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GOVERNMENT OF MAHARASHTRA

VOLUME - II

WORKING PLAN

FOR

MEVASI FOREST DIVISION

OF

DHULE CIRCLE

PERIOD:_2017-18TO 2026-27

VOLUME II- APPENDIX

INDEX

CHAPTER - 1: THE TRACT DEALT WITH

1.1. SECTION - 1:- NAME AND SITUATION

1. The area dealt with under the plan comprises of Reserved Forest of Taloda Range and Ex–proprietary Forest of five estate namely Kathi, Raisingpur, Nawalpur, Singpur and Nala of Mewasi Division of Nandurbar District. This Division with it is H. Q. at Taloda was constituted on 01/01/1976. It spreads north of Tapi river, situated in Taloda and Akkalkuwa Taluka of Mewasi Division. There are six territorial ranges namely Taloda, Akkalkuwa, Khapar, Kathi, Molgi and Wadafali. The Forest area of Taloda ranges are compact in nature and remaining forest areas are interspersed with revenue area.

2. The rivers Narmada and Tapi, forms the Northern and Southern boundaries of the tract dealt with, Rajpipala District of Gujarat lies on the Western boundary and Akrani Mahal and Sahada talukas of Nandurbar District are bordering on Eastern side. The area spread between
73° 46’-42” to 74° 22’30” East longitude and 21° 29’50” to 21° 43’53” North latitudes.

1.2. SECTION - 2 : CONFIGURATION OF GROUND.

3. The Satpuda, a broad belt of mountain land stretching in a wall-like manner on the Northern side of Tapi rise from the first range of hills ridge behind ridge to the central ridge to a height of about 600 meters above sea level, and then slope down rather steeply towards the Narmada, amongst these, two ranges of relatively higher elevation than the rest are discernible. These Two ranges of hills unite at Toranmal and enclose an irregular tableland, about 50 kilometers long and 25 km. broad between their North and South faces. The whole surface of the region is very much rugged in height from 300 m to 600 m from mean sea level. The highest parts are the north and south ridges which enclose between them a succession of parallel ranges of, low hills, between the hills are many rich valleys and table lands watered by unfailing streams. These hilly tract are spread in all the 6 ranges. The forest

areas in the Wadafali, Molgi, Kathi, Akkalkuwa, Khapar, and Taloda ranges are spread on the ridges of the Satpudas and along its slopes.

4. The heights of some important hill peaks in this region area are given below.

Table-1

1	Astamba	1304 meters.
2	Nandanvan khurd	1289 meters.
3	Boksha Dongar	1210 meters.
4	Vamoda	1170 meters.
5	Walamba	954 meters.

[Source-DCF Mewasi]

5 In between the river Tapi and Satpuda, hilly region a narrow belt of more or less plain area known as Taloda plains occurs. It is having an average width of 3 km. and a length of 24 kms. Spread in a East-West direction. This plain gently slopes towards the South. Most of this area is spread in Taloda range bearing a rich Teak and Miscellaneous Forest.

6. The chief drainage system is river Tapi which enters the district at South Eastern corner and flows through a broad and fertile plain in the westerly direction. River Narmada flows in the North of the Division. The main tributaries of River Narmada are Devganga,Udai and Khat draining water from the Northern hilly regions of Satpudas. The tributaries of river Tapi are Watkhada, Walheri, Katskhai, Deheli, Khonjkhai and Gomai draining water from the southern face of Satpuda hills to river Tapi.

1.3. SECTION - 3 :- GEOLOGY ROCK AND SOIL

7. Deccan trap covers almost the whole area except a few narrow strips of alluvium on both sides of major streams. These trap rocks are the result of outpouring on enormous lava flows which spread over vast areas of western, central and southern India at the close of the Mesozoic area. The flows are called Traps because of the steps like or terraced appearance of their outcrop, the term being of Scandinavian origin. The traps of deccan basalt, have plagioclase felspar, labrodorite and pyroxene augite as the main minerals. They are grouped into vesicular and non vesicular varieties. The amygdoloidal traps are characterised by vesicles, filled with quartz chalcedony and zealots. Contrary to the general rule in

the case of trap hills the ridges lying west of Toranmal, are rarely flat topped and frequently, extremely craggy. The trap of the hills along the northern boundary of the district have generally a low northern dip, but it is not very regular. The traps of Toranmal itself are nearly horizontal. Spheroidal exfoliation is characteristic feature of weathering in trap. It produces thin concentric shells or layers which become soft and fall off gradually. The weathering starts along well developed joints. The interior of the speroidal masses however remain quite fresh. South of hamp or hap as in hills north of river Narmada as breccias, are very abundant amongst the rock exposed in the river section. Some of these rocks have evidently originally been pumice the vesicles now being in some cases at least filled with augite. A few trap dykes occur in Akrani, around Dhadgaon, however there are several parallel dykes of Small size. They occur every 190 to 270 meters and strike north 60° to 75° East, Some of these dykes are course grained and are composed of feldspar and granular grayish augite.

8. No minerals of economic importance are so far recorded in the district. Lime stones of low grade is noticed to occur in Akkalkuwa Taluka. The deposits have not been commercially exploited so far. The Deccan traps occurring in this region are fairly extensively used as building stone, road metal, railway ballast and as an aggregate in cement concrete.

1.3.1 SOIL -

The basalt rock disintegrate and produce soil of varying depth, colour and texture. The following broad soil types are noticed in the region.

1. Coarse shallow soil (High level) }
2. Medium black soil (Plains) } Trap origin
3. Deep black soil (Valleys) }

1). **Course shallow soils (High level):**

This type of soil is noticed to occur on slope near the ridges of Satpudas and is spread in all the ranges. The origin of the soil is from disintegration of the basalt rocks. These rocks disintegrate and produce murum which ultimately produces soil of varying depth, texture and colour. On the slopes and tops of hills, brown sandy loam sometimes with reddish tinge occurs. These soils are often very gravelly and in places mixed with stones. The depth of the soil is often very little

and the Soil usually supports poor type of tree growth mainly Characterized by the species like salai (Boswellia serrata), Dhavada (Anogeissus latifolia), Modal (Lannea coromandelica), Tiwas (Ougenia oojenensis), Karvi and Sabar.

2) Medium black soils (Plains) :

The more common type of soil, resulting from the disintegration of basalt is what is commonly known as the 'black cotton soil' mixed with organic matter. This type of soil is found in lower hill slopes, flat and undulating areas occurring in numerous and more or less extensive patches, depressions along nalla banks etc. Large patches of such type of soil are often met with in Taloda, Akkalkuwa, Khapar, Molgi and Wadafali ranges. The soil varies in colour, texture and depth. The soil is fairly deep and well drained. It generally support good tree growth.

3) Deep black soil (Valleys) :

This type of soil occurs in a narrow fringe in the valley portion of the Narmada and Tapi rivers, and several of the important tributaries to these rivers, chief of which are Udai, Khat, Gomai, Arunavati etc. Here the soil is deep, black and fertile and generally supports excellent tree growth. This type of soil has a tendency to develop deep cracks in summer and tends to be waterlogged in the rains. This is particularly seen in the plains forest of Taloda range, where this type of soil is noticed to occur in a belt of 4 to 5 km. in width extending in east-west direction and at an average distance barely of 6 to 8 km. from the demarcation line. The soil in this belt tends to be waterlogged and there by the composition of forests and the height growth of the trees is affected. Another local feature of this type of soil in Taloda range is that it has appreciable lime content in the eastern portion of the range.

1.4. SECTION - 4: CLIMATE

9. There are three seasons viz. the summer, winter and rainy. The summer season commences from March and lasts till the end of June. Hot and dry winds blow from the beginning of March and last till the beginning of the monsoon in July. The heat during the day time is indeed oppressive followed by comparatively cooler nights. One redeeming feature, however is that certain places like Molgi in

Akkalkuwa Taluka have comparatively lower temperature than in plain due to higher elevation.

10. The rainy season commences in the third and fourth week of June or beginning of July and most of the precipitation is complete by the end of August. The climate during these months although humid, is on the whole pleasant. In October there are generally long breaks between each rainfall. The climate is generally sultry and oppressive but for a few refreshing showers. The cold weather commences in November and last till the end of February.

Drought is uncommon in this area since ground water availability is very good, Frost also is uncommon in this area and no significant damage has been noticed to the crop on account of frost.

TEMPERATURE :-

11. There was one observatory in the district at Nandurbar for which a complete record of temperature and rainfall data used to be available. This observatory has been closed since 1984. So, temperature data collected at Agricultural College, Dhule is compiled for the last 15 years. The abstract of same is given below. **As per Appendix No.I in Volume II.**

Table-2

Month	Mean Maximum (C)	Mean Minimum (C)	Mean (C)	Diurnal Range
January	30.76	12.90	21.48	18.56
February	32.12	13.29	22.70	18.83
March	36.98	18.56	27.77	18.42
April	40.16	22.21	31.18	17.95
May	41.70	26.12	33.91	15.58
June	37.15	25.40	31.27	11.75
July	32.58	24.05	28.31	08.53
August	31.30	23.60	27.45	07.70
September	33.31	23.09	28.20	10.22
Octomber	34.33	20.09	27.21	14.24
November	32.07	14.82	23.45	17.25
December	30.20	12.23	21.21	17.97

[Source-DCF Mewasi]

Annual Mean Temperature :-

1. Maximum - 31.41°C
2. Minimum - 19.16 °C

12. The above data fairly represents the average temperature of the tract. In hilly areas particularly places like Molgi, the temperature will be little bit low because of the higher elevation.

13. The diurnal range is the shortest during the months of July to September increasing gradually up to March and then decreasing gradually up to May but suddenly dropping down in the rainy months. The greater divergence, especially in the summer months adversely affects the vegetation in the scantly clad hilly and plain region owing to the highly radiating basaltic rocks.

1.4.1 RAINFALL :

14. Most part of the Mewasi Dn. comprising of Satpudas generally experiences good rainfall. The rainfall is mostly from South West monsoon. There are two rain gauge station in the tract covered by the present working plan. The rainfall data of last 16 years for Akkalkuwa and Taloda has been collected and given in Appendix No. I. The average annual rainfall at Taloda is 707 mm. and at Akkalkuwa it is 873 mm. In the hills the rainfall is much more than the station where from the data was collected. As no rain gauge is available in the interiors of hills, exact data of hilly areas are not available.

15. Generally rain commences from 3rd week of the June and lasts till October. The heaviest and the lowest annual rainfall re-recorded during the last 5 years in indicated below. **As per Appendix No.II in Volume II.**

Table-3

Sr.No.	Year	Avg.maximum rainfall (mm.)
1	2011	429.16
2	2012	355.58
3	2013	554.08
4	2014	545.75
5	2015	436.08
6	2011	707.00
7	2012	580.50
8	2013	511.50
9	2014	473.68
10	2015	508.50
11	2016	499.75

[Source-DCF Mewasi]

1.4.2. HEALTH: - The climate of the tract was reported to be highly malarious in the past as was revealed in the preliminary malaria survey carried out in the year 1948-49. Hence malaria control scheme was started in the District and intensive spraying of D.D.T. was undertaken. Now the incidence of malaria has been drastically

reduced as a result of control measures but still in certain pockets of the Akkalkuwa and Taloda Taluka significantly malarial cases were recorded in Akkalkuwa and Taloda Taluka Tahsil.

17. It was observed that during the rainy seasons, the incidence of mosquitoes is very high. The Government is spraying D.D.T. and malathian in the houses at least 3 times in a year to prevent the malaria fever incidence. Inspite of the best efforts malaria is a big problem in this area.

