and hunting of wildlife should be prevented and highly regulated.
- (5) Care should be taken for the development of reserves and protected areas.
- (6) Efforts should be made to reduce the level of pollutants in the environment.
- (7) Public awareness should be created regarding biodiversity and its importance for the living organisms.
- (8) Priority should be given in wildlife conservation programme to endangered species over vulnerable species and to vulnerable species over rare species.
- (9) The over exploitation of useful products of wild life should be prevented.
- (10) The useful animals, plants and their wild relatives should be protected both in their natural habitat (in-situ) and in zoological and botanical gardens (ex-situ)
- (11) Environmental laws should be strictly followed.

1.5.15 FOREST PROTECTION : Yavatmal Forest Project Division extends over 27370.58 ha. area which includes extensive valuable Teak Plantation and other plantations raised by this division under various schemes. It also includes the standing valuable forest. These areas are abundant in variety of wildlife too. In order to have effective

protection, the whole area is divided into smaller management units i.e. Range, Round and Beat. There are 5 ranges, 14 rounds and 30 beats. One Mobile squad unit is established for effective protection of the forest.

1.5.16 MISCELLANEOUS REGULATION: The area under various project, roads, buildings and depot are included in the Miscellaneous regulations. The details of area are as under-

| | |
|---------------------------------|--|
| A] Area under various project:- | 614.38 Ha. |
| B] Road and building | :- 186.37 Ha. |
| Total | :- 800.75 Ha. |
| C] i) Jodmoha Depot | :- 5.40 Ha. (Yavatmal Forest Division) |
| ii) Singad Depot | :- 1.00 Ha. (Pusad Forest Division) |

The depot area is in use by F.D.C.M. Ltd. (but the area is not handed over to F.D.C.M.) Depot Roads and Buildings will be maintained regularly.

Activity wise regulations are given in this chapter. Activities are as under :

1. Boundary Demarcation.
2. Demarcation of Coupes.
3. Demarcation of Plantation section
4. Preparation of Treatment Map
5. Marking of trees for harvesting
6. Soil and Moisture Conservation works
7. Guidelines for regeneration.
8. Thinning
9. Harvesting and Disposal
10. Irregular harvesting
11. Central depot.
12. List of records to be maintained is given in this chapter.
 - (a) Form No. one Register of areas
 - (b) Compartment History form
 - (c) Control and deviation form
 - (d) Plantation registers
 - (e) Nursery registers
 - (f) Thinning register
 - (g) Divisional note book/ journal

- (h) Exploitation Registers
- (i) Timber account related forms
- (j) Asset Register
- (k) Dead stock register, Register of machinery and tool consumable register
- (l) Standing order and Directive.

1.5.17 CONSTRAINTS 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 carrying 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.

1.5.18 FINANCIAL FORECAST : Future yield will be mainly from thinning of old Teak plantations raised by FDCM since 1982 onwards, removal of overwood for raising Teak plantations and Bamboo harvesting works. Anticipated year wise yield, expenditure and revenue realization from Teak plantation Management Working Circle, Teak plantation and Reboisement Working Circle, Afforestation working circle, Rehabilitation of degraded forest working circle, and Bamboo production overlapping working circle, Wildlife working circle has been given as under

Working circle wise yield, expenses, mandays and revenue

| Sr No | Name of working circle | Type of work | Area in Ha | Yield | | | | Exp (Rs in lakhs) | Funding source | Creation of Man Days | Revenue (Rs in lakhs) |
|-------|------------------------------|--------------------------|------------|--------------|-------------|------------|--------------|-------------------|----------------|----------------------|-----------------------|
| | | | | Timber (Cum) | Poles (Nos) | Beat (Nos) | Bamboo (Nos) | | | | |
| 1 | TPMWC | 4 th year | 426.00 | -- | -- | -- | -- | -- | -- | -- | |
| | | 7 th year | 831.50 | -- | -- | -- | 8.47 | -- | -- | -- | |
| 2 | TPRWC | Thinning | 5825.50 | 160.00 | 699060 | 438 | 24.57 | FDCM | 2980 | -- | |
| | | OWR+IF+Reboisement | 5369.04 | 153828.37 | 1502525.84 | 91219.99 | 392.95 | FDCM | 8645 | -- | |
| | | Plantation | 6817.19 | -- | -- | -- | 6396.96 | FDCM | 138261 | 1639.23 | |
| 3 | AWC | Harvesting | 1781.39 | 319.45 | -- | -- | -- | FDCM | 2250685 | 55148.17 | |
| | | Plantation | 1816.39 | -- | -- | 223.50 | 6874.46 | FDCM | 2418796 | -- | |
| 4 | RDFWC | Harvesting | 3296.21 | 3845.29 | -- | -- | 9.04 | FDCM | 3181 | 34.65 | |
| | | Plantation | 2131.21 | -- | -- | 4006.50 | 1796.96 | MREGS | 632265 | -- | |
| 5 | Bamboo (OL) WC | Harvesting | 1858.00 | -- | -- | -- | 158.18 | FDCM | 55656 | 1140.13 | |
| 6 | 1/5 th Bdry Demar | Boundary Demarcation | -- | -- | -- | -- | 1984.23 | MREGS | 698156 | -- | |
| 7 | WL (OL) WC | Protection & Improvement | 27370.58 | -- | -- | -- | 1291600 | FDCM | 129.16 | 167.90 | |
| | | | | | | | 141.76 | FDCM | 49879 | -- | |
| 8 | Soil & Water resource | | | | | | 260.70 | CAMPA | 91728 | -- | |
| | Total | | | | | | 527.80 | -- | -- | -- | |
| 8 | Establishment | | | 158153.11 | 2201585.84 | 95887.99 | 1291600 | | | | |
| | Grand Total | | | | | | 18705.24 | | | | |
| | | | | | | | 2500.00 | | | 6581385 | |
| | | | | | | | 21205.24 | | | 58130.08 | |

ABSTRACT OF EXPENDITURE/ REVENUE/ PROFIT

| Sr.No. | Particulars | Amount (Lakhs) |
|--------|---------------------------------|-----------------|
| 1 | Total Revenue | 69272.53 |
| 2 | Expenses from FDCM fund | 14663.35 |
| 3 | Establishment | 2500.00 |
| 4 | Net profit | 52109.18 |
| 5 | Expenses from MREGS fund | 3781.19 |
| 6 | Expenses from CAMPA fund | 260.70 |
| 7 | Total Expenses (2+3+5+6) | 21205.24 |