1.5. SECTION NO. 5 :- WATER SUPPLY :- GROUND WATER :

18.A note on ground water provided by Sr.Geologist Dhule is given below.

5.1.**I) WATERSHEDS** - Taloda and Akkalkuwa Taluka comprises of 1201.2 sq. kms. geographical area which splits in into 8 watersheds. Out of them, four watersheds area partially included and some parts of these watersheds fall in adjacent taluka i.e. in Dhadgaon and Shahada. In Northern part of Taloda and Akkalkuwa taluka there is a basin boundary which divides Tapi Basin in the South and Narmada Basin in the North. The watersheds are given below. **As per Appendix No.III in Volume II.**

Table-4

Sr. No.	Watershed No.	Basin	Taluka covered
1.	TE 111 (Partly)	Tapi	Taloda
2.	TE 121	Tapi	Taloda
3.	TE 133	Tapi	Taloda & Akkalkuwa
4.	TE 141	Tapi	Akkalkuwa
5.	NR 120 (Partly)	Narmada	Akkalkuwa
6.	NR 131	Narmada	Akkalkuwa
7.	NR 132	Narmada	Akkalkuwa
8.	NR 141	Narmada	Akkalkuwa

[Source-DCF Mewasi]

5.2.**II) MORPHOZONES**: - Depending upon the gradient in the area, watersheds are classified in to three classes.

1. A - Runoff area is more than 50 % mostly Hilly area.
2. B - Runoff area is less than 50 % mostly plain area i.e. Recharge Zone.
3. C- Most plain area i.e. runoff area is less than 20 % plain area having gentle slope which is a storage zone.

In Taloda and Akkalkuwa taluka, watersheds of Tapi basin are having 'B' morphozone and that of Narmada basin falls categorized as 'A' morphozone.

5.3.**III) WORTHY AND NONWORTHY AREAS: -** The worthy area of Taloda and Akkalkuwa taluka is 1113 sq. kms. and non-worthy area is 88.2 sq. km.

5.4.**IV) WATER TABLE CONDITION AND O.B. WELLS: -** Watershed wise water table condition and fluctuation of static water levels is given in the following table. **As per Appendix No.IV in Volume II.**

Table-5

Sr. No.	Watershed No.	Taluka	Geological formation	Premansoon SWL in mtrs.	Post Mansoon SWL in Mtrs Bac	Fluctuation in Mtrs.
1	TE 111	Taloda	Alluvium Trap	26.32 5.53	24.40 2.90	1.92 2.63
2	TE 121	Taloda	Alluvium Trap	6.12 6.46	4.27 2.90	1.85 3.56
3	TE 133	Taloda & Akkalkuwa	Alluvium Trap	9.43 8.15	7.27 4.00	2.16 4.15
4	TE 141	Akkalkuwa	Trap	8.81	5.06	3.75
5	NR 120	Akkalkuwa	Trap	5.66	3.72	1.94
6	NR 131	Akkalkuwa	Trap	5.05	3.00	2.05
7	NR 132	Akkalkuwa	Trap	5.10	3.00	2.10
8	NR 141	Akkalkuwa	Trap	5.35	3.00	2.35

[Source-DCF Mewasi]

5.5.**V) DENSITY OF WELLS: -** In Narmada watersheds, density of wells ranges from 0.40 to 1.57 wells per square km. and in Tapi watershed, it ranges from 2.88 to 5.34 wells per Sq. km. from the above information it is clear that alluvial plains of Taloda bear good ground water, whereas hilly portions of Satpudas bear very little water. Though hilly areas experience good rainfall, the ground water availability is poor owing to trap rocks, which are poor in ground water storage. Since the hilly portion come under morphozone 'A' run off is high. So in the post monsoon period dry conditions exist in the area, and wet condition is restricted to monsoon season only. So hardy and dry vegetation species are preferred to other species in the afforestation works.

5.6.**SURFACE WATER: -** The tract experiences a general shortage of water during the hot season, except along the major rivers like Narmada and Tapi. People dig jhiras in the stream beds to fetch water.

1.6. SECTION - 6 : DISTRIBUTION AND AREA :

19. The total area of the reserve forest in Mewasi Division is 69975.61 ha. area and 4.09 ha. is non forest area was transferred under compensatory afforestation programme and same area is declared as protected forest vide Maharastra Govt. notification No. Rev/Desk/land/4/268/2005 DT.03-03-2005.

Changes in the area

1) All area in possession of FDCM was handed over to Mewasi Forest Division during the last 7 years.
2) Sub Divisional Officer Taloda latter No. 06/land/KV/670/06 Dt 08/06/2006 as per section 6 of Mharashtra Private Forest (Acquisation Act 1975) 3968.29 ha area is excluded form the total acquired area.
3) 36 ha.Forest area was deforested for minor irrigation project Rapapur (Taluka Taloda) vide Govt. of India New Dehli letter No. 6-MHC-005/2004-BHO/392 Dt. 03/03/2006

Above point are be considered for area reconciliation during preparation of draft Working plan. **As per Appendix No.V in Volume II.**

Table-6

Taluka	Range	Area with forest department (ha.) acquired as per given below			
		R.F. as per Act 1927	**R.F. acquired as per Private Forest Act 1975**	**P.F.**	**Total Area**
Taloda	Taloda	17040.16	---	4.09	17044.25
Akkalkuwa	Wadafali	--	11153.83	--	11153.83
	Kathi	--	10743.34	--	10743.34
	Molgi	--	11448.13	--	11448.13
	Akkalkuwa	7021.77	5751.02	--	12772.79
	Khapar	--	6817.36	--	6817.36
	Total	**24061.93**	**45913.68**	**4.09**	**69979.70**

[Source-DCF Mewasi]

20. Reserved Forest includes 45913.68 ha. area acquired under Maharashtra private forest acquisition Act 1975. This area was deemed to be Reserve Forest.

21. Reserved forest areas of Mewasi Division are compact and have been divided into compartments. After formation of Compartments the beats, rounds, ranges had to be reorganized.

The estate wise areas of private forests taken over under Private Forests (Acquisition) Act, 1975 which forms major area of Mewasi division are as follows.

Table-7

Sr. No.	Estate	Acquired Forest area (ha.)	Remarks
1.	Nawalpur	257.75	As per Maharashtra Private Forest (Acquisition) Act 1975 Maharashtra Act XXIX of 1975 (First Published, of the having received the assent of the President in "Maharashtra Government Gazette on 19th August, 1975.
2.	Singpur	250.95	
3.	Kathi	40173.90	
4.	Raisingpur	5006.75	
5.	Nala	224.33	
	Total	**45913.68**	

[Source-DCF Mewasi]

22. Talukawise percentage of forest area to total geographical area is tabulated below:

Table-8

Taluka	Geographical area (Sq. km.)	Forest area (sq. km.)	% of Forest area
Taloda	372.40	170.44	45.76
Akkalkuwa	828.80	529.35	63.86
Total	**1201.20**	**699.79**	**58.25**

[Source-DCF Mewasi]

1.7. SECTION - 7 : STATE OF BOUNDARIES:-

23. The ex-proprietary forests of Akkalkuwa Tahasil are shown in the village maps and their areas are maintained as per survey numbers. These survey numbers are surrounded by numerous non-forest areas (other survey numbers). In this manner at many places, forest areas are interspersed with non forest land. The demarcation of these forest lands has not taken place and even a compact division map was also not available for these areas. However now division map showing the forest areas on the toposheet after reducing and transferring details of village map to the

toposheet scale have been prepared. However, there have been gaps between the village boundaries due to faulty village maps which need correction. DCF Mewasi Dn. should pursue the matter with DILR Dhule. Forests survey by Survey of India should also be got done for these areas on priority basis.

1.8. SECTION - 8 : LEGAL POSITION :

24. Mewasi Division was constituted by clubbing together forest areas of Taloda range (Previously under North Dhule Division) and acquired forests of Akkalkuwa Tahsil. The Forests of Taloda range were declared as reserved forest vide Gazette Notification No. 7706 A dated 14th September, 1894. The forests of Akkalkuwa Tahsil were private estate namely Kathi, Raisingpur estate, Nawalpur estate, Singpur estate and Nalla estate under the control of chieftains. These forests were acquired by Government of Maharashtra on 30th August, 1975 as per provisions of the Maharashtra Private Forest (Acquisition) Act, 1975. "From the appointed day, all private forest in the state shall stand acquired and vest, free from all encumbrances in and shall be deemed to be with all right in or over the same or appurtaining there to the property of the state Government and all rights title and interest of the owner or any person other than the Government subsisting in any such forest on the said day shall be deemed to have been extinguished. Sect. 3(3) of the act says that "all private forests vested in the State Government under subsection (1) shall be deemed to be reserved forest within the meaning of the Forest Act".

1.8.1 **Error in the estate areas -**

The Private estates were earlier regulated under S. 35(1) of Indian Forest Act, 1927 vide series of Govt. Notification as under:-

Agriculture and forest Department Nos.

Table-9

Sr.No.	Details	Area in Ha.(Approx)
1	PRF. 5133/57550-J, Dt. 9/11/1953, Raisingpur estate, circle "A" & "B"	9057.36 Ha.
2	PRF. 1053/3655-J, Dt. 4/2/1954, Navalpur estate, Unsurveyed	, 809.37 ha
3	PRF. 1053/4782-J, Dt. 11/5/1954, Singpurestate, Unsurveyed	3014.91 ha
4	PRF. 3356/120323-J, Dt. 20/10/1956, Kathi estate, Unsurveyed	122247.55 ha.
5	PRF. 3358/18640-VI-J, Dt. 6/11/59, Disputed area of Raisingpur estate, Unsurveyed	1036.00 ha
6	PRF. 3358/18640-VI, Dt. 6/11/59, Disputed area of Kathi estate, Unsurveyed Pt- I :	Part I 906.50 ha. Part II 1036.00 ha
7	PRF. 3358/18640 – VI, Dt. 15/05/59, Nalla estate, Unsurveyed	1273.26 ha
Total		**139380.45**

[Source-DCF Mewasi]

The original areas in the notification were in acres and these were converted in hectares.

These areas were made free of the regulations of S.35 (1) of Indian Forest Act, 1927 vide Notification No. Revenue and Forest Department No. **As per Appendix No.VII in Volume II.**

Table-10

Sr. No.	Notification No.	Date
1	PRF. 1669/79778 (1) W	5th June, 1972
2	PRF. 1669/79718 (2) W	5th June, 1972
3	PRF. 1669/79718 (3)W	5th June, 1972
4	PRF. 1669/79779 (6)W	5th June, 1972
5	PRF. 1669/79779 (7)W	5th June, 1972
6	PRF. 1669/79779 (8)W	5th June, 1972
7	PRF. 1669/79778 (9) W	5th June, 1972

[Source-DCF Mewasi]

Later these forest were acquired under 1975 Act and the same area of 1,39,380.95 ha. have been shown as taken over by the Dy. Conservator of Forests, North Dhule on 30.8.1975.

The areas reported by Tahasildar Akkalkuwa however, was only 45,913.68 ha. spread over 108 villages, and the 7/12 extracts available are only for 40,326.68 ha. The areas restored have probably been subtracted from these 7/12 and this is still under scrutiny.

The difference of the areas seems to have been due to error crept in during the initial notification by which the areas were brought under regulation of S.35 (1) and the same error continued till formal taking over of the areas as even the total geographical area of the Akkalkuwa taluka itself is just 82,880 ha.

1.8.2 **Unsurveyed (Forest) Areas** :- Besides these areas, there are forest areas in other villages like Dasarapadar, Ambabari, Kolvi, Koyalivihir, Kankala, Ohawa, Raisingpur, Ukalsag, Bhoyara, Sonapati, Wakadaman, etc. However, these areas are not yet surveyed and needs to be surveyed and included in the areas of the division.

1.9.1 SECTION - 9: RIGHTS AND CONCESSIONS:

25. While acquiring the private forests of Akkalkuwa Tahsil, they were made free from all sorts of rights. Whereas for forests of Taloda, no mention is made in Bombay Forest Manual Vol. III, with respect to the right of the Bhils living in the Taloda range. However, the general rights of the way and to the water courses exists in these Forests. So the forests are not burdened with any prescriptive rights.

26. **Privileges :-** Several special privileges in addition to the general privileges which are common to the whole state have been sanctioned from time to time and have been made applicable to these areas also. The privileges conceded are intended to be exercised as a matter of favour and not right and are liable at any time at the pleasure of government to modification, curtailment or discontinuance. The general privileges sanctioned by the Government are given in the para 132 of Bombay Forest Manual Vol. III. The special privileges sanctioned to the Taloda range are given in the para 136 of Bombay Forest Manual Vol. III and they relate to the removal of the grass, dead wood (except certain species), teak leaves, karvi, thorns, Mahuwa flowers and fruits for domestic and agricultural use etc.

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CHAPTER – II : IMPACT OF FIVE YEAR PLANS

2.1 SECTION 1. : FOREST RESOURCES:

2.1.1 India is one of the 12 mega diversity countries, commanding 7% of the world's biodiversity and supporting 16% of the major forest types, varying from tropical semi evergreen forest on western coast; to desert and thorn forests in Gujarat and Rajasthan; mangrove forest in West Bengal, Orissa, Maharashtra and other coastal areas and dry alpine forest in the western Himalayas. India has 45,000 identified plant species, including 15,000 flowering plants of which 5154 being endemic and 81,000 species of fauna. Though India has only 2.5% of the land mass and less than 2% of the world's forest area, but it support more than 7% of the varieties of flora and fauna. But nearly half of the area is affected by the problems of soil degradation and erosion. Nearly 79 million ha. of the country's land have been recorded as forests, including total forest and tree cover which is 24.01% of the geographical area of the country and is much less than the goal of 33% set forth by National Forest Policy. India has more than 16% of the world's population (125 Crores by 2050) and 18% of the cattle population (45 Crores) in the world. This is putting great pressure on the natural resources leading to the degradation of the forests.

2.1.2. It has been observed that the country's achievement in raising forestry plantations, in terms of area, has been impressive. Up to 1998, the total area under tree plantations was 2.838 Crores ha., of which about 1.7 Crores ha. were planted before 1990 decade. The current annual rate of plantation is about 0.12 Crores ha. According to the Report of F.S.I., 2013, the total forest cover of the country is about 69.79 million ha. or 21.23% of the total geographical area of India, with very dense forest consisting only 2.54%, moderately dense forest accounting for 9.70% and open forest constituting 8.99%. Funding to the tune of Rs.6695 Crores per year will be required in order to achieve one third forest cover, within next 20 years, whereas, Rs.1600 Crores per year is available from both central and state budget, together to be allocated for afforestation. In 1993, the Government of India decided to start a

new strategic planning process following the National Forestry Action Programme (NFAP) concept. The basic purpose of the NFAP is to establish direct linkages between National Forest Policy 1988 and the National Five Year Plans (FYPs). In the past, there was no comprehensive and constant programme structure for forestry. Every FYP has had its own programme structure, so it was difficult to get linkages and establish trends. Although plants had specific objectives and programmes, the main activity under most of them was tree planting. The brief account of the management during the past FYPs is given below.

2.1.3 FOURTH FIVE YEAR PLAN (1969-1974) :

R.L.Chaudhari's plan was under implementation during this period for Taloda range of the division in this five year plan aimed at increasing productivity of forests by introducing fast growing species in plantations, assessment of forests on scientific lines and modernizing logging operations. During this period the administration of forest villages was brought under Revenue Department. New approach in forestry sector emerged to divert revenue for the development of forests. Forest Development Board was formed in 1969 and it was converted into Forest Development Corporation of Maharashtra Ltd in 1974. Many successful plantations were raised during this period and no direct funding was made available from the plan components.

2.1.4 FIFTH FIVE YEAR PLAN (1974-1979) :

R.L.Chaudhari's plan continued in this plan period also. The forestry sector in this five year plan aimed at large scale plantations, social forestry and forest conservation. The State Government introduced Employment Guarantee Scheme (EGS) to provide employment to local people.

2.1.5 ANNUAL PLAN (1979-1980 AND SIXTH FIVE YEAR PLAN(1980-1985):

R.L.Chaudhari's Working Plan was under implementation during this period. The decision for regularizing encroachments on forest land from 1/4/1972 to 31/3/1978 was taken during this period. This decision has aggravated the problem of encroachment and many people resorted to encroachment keeping in mind that these encroachments would be regularized in future. Forest (Conservation) Act 1980 was enacted. Social Forestry wing was established during this period.

2.1.6 SEVENTH FIVE YEAR PLAN (1985-1990) :

During this period, R.L.Chaudhari's Working Plan was under implementation. Massive afforestation was taken up under EGS and other plantations were taken up under district plan schemes. The infrastructural facilities like communication, transportation, buildings etc. were improved. Plan funds were allocated for the developmental activities under district plan scheme. The percentage share of forestry sector during this period was the highest i.e.1.09% of the total outlay.

2.1.7 EIGHTH FIVE YEAR PLAN (1992-1997) :

During this period Plan was not sanctioned for implementation. This Five Year Plan's thrust areas included JFM, Eco-tourism, Biodiversity conservation, wasteland utilization programmes involving protection of forests against biotic interference, utilization of waste land for forestry activities, creation of awareness among people for forestry through JFM and conservation of biodiversity were undertaken. Various GRs were issued for implementation of JFM from time to time. Funds from district plan schemes were made available for the various activities like plantations, roads, buildings etc. Under EGS lot of funds were made available for plantations, soil and moisture conservation works.

2.1.8 NINTH FIVE YEAR PLAN (1997-2002) :

During this Five Year Plan, S.H.Patil's Working Plan was in force. The World Bank Project was completed during this period. The plantations of both teak and miscellaneous species were taken up under various schemes.

2.1.9 TENTH FIVE YEAR PLAN (2002-2007) :

During this period S.H.Patil's Working Plan was under implementation. This five year plan gave thrust on JFM through Forest Development Agency. Biodiversity conservation was another important thrust area during this plan period.

2.1.10 ELEVENTH FIVE YEAR PLAN (2007-2012) :

During this period of Five Year Plan, S.H.Patil's Working Plan was under implementation. The thrust was on conserving biodiversity and to enrich degraded forest areas through soil and moisture conservation measures.

2.1.11 THIRTEENTH FIVE YEAR PLAN (2010-2015) :

The forests of India constitute the first line of defense against pollution resulting from economic activity, whether of agricultural or industrial origin. Recognizing this, FC-XII provided a grant of Rs. 1000 crore to state, distributed between them in accordance with the share accounted for by each in the total forested acreage in the country. Clearly, there is a paramount need to carry that grant forward. Forests provided a wide variety of services. These encompass, first and foremost, the class of regulatory services such as carbon sequestration; sediment control and soil conservation; ground water recharge; protection from extreme weather events and preservation of bio-diversity. These services, by their very nature, accrue beyond the boundaries of the state in which the forest lies.

The forest grant is based on data at a point in time. The formula used is essentially a reward for the present stock. It is hoped that the size of the grant will provide the wherewithal for preservation, going forward, so as to halt and hopefully reverse past declines in the quantum and quality of area under forests. Further, the grant is so configured that, subject to a mandated floor, the funds are not tied to any further expenditure on forests. Beyond the mandated floor, the intent is to provide fiscal resources by which the state can enable alternative economic activities as a substitute for the economic disability imposed by forest cover. The only conditionality is that states develop working plans for each of the several forest zones into which they are divided. The initial grant provision will provide funding to develop the working plans within a stipulated period of two years. This conditionality is intended as an enabler of governance capacity within the state, so that subsequent use of the grant, coming on-stream two years into the projection horizon, is based on a detailed plan of action. Even more importantly, from the point of view of the prospective ravages that climate change is feared to bring, these working plans will provide a benchmark data base to assess changes in forest cover over time. Each working plan will have the customary horizon of ten years. Such an approach, when sustained, will provide incentives to better manage the existing forests and also to increase forest cover.

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CHAPTER – III : THE FORESTS

3.1. SECTION - 1 : COMPOSITION AND CONDITIONS OF THE CROP

27. The forest of this Division are entirely deciduous in nature and belongs to the formation "Dry Tropical Forests" of the Champion and Seth's revised classification of the forest type of India.

28. Within the above formation considerable local variation occur on account of soil texture, depth, topography and biotic factors. As the variation in altitude in these areas is not considerable, it does not influence the composition of forest to any appreciable extent. The aspect however plays an important role in determining the composition and density of forests in case of hilly areas as is commonly seen that Northern and Western hill slopes are better stocked than the Southern and Eastern slopes. The soil depth and texture also plays an important part in determining the quality and composition of the forests. Well drained deep and sandy soil provides optimum growth condition for the development of forest while the clayey soil, which tends to be waterlogged, affects the growth adversely. The quality of the crop is determined to a great extent by the depth of the soil if other climatic factors are constant.

29. The biotic factors which affect the condition of the crop are frequent occurrence of fires, reckless cutting of tree growth and heavy grazing. In areas frequently affected by forest fires, fire hardy species like Teak, Dhawada, Salai etc, survive at the cost of other fire tender species, in the case of heavy and uncontrolled grazing no palatable and thorny xerophytes species survive at the cost of more succulent trees and shrubs.

30. Mixed miscellaneous forests with a great variety of species including teak are noticed to occur in the forest of this division though at some places aggressive species like Salai (Boswellia-serrata) tend to forms almost pure crop.

31. The composition of the forest is altered to a varying extent by biotic factors. Although local variation merge into one another and are found intermingled in small area, the following main types (as per the Champion and Seth's revised survey of forest types of India 1963) and the local sub-types are distinguished for the purpose of describing these forests As per Champion and Seth's classification.

I.) Southern tropical Dry.

Sr.No.	Deciduous forests type	Local subtype
1	Group 5 ACI – Dry teak Bearing Forests. Subgroup 5 ACI B – Dry	Teak coppice forests.
2	5AC3 – Dry Deciduous mixed forest	I. Superior mixed Miscellaneous forest II. Inferior mixed Miscellaneous forest

II.) Edaphic Subtype

A. Dry deciduous 5 -E-2 Salai type.

32. All the above sub-types have been described in brief in the following paragraphs and the details of main vegetation association and other important characteristics of the crop are also indicated herein.

3.1.1. **A. DRY TEAK FORESTS :**

(1) TEAK COPPICE FORESTS: - This type of forest belongs to the Dry Teak forests of Tropical Dry Deciduous formation 5 ACI B as per the Champion and Seth's classification. This type of forest is found in Taloda Range restricted to gentle slopes of the hills Teak is the major constituent to gentle slopes of the hills 35 % of total growing stock. It was a teak high forest in the past subjected to excessive biotic interference by way of selective hacking of Teak. From the stumps of Teak vigorous coppice shoots sprouted presently giving the appearance of a pure crop in the area. Since Teak coppices constituted in majority it is appropriate to call it a Teak coppice forest. In few patches, nearer to the habitations it formed pure patches (Kothar village compt. No. 485, Boravan village compt. No. 491). The associates of Teak are Dhawada, Sadada, Kakad, Modal, Salai, Bel and Kalamb. The soils are clayey, deep and fertile along the gentle slopes, capable of producing a high forest and are shallow in the

higher ridges. Gullies in their initial stage were also noticed. At a few places even mother rock was exposed. In general the areas are under stocked. However, in the folds, nallah banks and distant places from the habitations are with fully stocked forests. The quality of the site is IV.

33 The Teak coppices attained a height of 5-6 m and a girth 15-45 cm. The height of other species is 12-15 m. Regeneration of Bhondra, Khawda, Kudi, Tendu, Ghatbor was noticed in patches. Seedling Regeneration of Teak is rare, only coppice regeneration is found. Regeneration is getting damaged by cattle and fires. Bamboo clumps are found but their density is less than 50 clumps/Ha. Along nallahs Bamboo regeneration was noticed and now established.

34. **The general floristics are given below:-**

Teak (Tectona grandis), Dhawada (Anogeissus latifolia), Modal (Lannea coromandelica), Kakad (Garuga pinnata), Bel (Aegle marmelos), Salai (Boswellia serrata), Sadada (Terminalia tometosa), Phasi (Dalbergia paniculata), Bhutkes (Cassine glauca), Bondara (Lagerstroemia parviflora).

Other Associates:- Karanj (Pongamia pinnata), Kudi (Wrightia tinctoria), Tembhurni (Diospyros melanoxylon), Kalamb (Mitragyna parvifolia), Shisam (Dalbergia latifolia), Kusum (Schleichera oleosa), Ghatbor (Zizyphus xylopyra).

Ground Flora: - Murud sheng (Helicteres isora), Tarota (Cassia tora), Tantani (Tridax procumbens), Aghada (Achyranthes aspera), Safed musali (Chlorophytum tuberosum).

Grasses: - Tambadagota, or gondwal (Andropogon pumilus), Bhatadi or Phulia (Apluda mutica), Kusali (Heteropogon contortus) etc.

Climber: - Chilhar (Caesalipinia sepiaria).

Bamboo: - Manvel (Dendrocalamus strictus).

3.1.2. B.DRY DECIDUOUS MIXED FORESTS :

35. 1) **Superior Mixed Miscellaneous Forests :-** This subtype **b**elongs to the formation of Dry Deciduous mixed forests, 5AC3 as per the Champion and

Seth's classification. This type of forest are spread in the entire tract of the Division covering Wadafali, Kathi Range, Western part of Molgi Range, Eastern part of Akkalkuwa range and to a few patches in the Taloda plains. The major species of the growing stock are Dhawada, Sadada, Kalamb, Kakad, Modal, Salai and Beheda. Along the slopes of the higher ridges of hills of Wadafali and Kathi Range, pure patches of Kakad, Modal and Salai were observed. The height of the trees ranges from 15-19 m. and attains a girth of 90-120 cm. The site quality is III in general. The soils are clavey, deep and fertile in the foot hills and shallow near ridges. The Density varies from 0.1. to 0.6 Dense and fully stocked forest are restricted to Wadafali, Kathi and Western part of Molgi range. Inadequate regeneration of Dhawda, Sadada, Kakad, Modal and Salai was noticed in many patches of Wadafali and Kathi ranges. Bamboo regeneration was noticed near Pipla, Kukdipadar, Areti and Sinduri Villages. But the regeneration is damaged by fires and cattle, occurrence of Teak is occasional. Likewise its regeneration is also almost negligible. Along the Nallah band on both sides, Beheda, Asana, Papada, Kudi and Umber were noticed. The various trees found in the type are given below.

Tree Spp. : - Kalamb (Mitragyna parvifolia), Sadada (Terminalia tomentosa), Teak (Tectona grandis), Shisam (Dalbergia latifolia), Beheda (Terminalia bellirica), Khair (Acacia catechu), Tiwas (Ougenia oojeinensis), Salai (Boswellia serrata), Mahua (Madhuca indica), Charoli (Buchanania lanzan), Tembhurni (Diospyros melanoxylon), Bahawa (Cassia fistula),

Ground flora: - Murud sheng (Helicteres isora), Tarota (Cassia tora), Tantani (Tridax procumbens), Aghada (Achyranthus aspera), Karvi (Carvia callosa), Rankel (Ensete superbum).

Grasses :- Kusali, Tambadgota, Phulora.

Climbers :- Chilhar, Keolas, Gulwel.

Bamboo :- Manvel (Dendrocalums strictus)

II. **Inferior Mixed OR Miscellaneous Forests :-**

36. It belongs to the Southern Tropical Dry Deciduous formation 5AC3 of the Champion and Seth's classification. This type of forest was observed in Akkalkuwa and Khapar ranges. It is a single storied forest hardly with any ground cover. The height of the tree rarely exceeds 8mt. Mostly the forests

are under stocked. The composition mainly consists of Al. Kudi, Khair, Dhawda, Sadada, Modal, and Salai. Teak coppices were observed on the lower slopes of the hills in a scattered manner. Along the nallahs, Kudi, Kadu-shevga, Karanj, Papada, Umber were noticed. No where fully stocked forests were observed. In view of the open nature of forest clear cut species association could not be constructed. The growth of the plants is stunted.

Though the soils are deep, clayey and fertile in the lower slopes of the hills, owing to excessive biotic interference, the growth is not satisfactory. The soils are shallow and poor near the ridge. Sporadic, Bamboo clumps were noticed through out the area. Regeneration of Bamboo was noticed in patches near Kundi and Rofkund villages. The natural regeneration of other species is totally absent. The general floristic are given below.

Tree species :- Sadada (Terminallia tomentosa), Salai (Boswellia serrata), Kudi (Wrightia tinctoria), Al (Morinda tinctoria), Kadu shewaga (Moringa pterygosperma), Bhutkes (Cassine glauca), Dhawda (Anogiessus latifolia), Modhal (Lannea coromondelica), Karanj (Pongamia pinnata), Phasi (Dalbergia paniculata), Papada (Holoptelia integrifolia).

Ground flora :- Tarota (Cassia tora), Aghada (Achyaranthes aspera), Tantani(Ghavati) (Tridax procumbens).

Grass :- Tambadgota, Kusali, Godhad.

Climbers :- Chilhar, Deolas.

Bamboo :- Manvel (Dendrocalamus strictus).

ii) EDAPHIC SUBTYPE –

a) Dry Deciduous E – 2 – Salai type.

37. In addition to the above types Salai forests are existing near the ridge, on shallow, poor and dry soils, such types are due to edaphic variation. Here Salai is generally associated with Kakad (Garuga pinnata) and Modal (Lannea coromondelica).

Ferns like Adianthum and other genera were noticed in Taloda range along the streams. Generally ferns exist in evergreen and semi evergreen forests.

The existence of ferns in few pockets is attributed to prevailing microclimatic conditions favoring the growths of ferns. However no other semi evergreen tree shrub species was noticed in that area calling for deeper study of the vegetation in the area.

3.2. SECTION 2 : GENERAL DESCRIPTION OF THE GROWING STOCK

38. The growing stock in the forests of Dry Teak type is mostly under stocked except to a few patches along Nallahs and in the folds of hills. Continuous biotic interference turned these high forests into Teak coppice forests. The growth of Teak coppices is good, hardly any mature Teak tree is found in the area. Regeneration is inadequate even this scanty regeneration is damaged by fires and trampling by cattle. The soil cover is lost in many a places subsequent to the removal of trees in the area. Deep clayey soil exists in the foot hills. The soils are potentially of good quality and capable of producing good timber. This type of forest is found in Taloda Range.

The forests of Dry Deciduous mixed forests are classified into two categories.

1) Superior Mixed miscellaneous forests bearing Trees forests with low timber value occurring in Kathi, Manibeli Range.

2) Inferior mixed miscellaneous forests bearing minor forest with small wood and fuel wood value, occurring in Akkalkuwa, Khapar and Molgi Range. The forests of the superior mixed miscellaneous forests consists of Dhawda, Ain, Kakad, Modal, Salai and Kalamb. The percentage of Teak is very low. Leaving apart Kalamb, Ain and Haldu the other trees are of fuel wood values only. The soils are deep fertile clayey capable of producing high forests. The forests of inferior mixed miscellaneous forests, are open with sparse tree growth, hardly with any ground cover. These areas are interspersed with encroachments and are subjected to heavy biotic interference for fuel wood. The soil is deep fertile and clayey in the lower slopes, capable of producing high forests.

In general the entire tract is burdened with heavy biotic pressure, calling for immediate attention to restock the area.

3.3. SECTION 3 : INJURIES TO WHICH THE CROP IS LIABLE.

39. The injuries to the crop can be classified into two categories.

1. Natural causes.
2. Damages caused by man.

3.2.1. <u>Natural causes</u>: -

The injuries due to natural causes are due to:

1) Wild animals.
2) Climbers and weeds.
3) Insects and Fungi.
4) Parasites and Epiphytes.
5) Frost and draught.

1) **<u>Wild Animals:</u>** The damage due to wild animals is negligible as compared to domestic animals. Some damage is occasionally caused to young saplings in plantations by chinkaras and barking deers in Akkalkuwa and Wadafali Ranges.
2) **<u>Climbers and Weeds</u>**: The common climbers are Chilar, Palaswel, Deoloas etc. These are usually seen in moist localities along stream banks and better quality areas of Akkalkuwa and Wadafali Ranges, but the damage is not serious. The weeds like Karvi and Parthenium also causes some damage to young regeneration and needs eradication.
3) **<u>Insect and Fungi:</u>**- There is a sporadic attack of Teak\skeletoni-zer (Hapalia machaeralis) and Teak defoliator (Hyblea peura) almost annually, but it does not assume epidemic proportion.
4) **<u>Parasites and Epiphytes</u>**:

(a) Dendtropthoe falcata (Loranthus) attack has been noticed on 35 tree species in the forests of this division. The main species are Albizia odoratissima, Anogeissus, Bombax, Boswellia, cassia fistula, Dalbergia latifolia, Grewia tiliaefolia, Haldina, Terminalias etc. The attack on Anogeissus, Boswellia and Grewia was very heavy and it definitely affects the growth of the host.

(b) Viscum articulatum attack was found on 10 species like Dalbergia latifolia, Grewia tilliaefolia, Cordia myxa, Cordia Macleodii, Schleichera oleosa,

Diospyros etc. The attack was heavy on Dalbergia and Grevia affecting the growth of the host trees and sometimes causing the death of the host tree.

Epiphytes like Vanda and Dendrobium were found on the species like Pterocarpus, Terminalia bellerica, Erythrina, Butea, Ougeinia, Boswellia, Bombax etc., but it does not cause any damage to the host trees.

5) **Frost and drought:** Frost and drought have not been reported from the tract dealt with.

2) **Damages caused by man:**

40. The damage to the crop is mainly due to biotic interference caused by man and cattle. In the following forms.

1) Setting of fire.
2) Illicit cutting of trees for timber and fuel wood.
3) Encroachment on forest land for cultivation.
4) Grazing.

1) Forest fires:

41. Forest fires are caused by man in many ways. It is for driving the game to a convenient spot by setting fire all around the suspected place of hiding of the wild animal. Sometimes, the grazers also see fire to forest in the hot season to get early and succulent grasses. Sometimes, for the rab burning so as to cultivate Mor and Bunty in that area. Fires cause intensive damage to the young crop and seedlings. Fires damage the bases of the big trees and reduces its timber value and produces hollowness in poles and saplings. Fires also accelerate soil erosion by destroying soil cover. As a result of this, the soil gets hardened and its moisture absorption capacity is reduced. Consequently the runoff is high. Repeated fires cause the soil to lose its fertility and also destroys the natural regeneration. In the hilly areas as a pre means of Mor and Bunty cultivation, rab burning is practiced. As a result the forests have become more open and the entire undergrowth along with established natural regeneration was burnt, resulting under stocked forests. The entire tract dealt with suffers from heavy fire damage. The steep terrain and inadequate communication makes it difficult to reach the affected areas and to put off the fire. **As per Appendix No.VIII in Volume II.**

THE AREA AFFECTED BY FIRES AS PER RECORED IN LAST 15 YEARS

Table-11

Year	No. of fire cases	Area burnt (in ha)	Estimated loss in Rs.
2001-02	07	21.500	22050/-
2002-03	10	15.155	4570/-
2003-04	12	57.500	22300/-
2004-05	03	8.000	6200/-
2005-06	12	20.090	16300/-
2006-07	10	41.000	26700/-
2007-08	11	46.500	36050/-
2008-09	16	48.500	30600/-
2009-10	18	68.750	52050/-
2010-11	02	3.50	3500/-
2011-12	24	59.20	27450/-
2012-13	29	54.80	35550/-
2013-14	14	25.50	17550/-
2014-15	17	36.00	22495/-
2015-16	15	35.40	23500/-

[Source-DCF Mewasi]

2) ILLICIT CUTTING :-

42. Illicit cutting of trees in the forest, inflicted heavy damages to the forest, and altered the composition and nature of the forests of Mewasi Division. The Teak high forests of Taloda Range were altered to MISCELLANEOUS forest over a period of time by gradual, selective, unauthorized removal of Teak trees from the forest. The Teak hill forest of Taloda range were altered to Teak coppice forest as almost all the Teak trees were cut unauthorisedly. Vigorous coppice shoots sprouted from the stumps of hacked teak trees gives an appearance of Teak coppice forest. In the absence of teak, people started felling of Kalamb and Haldu trees, for domestic consumption.

Illicit cutting of Valuable timber species was done by Local habitants mostly by labours and marginal farmers, to earn their Livelihood. It was said that illicit cut sawn teak was transported to Taloda or Akkalkuwa on head loads, and there after through middleman smuggled out to the major consumption centers like Bombay and Nashik. At present hardly a sound mature Teak tree is found in the forest. Whatever the Teak exists is mostly in the form of coppice

growth. At present illicit cutting of valuable Timber has come down, drastically indicating hardly a few valuable timber trees are left in the forest.

However, illicit cutting for fuel wood still exists since there is heavy demand for fuel wood particularly in Taloda, Akkalkuwa. Local people living in and around the forest area resorted to this practice as means of livelihood and self employment. It is roughly estimated that 2-5 Tonnes of fuel wood is consumed per day at Taloda.

3) <u>ENCROACHMENTS</u> :-

43. The tract dealt with is burdened with encroachments, right from the inception of the Mewasi Division. At. Taloda. Population increase, migration of the people from the interiors of the hills to the plains and foothills, and fertile land are the major reasons for encroachments on forest land. The problem was aggravated with the regularization of encroachment made earlier to 1978 on the forest land, vide Government Resolution No. IEN/1078/3483-GI, Bombay dt. 27.12.1978. After scrutinizing the list of encroachers, a list of eligible encroachers was prepared. Their number is 840 admeasuring an area of 1185.25 ha. Demarcation of these areas on the ground is under progress. In addition to this 7 eligible Agrisilvi plot holders were given plot measuring an area of 7 ha.

The Maharshtra Private Forests (Acquisition) Act, 1975. came into force from 30th August, 1975. All private forests lands falling within the scope of definition given in section 2(f) of the Private Forest (Acquisition) Act 1975, excluding the lands under lawful cultivation within such forests were vested in Government from the appointed day as reserved forests.

Section 3(2) of the private forests (Acquisition) Act, 1975 reads nothing contained in sub-section 3(1) shall apply to so much extent of land comprised in a private forest as is held by an occupant or tenant and is lawfully under cultivation on the appointed day and is not in excess of the ceiling area provided by section 5 of the Maharashtra Agricultural Lands (ceiling on Holdings) Act, 1961. For the time being in force or any building or structure standing thereon or appurtenant there to.

It is also clarified that the area to be treated as under lawful cultivation for the purposes of section 3(2) of the Act in respect of lands which were subjected to rotational/shifting cultivation should be the area actually subjected to rotational/shifting cultivation during one whole period of rotation ending with the kharif season of 1975-76. The period of rotation practice in the locality should be determined after making local inquiries through the village level committees appointed under Government Circular, Revenue and Forest Department No. PRF/1077/146651-F-2/date 30th January 1978. The area actually subjected to rotational/shifting cultivation during the rotational period so determined, should be then ascertained from the revenue records.

Accordingly Sub Division Officer, Nandurbar issued orders after inquiring into the claims of lawful cultivator on the appointed day of the private forest (Acquisition) Act, 1975, to exclude an area of 3937.66 ha. From the meaning of the section 3(3) of the private forests (Acquisition) Act, 1975, for the 2356 lawful cultivators existing on the appointed day. While issuing the orders the extent of area and the survey number in which it was allotted was shown against the names of the persons and directed Deputy Conservators of forest, Mewasi Division at Taloda to demarcate and hand over the area to the lawful cultivators. However till date the demarcation of the area and excluding the area from the meaning of the forest as per section 3(3) of the Act was not completed.

Meanwhile, some people whose claims for the regularization of encroached forest lands were rejected approached the Supreme Court for the restoration of their encroached forest land. Supreme Court vide it's interim order date 20.09.1983 directed District Collector, Dhule and Deputy Conservator of Forests, Mewasi to inquire into the claims of appellants and to file an affidavit, while saying so, it allowed the encroachers to cultivate the area till the final orders are issued. All these 1100 people are cultivating on forest land. Since no survey and demarcation was complete for the above said four categories of encroachment a messy situation is created, in evicting the encroachments made later than 1978.

Again as per Govt. Resolution Miscel./2002/chapt. No. 372/G/1/ Dt. – 10.10.2002 village level, Tahsil level and District level committees were setup for deciding eligibility and non-eligibility of the year encroachments.

In Mewasi Forest Division eligible and non-eligible encroachment decided by the District level committee is as under Act 2006 and rules 2007.

Table-12

Sr. No.	Range	Sanctioned Dave		Pending Dave		Community Dave 3(1)	
		Dave (no)	Area (in ha)	Dave (no)	area (in ha)	Dave (no)	area (in ha)
1	Taloda	696	1102.58	3919	3745.801	06	1144.82
2	Akkalkuwa	1545	1903.72	2351	2503.274	14	1584.47
3	Khapar	1872	2366.39	3653	3169.778	07	1391.950
4	Molgi	986	1046.75	2282	2391.891	08	1938.92
5	Kathi	975	964.75	1860	2048.93	09	1958.49
6	Wadafali	917	905.22	1576	1452.396	04	955.96
Total		**6991**	**8289.41**	**15641**	**15312.07**	**48**	**8974.61**

[Source-DCF Mewasi Letter No.²Ö/ÃÖ¾Æ\ü/¯ÖÏÖ.†Ö./8ıo,

×¤ü.17/07/2017.]

But verification of most of proofs submitted by encroachers to the committee's is not done by Forest Department because proofs were not supplied by revenue Department in spite of demanding again and again.

Process for Regularization of encroachment on forest land up to 13.12.2005 vide Central Govt. Act. The Scheduled Tribes and other Traditional Forest Dwellers (Recognition of the Forest Rights) Act 2006 and Rules 2007. had been initiated by Tribal Department and Revenue department. The forest rights committees, sub divisional level committee and District level committee are constituted by revenue department and receiving of claims by Forest Rights Committee are in progress.

3. Grazing :-

44. Large number of uneconomic cattle is causing heavy damage to the forest particularly in Taloda and Akkalkuwa area. In the remote hilly areas of Kathi and Wadafali Ranges, the grazing pressure is comparatively low. Due to excessive grazing in the forest, the regeneration is either browsed or trampled and the soil becomes hard and compact rendering the conditions for regeneration extremely unfavorable.

The cattle census of 1992 and 2011 of Taloda and Akkalkuwa taluka are given below.

Table-13

Year	Taluka	Cow and bullocks	Buffello	Sheeps	Goats	Horses	Total
1992	Taloda	35338	4969	31	18701	124	59163
	Akkalkuwa	68594	6777	6	39549	38	114964
2011	Taloda	43527	11151	00	34419	61	90158
	Akkalkuwa	63393	8735	00	48412	298	120838

[Source-DCF Mewasi]

45. The table shows an average increase of over 20% in cattle population over 19 years and 1997 census figures are not available, but the trends shows it might have added 30% more cattle to the 1929 figures. That means, the gross forest area available for grazing is less than 0.5 ha. per cattle unit which includes plantation as well as protection areas. The grazing fee is not collected by staff in last ten year.

46. No grazing offences are booked in the last 10 years. **As per Appendix No.IX in Volume II.**

Table-14

Year	No. of offences booked	Geazed area in ha.
2006-07	7	--
2007-08	0	--
2008-09	1	--
2009-10	1	--
2010-11	4	--
2011-12	2	--
2012-13	1	--
2013-14	--	--
2014-15	1	--
2015-16	2	--

[Source-DCF Mewasi]

47. Comparison of the cattle census, grazing fee and offences data shows that collection of grazing fee is not enforced properly. It means there are a lot of unauthorized cattle grazing in the forest. However, in forest of for last 10 years indicates that very few offences were booked, indicating the lack of the executive staff in this regard. During the reconnaissance survey, also large number of cattle were observed grazing in the forest area. If effective grazing control measures are

not taken immediately, the present natural regeneration occurring in patches may get trampled or browsed.

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CHAPTER – IV : UTILIZATION OF THE PRODUCE

4.1. SECTION-I : AGRICULTURAL CUSTOMS AND WANTS OF POPULATION :

48. The Area and population figures for Akkalkuwa and Taloda taluka, over which forests of the Division are spreads given in the statement below. **As per Appendix No.X in Volume II.**

Table-15

Statement showing the Area and Population in Mewasi Division

Taluka	Area (Sq. km.)	Total Population	Scheduled Castes		Scheduled Tribes		Others	
			Total Population	Percentage	Total Population	Percentage	Total Population	Percentage
Taloda	372.40	128531	3015	2.35	92918	72.35	32500	25.30
Akkalkuwa	828.80	177757	2919	1.64	148931	83.78	25907	14.58

49. From the above statement, it is clear that the tracts of Akkalkuwa and Taloda Talukas are sparsely populated. More than 2/3rd of people are scheduled tiribes constituting mostly Bhils. Their chief occupation is Agriculture and are dependent on forest for most of their needs. These people live in semi-pakka houses with country roof tiles and bamboo mats as walls and partitions. The major crops raised by the inhabitants are given below:-

Kharif : - Mor, Bunty, Jowar, Paddy, Tur

Rabbi: - Jawar (Dadar), Wheat, Gram.

50. In the plains of Taloda, ground water availability being good, well irrigation is practiced. In the hilly areas rainfed cultivation is practiced. A survey was carried out to ascertain various categories of economic activities. The survey indicates that the categories of cultivators and agricultural labourers constitutes the bulk of the population. The tribes still use wooden plough for cultivation. Some people cultivate Mor and Bunty on steep slopes. In the month of May, they burn the undergrowth and

broadcast the seed in the ash and soil. In the process the natural regeneration an pole crop is damaged rendering areas more and more open year after year. After 2 years, they shift the place and practice the same rab burning. The forest areas of Pipla and Gaman were severely affected by this type of cultivation. Only Mor and Bunty can come-up on these steep slopes. Hence it has become the staple food of the inhabitants, which may be a boon for the local inhabitants but is ban on the forest. After harvesting the crop, they store Mor and Bunty grains in the huge bamboo baskets called Kangi. Tur dal and Ambadi are the vegetable components of the diet. During summer season, the leaves of Kadu Shevaga and Mokha are used as leafy vegetables. The leaves are boiled for half an hour and washed in the water for half an hour to remove the bitterness of the leaves. After that, they fry it with Mahuwa seed oil to use it as ‘’Bhaji’’ The Mahuwa seed oil is locally extracted. The inhabitants prepare bidis, on their own with the help of locally collected tendu leaves and locally purchased tobacco. The inhabitants collect Mahuwa flowers,Mahuwa toll (seed) Charoli seed and mangos, and sell it at Molgi. A few people living near Taloda and Akkalkuwa make their livelihood by selling firewood as head loads.

The main requirements of the inhabitants from the forests are as under.

1. **Timber:** - Timber for building purposes and agricultural implement is obtained from the forest. Since the percentage of teak in the composition being low, other valuable species such as Kalamb, Haldu are mostly used for the construction purpose. Tiwas and Shisham are used for ploughs. It is estimated that the annual demand for timber in the region is 1000 cubic meter. But currently no timber is extracted from the forest since most of the area is under stocked or blank.

2. **Firewood**: - There is a keen demand for fuel from these areas and most of the demand is met from forest it self. It is estimated that the annual demand for fire wood is 73440 M. Tonnes, assuming that 2.16 M.T. is needed for each family per year, presently a part of the demand is being met from the stumps uprooted in the rehabilitation area of Somawal. Apart from this, there is no production of fuel wood and the entire demand is met from the forest unauthorizedly.

3. **Bamboo**: - The bamboo is required mainly for mat and basket making and for the construction of the house. Earlier there was good amount of bamboo in the forest. In the year 1986-87, the entire area of bamboo was flowered and dead bamboo was extracted. Owing to this a huge bamboo deficit was created, forcing the inhabitants, to cut and remove the immature bamboos which come from natural regeneration and

also those raised in the plantations which retarded the further growth of the bamboo clumps. The demand for bamboo is 8.50 lakhs annually assuming on an average annual requirements per family requirements per family is 25 bamboos. But not even a single bamboo is extracted from the forest to meet the demand.

4. **Grazing:** The cattle population if the tract is 98760, whereas, the total available forest of the Division is 67792 ha. Recently 2100 ha. was disforested for the rehabilitation of the Sardar Sarowar Project oustees. Hence, the forest area available per cattle is less than 0.51 ha. which indicates the heavy pressure on forest area for grazing. Most of the cattle are dependent on the forest grazing. Hence, there is need to cultivate the habit of stall feeding among the villagers.

4.2. SECTION 2 : MARKETS AND MARKETABLE PRODUCT :-

Earlier timber used to be exported to the nighboring areas and town, mostly, Taloda, Shahada, Dondaicha, & Shirpur. All these markets were well connected by metal road. Dondaicha is connected to Surat and Bhusawal by railway lines. Presently, timber poles are imported from other surplus areas, mainly from Indore and Banglore.

4.2.1. MAJOR PRODUCE :

Timber: - The demand for teak is good. But its supply is very low as the existing forest does not contain teak timber trees. Hence the timber requirements are met by other miscellaneous species such as Haldu, Kalamb and Sadada. Poles of Eucalyptus are most sought after for its low value and good strength. They are mostly imported from Bangalore.

FUEL: - The people of the Mewasi division are mostly dependent on the forest for their fuel requirement and it is usually met from the forest unauthorized. No salable quantities are being extracted from the forest, except from the deforested areas of Sardar Sarovar Project.

4.2.2. MINOR FOREST PRODUCE (NON TIMBER FOREST PRODUCE)

Bamboo: - The common species occurring in the area is Dendrocalamus strictus Bamboos are in great demand in this division. In the year 1986-87 there was & gregarious flowering in which the entire Bamboo was flowered

and dead. Latter the dead bamboo was extracted and supplied to Nepa Papar Mills, Madhya Pradesh. Presently no bamboo exploitation is carried out in this division.

Rosha Grass :- (Cymbopogon martinii):- It occurs mainly in Taloda and Akkalkuwa east ranges. Rosha grass is supplied to Surat and Bombay markets, for extraction of it's essential oil.

4.2.3. Apata Leaves (Bauhinia recemosa) and Temburni (Diospyros melanoxylon) Leaves: - These leaves are used as wrappers for tobacco in bidi industry. The demand of apta leaves for bidi is mostly while tembhurni leaves are used in Maharashtra & South India for bidi, industry.

Tendu leaves were sold in the year 2006-07 and 2011-12 season details as below: **As per Appendix No.XI in Volume II.**

Table-16
Past and current yield and Revenue realized from Tendu leaves

Year	St.Bag	Royalty received in Rs.
2005-06	--	--
2006-07	4312.52	2780400
2007-08	3997.80	788050
2008-09	1247.72	240000
2009-10	3569.24	1510065
2010-11	--	--
2011-12	2569.34	1722000
2012-13	--	--
2013-14	--	--
2014-15	--	--
2015-16	--	--
2016-17	--	--

[Source-DCF Mewasi]

Kadai gum:- There is a keen demand for this gum in Mumbai market.60-70 Quintals of gum is collected every year by Tribal Development Corporation.

Other Non Timber forest Produce: - Charoli, Mahuwa flowers and seeds are other minor forest product for which there is a demand.

4.3. SECTION 3 :- LINES OF EXPORTS AND IMPORT :-

Metalloid roads :- The existing road network of Mewasi division is given in the following statement. **As per Appendix No.XII in Volume II.**

Table-17

ITEM	TALODA	AKKALKUWA
No. of villages connected by road	82	167
Total length of roads	313.96 km.	537.00 km.
Length of main state highway	---	40.00 km.
Length of state highway	20.14 km.	56.17 km.
Length of main district road	87.62 km.	113.73 km.
Length of other district road	50.90 km.	98.60 km.
Length of village roads	182.30 km.	112.20 km.

[Source-DCF Mewasi]

No railway line is passing through this division. The entire area is connected by road only.

Forest roads :- Presently one forest road is maintained by the division having a length of 58 km. i.e. Rozawa to Thanavihir. Some of the forest roads were handed over to "Public Works Department", for improvement. They are Molgi to Wadfali and Molgi to Dhadgaon. In addition to this a few extraction paths which were laid by the chieftans are existing in the area but these are not maintained.

4.4. SECTION NO. 4 : METHODS OF EXPLOITATION AND THEIR COST:

Timber and fuel :- As the conversion to uniform working circle and coppice with reserve working circle area was handed over to Forest Development Corporation of Maharashtra, no extraction were carried out by department. Since 1976 no extractions were carried out in Exproprietary forests of Mewasi division. So the cost of exploitation can not be given Minor Forest Produce :- Since the entire bamboo in Mewasi division was flowered in the year 1986-87, the bamboo regeneration could not established properly. Hence no bamboo exploitation works were taken up in the area.

Other Minor Forest Produce: - Tenders are called for the collection of Apta/Tendu Leaves. However the other produce Like, Mahuwa flowers and seeds, charoli bee, and Gum are collected and marketed through Tribal Development Corporation. The minimum collection rates for Tendu is fixed by the Government of Maharashtra every year. There are 2 units of Tendu in the division.

4.5. SECTION 5 : PAST AND CURRENT PRICES: - Since no exploitation work is carried out in the tract, the comparison of past and present prices cannot be done. However the existing market prices enquired is given in the draft working plan as follows. **As per Appendix No.XIII in Volume II.**

PAST AND PRESENT PRICES TREND OF TIMBER, FIREWOOD AND BAMBOO.

Table-18

Year	Teak ^{3} Timber/M	Nonteak ^{3} Timber/M	Firewood/ tonne	Average Price for each bomboo in Rs.
1	2	3	4	5
1995-96	8202	2258	992	Not available
2014-15	38750	12000	2200	20

[Source-DCF Mewasi]

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CHAPTER – V : STAFF AND LABOUR SUPPLY

5.1. SECTION 1 : STAFF POSITION :

The position of staff of Mewasi Division, at Taloda is given below; **As per Appendix No.XIV in Volume II.**

Table-19

Sr. No.	Designation	No. of post sanction	No. of Posts Present			
			Forest	E.G.S.	Total	Vacant
1.	**2.**	**3**	**6**	**7**	**8**	**9**
1	Dy. Conservator of forest	1	1	--	1	
2	Asst. Conservator of forests.	2	2	--	2	
3	Office Supritendant	1	1	--	1	
4	Range Forest Officer.	7	6	1	7	
5	Foresters	30	28	2	30	
6	Forest Guard	95	90	5	95	
7	Forest Surveyor	1	1	--		
8	Chief Accountant	1	1	-	1	
9	Accountants	10	10	-	10	
10	Jr. Stat. Assist.	1	1	-	1	
11	Clerks	12	12	--	12	
12	Jeep Driver	2	2	--	2	
13	Naik	1	1	--	1	
14	Peons	3	3	--	3	
15	Tractor Cleaner	1	1	--	1	
16	Forest laborers	106	106	--	106	
17	Office Watchman	1	1	--	-	
	Total	**275**	**267**	**8**	**275**	

[Source-DCF Mewasi]

5.2. SECTION :- 2 LABOUR SUPPLY :-

The position of labour supply is fairly satisfactory. There is no difficulty in the procurement of labourers for various forestry operations. A labour on an average earns Rs. 285/- per day. In this division main felling were not carried out since the area is having sparse tree growth. Hence only afforestation works are executed in the Mewasi division.

After havesting the crop, many Adivasis leave for Gujarat to work in the sugar cane fields and sugar mills and come back in the month of April. Since there is an assured continuous employment for six months and payment being made in Lump-sum many adivasis are attracted to work in Gujarat sugar-cane fields.

In the month of April and May they collect Charoli, Mahuwa, Tendu Leaves and Mangoes for Amsul and earn good amount of wages through these operations also.

Following statement indicates the number of Man days created in the 2007-08 to 2016-17 years under various forestry operations.

Mandays created.

Table-20

Schemes	No.of Mandays created						
	Year						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Plan	117656	141531	108538	205630	203692	225638	233638
Non Plan	63966	27265	51854	23344	16755	18868	19786

[Source-DCF Mewasi]

Table-21

Schemes	Total wages paid (In Rs.)						
	Year						
	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Plan	24451322	35043000	29468000	58699000	58146000	61322000	63823356
Non Plan	13293567	6750830	14078312	6663918	4783000	5123000	5236768

[Source-DCF Mewasi]

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CHAPTER – VI : PAST SYSTEM OF MANAGEMENT

6.1. SECTION 1 : GENERAL HISTORY OF THE FORESTS.

51. The forest dealt under this plan, are located in the erstwhile "Khandesh". It is believed that the name "Khandesh" was derived from "Khan" the title of the Farukhi King of the land. Dynsties changed and Khandesh passed in turn from Hindus to Mohamadians and again to Hindu rule till it finally lapsed to the British in 1817.

52. Prior to the year 1872, an assistant collector Known as Bhil agent was the in charge of the forest area and used to submit his account to Conservator of Forest. In the years between 1868 to 1870 Dr. Brandis, the then Inspector General of Forests inspected some of the forests of Bombary Presidency and suggested the formation of Khandesh in to a separate division under the whole time District Forest Officer. In the year 1882-83, Khandesh area was split up in to two forest division namely East Khandesh division and West Khandesh division. Latter in the year 1907-1908, the West Khandesh division was again split into two divisions namely North Khandesh division and West Khandesh division. The present Taloda range of Mewasi division was part of North Khandesh division and it constituted the present Taloda and Akrani ranges.

53. In Akkaluwa tahasil, the forests were under the private control with the cheiftans. The entire area was in five estates namely Kathi estate, Raisingpur estate, Singpur estate, Nawalpur estate and Nalla estate. The toatal area of the forests under the private management was **45,913.68 ha.**

The Government of Maharashtra Passed Maharashtra Private Forest (Acquisition) Act, 1975. on 29th August. As per the Provision of Private Forests (Acquisition) Act, 1975, the Private forest of Akkalkuwa Tahsil were acquired on 30th August, 1975 and the possession of the forest area was taken by the forest department on the same day itself.

54. The Government of Maharashtra vide G.R.R. & F.D. No.HSC/1375/212899/F-12/dt. 12.12.1975. resolved to create a new division namely Mewasi division, at Taloda, by clubbing together the ex-proprietary forests of Akkalkuwa tahasil and the reserved forests of Taloda range of erstwhile North Dhule division. Accordingly the Mewasi division started working at Taloda from 1.1.1976.

6.2. SECTION 2 : PAST SYSTEM OF MANAGEMENT

6.2.1 Dodgson. Plan (1904):

This was the First plan for Taloda forests. Where improvement fellings and selection felling sugested for the three working circle constituted. No prescription could be followed in working circle I area owing to inaccessible conditions, In working circle II and III the silvicultural system was changed to coppice with reserve system since the earlier prescription was found unsuitable.

6.2.2 Reberio's Plan (1918-19):

This working plan was introduced for Satpuda forest and Taloda forests. Improvement felling were prescribed. As selected trees of valuable species were removed, trees of inferior species were left in the growing stock. The coppice growth was also not satisfactory owing to adverse biotic factors and non tending of the coppices that have come up. Later in 1924 Shri. Coppleston, the then Chief Conservator of Forests directed to carry out marking of tree and to fell only marked trees. He also suggested subsidiary silvicultural operation for the better growth of coppices.

6.2.3 Periera's working plan (1929-30):

Periera constituted Plains working circle, Hill working circle and Protection Working Circle. Plains working circle include all plain areas. Improvement felling were prescribed to the crop. Clear felling was carried in patches and artificial regeneration of valuable species was prescribed. Hill working circle was constituted along the lower hill slopes of the Taloda hills. The method of treatment consisted of removal of all teak growth except

advance growth of teak up to 45 cm., in girth at breast height. This method created large blanks in the area. Hence it was prescribed that sound Teak and superior injaili species, of 60 cm. girth and below, were to be retained and in the crop where majority of the species are above 60 cm. in girth marking for removal was carried in the form of 'C' grade thinning. In the protection working circle, only removal of dead and dying trees was prescribed.

6.2.4. Mundkar and Korlhalli's Plan (1950-51):

Pereira's plan for Taloda Reserves was revised by Mundkar and Korlhalli, They observed two different growth conditions in plains working circle of Periers's plan. Hence they constituted Western Plains working circle having better growth conditions and Eastern Plains working circle. The method of working was selection cum improvement system with clearfelling in patches and artificial regeneration at least in 4 hectares in each annual coupe.

6.2.5 R. L. Chaudhary's Working Plan : (1970-71 to 1989-90):

This plan was prepared for the forest areas of North Dhule division. Based on the composition and type of forest of Taloda range the following Working Circles were constituted for Taloda Range.

1. Protection working circle.
2. Selection cum improvement working circle.
3. Conversion working circle.
4. Coppice with reserve working circle.
5. Bamboo (Over lapping) working circle.
6. Kadai cum (Over lapping) working circle.

6.2.6 S. H. Patil's Working Plan :- (2001-02 to 2010-11):

Mewasi Forest Division was constituted by clubbing together the expropriatory Forest of Akkalkuwa tahasil and forest of Taloda range of rest-while North Dhule Division. This plan was prepared for the total forest area of Mewasi Division first time based on the composition and type of forest of Mewasi Division, the following Working circle were constituted.

1. Protection working circle.
2. Improvement working circle.
3. Afforestation working circle.
4. Miscellaneous working circle (Over lapping).
5. Bamboo (Over lapping) working circle.
6. Wildlife (Over lapping) Working circle.
7. Non Timber Forest Produce (Over lapping) Working Circle:

1) **Protection Working Circle: -** All the protection forests are included in this working circle. The area spreads along the precipitous slopes of the ridges and the spurs of the Satpudas and extends over the ranges Taloda, Akkalkuwa, Khapar, Wadafali, Kathi and Molgi. The area will be protected from felling, grazing and fires. Improvement works such as gap filling and dibbling of seeds of native species will be taken up along with soil conservation works for the betterment of the area.

2) Improvement Working Circle :- All the under stocked areas and S.C.I. area of (Shri. Chaudhary's Plan) Taloda range is included in this working circle. It spreads over the Akkalkuwa, Khapar, Kathi, Wadafali, Molgi and Taloda ranges. The tree forests and minor forests of the Mewasi division, the existing vegetal cover along with the gap filling and also prescribes singling and tending operations for the teak coppice.

3) **Afforestation Working Circle: -** The forest area which are blanks or very much under stocked, constitute afforestation working circle. It aims at to meet the small timber, fuel wood and fodder demands of the local population living in and around forest areas and also aims at to bring back the vegetal cover in the area.

4) **MISCELLANEOUS Working Circle: -** This working circle constitutes the areas submerged under Sardar Sarowar Project Dam on the Narmada river.

5) **Bamboo (Overlapping) Working Circle :-** In order to improve the stocking density and to conserve soil and moisture of the area, bamboo under planting over the entire area is proposed. It spreads over the entire area of the Mewasi

division where bamboo exists or existed in the past. It also proposes cultural operation the bamboo flowered areas where natural regeneration has come up.

6) **Wildlife (Overlapping) Working Circle :-** In order to preserve and improve the variety of fauna and to provide suitable conditions for the well being of wildlife of the area a Wildlife (Overlapping) Working Circle is proposed. The area spreads over the entire tract of the division. It is proposed to identify and locate permanent water holes and make provision of salt licks near waterholes.

7) **Non Timber Forest Produce (Overlapping) Working Circle** :- The different Non Timber Forest Produce (NTFP) or minor forest produce (MFP) are distributed all over the forests of this division. The purpose of this working circle is to increase the quality and quantity of this product and ensured their proper harvesting. These products not only add to economy but also provide employment to the tribes and local people. It is proposed to plant the MFP species in different afforestation scheme.

6.3. SECTION 3: RESULTS OF PAST WORKING OF S.H.PATIL'S WORKING PLAN.

6.3.1 PROTECTION WORKING CIRCLE:-

In some areas prescription of the Working plan is followed and result of seed sowing of species like Sitapal, Khair, Behada observed very good.

In remaining areas, prescriptions of the working plan could not be followed, owing steep to very steep slopes and inaccessible conditions, most of the forest areas were either under stocked or denuded. Owing to heavy biotic pressure, particularly from the villagers residing on the hills, these areas were converted into degraded areas at some places even mother rock was exposed.

As per prescription of S.H.Patil's Working Plan in under stocked areas plantation are taken up. Year wise area afforested as under various circle.

5.3.2 **PROTECTION WORKING CIRCLE**

Table-22

(Area in ha.)

Range	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Taloda	--	--	--	--	50	--	--	--
Akkalkuwa	--	--	--	25	75	60	50	50
Khapar	--	--	--	--	--	--	--	--
Molgi	--	--	25	--	25	--	25	25
Kathi	--	--	--	--	100	105	--	--
Wadafali	--	--	--	--	125	75	25	25

Range	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Taloda	--	--	85	115	70	210	160	--
Akkalkuwa	--	25	155	215	80	205	69	--
Khapar	--	50	25	210	20	45	--	30
Molgi	--	175	25	210	25	205	123.14	--
Kathi	--	25	175	278	76.40	271.60	110	--
Wadafali	--	--	50	210	25	200	48	--

[Source-DCF Mewasi]

From the above statement, it is seen that most of coupes could not be worked due to the inadequate funds and it will be too early to comment on the success of these plantation. However with average survival percentage near 55 to 60% at fifth year. Hence it can be said that the plantation are fairly successful.

Prescription of S.H.Patil's Working Plan for this working circle found to be satisfactory. Hence change is not suggested.

Following statement shows the details of proposed afforestation work against area actually afforested.

Statement showing year wise area proposed and actual work done in Protection Working Circle

Table-23

(Area in ha.)

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt.No	Area	Coupe No.
2001-02	--	--	--	--	--	I
2002-03	--	--	--	--	--	II
2003-04	Molgi	47,91-AB,74A,51,100B	412.55	100-B	90.00	III
	Wadafali	56	130.55	56	36.00	

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt.No	Area	Coup. No.
2004-05	Taloda	464A	89.65	441	25.00	IV
	Akkalkuwa	161A	116.40	--	---	
	Khapar	125,132,82,148	261.82	148,158	50.00	
	Molgi	48,92A109,74A, 52A	434.95	48,109	50.00	
	Kathi	45A, 101	96.70	39	25.00	
	Wadafali	56.74A	90.60	60.74	75.00	
	Total	--	**1090.12**	--	**225.00**	
2005-06	Taloda	465A	71.22	465A	25.00	
	Akkalkuwa	161A	104.20	--	---	
	Khapar	126,132,82,149	323.26	126,149	75.00	
	Molgi	48,112B,109,77, 52A	499.17	48,112B	50.00	
	Kathi	45A, 101	140.60	--	--	
	Wadafali	57.77	172.60	77.57	50.00	
	Total	--	**1311.05**	--	**200.00**	
2006-07	Taloda	465A	105.18	--	--	
	Akkalkuwa	162A	84.15	--	---	
	Khapar	126,132,82,149	296.00	--	--	
	Molgi	48,112A,109,77AB, 54	494.98	--	--	
	Kathi	45A	127.50	--	--	
	Wadafali	57,77	165.60	--	--	
	Total	--	**1273.41**	--	--	
2007-08	Taloda	470	158.95	--	--	
	Akkalkuwa	162	97.35	--	---	
	Khapar	126,132,82,149	397.43	--	--	
	Molgi	49A,113,110,77, 54	565.16	--	--	
	Kathi	45, 101	91.38	--	--	
	Wadafali	67	182.30	--	--	
	Total	--	**1492.57**	--	--	
2008-09	Taloda	471A	155.04	--	--	
	Akkalkuwa	162	115.30	--	---	
	Khapar	126,133,82,150A	328.57	126	25.00	
	Molgi	49A,113,110,77	457.62	49A	25.00	
	Kathi	77,46,102	215.31	--	--	
	Wadafali	67	131.50	--	--	
	Total	--	**1403.34**	--	--	
2009-10	Taloda	472A	98.40	--	--	
	Akkalkuwa	163	120.41	--	--	
	Khapar	127, 136AF,83,150A	349.63	--	--	
	Molgi	50,113,111,78A	429.85	--	--	
	Kathi	73,46,103ABCDE	241.92	--	--	
	Wadafali	68	111.30	--	--	
	Total	--	**1351.51**	--	--	

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt.No.	Area	Coup.No.
2010-11	Taloda	472A	94.20	--	--	
	Akkalkuwa	163	134.42	163	25.00	
	Khapar	127, 136AF,83,150BCD EF	280.23	127.83	50.00	
	Molgi	50,114,111,78A	394.49	50AB,113,111,73	175.00	
	Kathi	73,46,104	186.80	103	25.00	
	Wadafali	68	114.10	--	--	
	Total	**--**	**1204.24**	**--**	**--**	
2011-12	Taloda	470	25.00	470	25.00	
		477	35.00	477	35.00	
		472	25.00	472	25.00	
		Total	**85.00**	**Total**	**85.00**	
	Akkalkuwa	397	25.00	397	25.00	
		120	30.00	120	30.00	
		164	25.00	164	25.00	
		177	50.00	177	50.00	
		193	25.00	193	25.00	
		Total	**155.00**	**Total**	**155.00**	
	Khapar	82	25.00	82	25.00	
	Molgi	73	25.00	73	25.00	
	Kathi	26	50.00	26	50.00	
		43	25.00	43	25.00	
		44	25.00	44	25.00	
		41	50.00	41	50.00	
		46	25.00	46	25.00	
		Total	**175.00**	**Total**	**175.00**	
	Wadafali	78	25.00	78	25.00	
		5	25.00	5	25.00	
		Total	**50.00**	**Total**	**50.00**	
	Total	**--**	**515.00**	**--**	**515.00**	
2012-13	Taloda	479	35.00	479	35.00	
		480	30.00	480	30.00	
		473	25.00	473	25.00	
		497	25.00	497	25.00	
		Total	**115.00**	**Total**	**115.00**	
	Akkalkuwa	170	30.00	170	30.00	
		168	30.00	168	30.00	
		177	20.00	177	20.00	
		181	20.00	181	20.00	
		121	25.00	121	25.00	
		122	40.00	122	40.00	
		152	25.00	152	25.00	
		123	25.00	123	25.00	
		Total	**215.00**	**Total**	**215.00**	

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt.No	Area	Coupe No.
2012-13	Khapar	146	25.00	146	25.00	
		142	25.00	142	25.00	
		155	10.00	155	10.00	
		157	25.00	157	25.00	
		142	25.00	142	25.00	
		148	25.00	148	25.00	
		80	25.00	80	25.00	
		136	25.00	136	25.00	
		128	25.00	128	25.00	
		Total	**210.00**	**Total**	**210.00**	
	Molgi	111	20.00	111	20.00	
		118	40.00	118	40.00	
		95	20.00	95	20.00	
		113	20.00	113	20.00	
		53	25.00	53	25.00	
		84	25.00	84	25.00	
		96	20.00	96	20.00	
		94	20.00	94	20.00	
		25	20.00	25	20.00	
		Total	**210.00**	**Total**	**278.00**	
	Kathi	35	30.00	35	30.00	
		107	30.00	107	30.00	
		24	25.00	24	25.00	
		45	25.00	45	25.00	
		24	28.00	24	28.00	
		108	40.00	108	40.00	
		30	25.00	30	25.00	
		98	25.00	98	25.00	
		32	25.00	32	25.00	
		42	25.00	42	25.00	
		Total	**278.00**	**Total**	**278.00**	
	Wadafali	73	20.00	73	20.00	
		75	40.00	75	40.00	
		60	25.00	60	25.00	
		17	25.00	17	25.00	
		2	25.00	2	25.00	
		10	25.00	10	25.00	
		4	25.00	4	25.00	
		58	25.00	58	25.00	
		Total	**210.00**	**Total**	**210.00**	
	Total	**--**	**1238.00**	**--**	**1238.00**	
2013-14	Taloda	499	25.00	499	25.00	
		443	25.00	443	25.00	
		491	20.00	491	20.00	
		Total	**70.00**	**Total**	**70.00**	
	Akkalkuwa	173	50.00	173	50.00	
		123	25.00	123	25.00	
		167	5.20	167	5.20	
		Total	**80.00**	**Total**	**80.00**	

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt.No	Area	Coupe No.
	Khapar	142	20.00	142	20.00	
	Molgi	84	25.00	84	25.00	
		110	25.00	110	25.00	
		94	1.66	94	1.66	
		Total	**51.66**	**Total**	**51.66**	
	Kathi	45	20.00	45	20.00	
		26	25.00	26	25.00	
		33	25.00	33	25.00	
		32	6.40	32	6.40	
		Total	**76.40**	**Total**	**76.40**	
	Wadafali	72	25.00	72	25.00	
		Total	**25.00**	**Total**	**25.00**	
	Total	**--**	**323.06**	**--**	**323.06**	
2014-15	Taloda	495	25.00	495	25.00	
		475	30.00	475	30.00	
		476	30.00	476	30.00	
		443	25.00	443	25.00	
		441	25.00	441	25.00	
		440	25.00	440	25.00	
		474	25.00	474	25.00	
		444	10.00	444	10.00	
		422	15.00	422	15.00	
		Total	**210.00**	**Total**	**210.00**	
	Akkalkuwa	178	50.00	178	50.00	
		121	25.00	121	25.00	
		175	30.00	175	30.00	
		176	25.00	176	25.00	
		398	25.00	398	25.00	
		121	25.00	121	25.00	
		176	25.00	176	25.00	
		Total	**205.00**	**Total**	**205.00**	
	Khapar	126	20.00	126	20.00	
		150	25.00	150	25.00	
		Total	**45.00**	**Total**	**45.00**	
	Molgi	51	25.00	51	25.00	
		113	50.00	113	50.00	
		109	30.00	109	30.00	
		110	30.00	110	30.00	
		84	25.00	84	25.00	
		110	20.00	110	20.00	
		115	25.00	115	25.00	
		Total	**205.00**	**Total**	**225.00**	
	Kathi	27	25.00	27	25.00	
		37	25.00	37	25.00	
		16	25.00	16	25.00	
		107	25.00	107	25.00	
		36	30.00	36	30.00	
		19	20.00	19	20.00	
		41	25.00	41	25.00	

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt.No	Area	Coupe No.
2014-15		99	18.00	99	18.00	
		32	38.60	32	38.60	
		99	20.00	99	20.00	
		46	20.00	46	20.00	
		Total	**271.60**	**Total**	**271.60**	
	Wadafali	7	25.00	7	25.00	
		11	25.00	11	25.00	
		58	45.00	58	45.00	
		62	25.00	62	25.00	
		58	25.00	58	25.00	
		71	35.00	71	35.00	
		20	10.00	20	10.00	
		62	10.00	62	10.00	
		Total	**200.00**	**Total**	**200.00**	
	Total	**--**	**1136.60**	**--**	**1136.60**	
2015-16	Taloda	486	25.00	486	25.00	
		474	25.00	474	25.00	
		441	10.00	441	10.00	
		440	10.00	440	10.00	
		438	10.00	438	10.00	
		443	10.00	443	10.00	
		470	10.00	470	10.00	
		425	10.00	425	10.00	
		498	30.00	498	30.00	
		421	10.00	421	10.00	
		472	10.00	472	10.00	
		Total	**160.00**	**Total**	**160.00**	
	Akkalkuwa	176	25.00	176	25.00	
		398	25.00	398	25.00	
		122	09.00	122	09.00	
		174	10.00	174	10.00	
		Total	**69.00**	**Total**	**69.00**	
	Khapar	--	--	--	--	
	Molgi	113	25.00	113	25.00	
		89	25.00	89	25.00	
		118	20.00	118	20.00	
		114	10.00	114	10.00	
		94	23.14	94	23.14	
		112	10.00	112	10.00	
		118	10.00	118	10.00	
		Total	**123.14**	**Total**	**123.14**	
	Kathi	46	25.00	46	25.00	
		41	25.00	41	25.00	
		25	10.00	25	10.00	
		99	10.00	99	10.00	
		42	10.00	42	10.00	
		14	10.00	14	10.00	
		37	20.00	37	20.00	
		Total	**110.00**	**Total**	**110.00**	

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt.No	Area	Coupe No.
2015-16	Wadafali	73	28.00	73	28.00	
		2	10.00	2	10.00	
		11	10.00	11	10.00	
		Total	**48.00**	**Total**	**48.00**	
	Total	**--**	**510.14**	**--**	**510.14**	
2016-17	Taloda	421	25.00	421	25.00	
		464	26.00	464	26.00	
		475	25.00	475	25.00	
		477	28.00	477	28.00	
		443	25.00	443	25.00	
		Total	**129.00**	**Total**	**129.00**	
	Akkalkuwa	177	25.00	177	25.00	
		174	25.00	174	25.00	
		Total	**50.00**	**Total**	**50.00**	
	Khapar	136	15.00	136	15.00	
		142	15.00	142	15.00	
		Total	**30.00**	**Total**	**30.00**	
	Molgi	87	15.00	87	15.00	
		98	15.00	98	15.00	
		Total	**30.00**	**Total**	**30.00**	
	Kathi	98	25.00	98	25.00	
		41	25.00	41	25.00	
		58	25.00	58	25.00	
		66	25.00	66	25.00	
		Total	**100.00**	**Total**	**100.00**	
	Wadafali	--	0	--	0	
	Total	**--**	**339.00**	**--**	**339.00**	

[Source-DCF Mewasi]

From the above statement, it is seen that most of coupes could not be worked due to the inadequate funds and it will be too early to comment on the success of these plantation. However with average survival percentage near 55 to 60% at fifth year. Hence it can be said that the plantation are fairly successful.

From above statement, it will be too early to comment on success of these plantation. With average survival percent of 60% to 70% at 5th year it can be said that the plantation are fairly successful. Also the forests cover and soil and moisture conditions are seen to be improved.

6.3.3. IMPROVEMENT WORKING CIRCLE:-

As per the prescription in protection areas only last two year work of seed sowing was carried out and results are satisfactory Germination of Sitapal, Khair, Hirda, Behda etc. species observed to be very good.

(1) In old plantation, cleaning operations were carried out.

(2) As per prescription of S.H.Patil Working Plan, in under stocked areas plantation are taken up. The details of year wise area afforested as under.

Table-24 **(Area in ha.)**

Range	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Taloda	--	--	--	--	--	--	25	--
Akkalkuwa	--	--	65	--	25	--	--	--
Khapar	--	--	--	--	--	--	--	25
Molgi	--	--	--	--	--	--	--	25
Kathi	30	--	--	--	--	--	--	--
Wadafali	--	--	--	--	50	--	25	--

Range	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Taloda	--	--	--	25	135	75	25	100
Akkalkuwa	--	25	--	25	215	50	50	100
Khapar	--	50	--	25	100	--	--	90
Molgi	--	175	30	20	95	75	75	100
Kathi	--	25	30	25	145	100	50	100
Wadafali	--	--	50	20	85	125	122	75

[Source-DCF Mewasi]

Following statement shows the details of proposed afforestation work against area actually afforested.

Statement showing year wise area proposed and actual work done in Improvement Working Circle

Table-25

(Area in ha.)

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt. No.	Area	Coup. No.
2001-02	Kathi	--	600	9	30	I
2002-03	--	--	--	--	--	II
2003-04	Akkalkuwa	177	75	177	65	III
2004-05	Akkalkuwa	--	--	--	--	IV
2005-06	Wadafali	153	25	--	--	V
	--"--	175	30	175	25	
	Akkalkuwa	58A	25	58 A	25	
	--"--	60	25	60	25	
	Total	--	**130**	--	**75**	--
2006-07	Taloda	442 A	50	--	--	VI
	Kathi	40	30	--	--	
	Molgi	86	35	--	--	
	Akkalkuwa	175 A	35	--	--	
	Total	--	**150**	--	--	--
2007-08	Taloda	443 A	30	443 A	25	VII
	Kathi	40	30	--	--	
	Wadafali	65 A	30	65 A	25	
	--"--	60	40	--	--	

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt. No.	Area	Coup. No.
	Total	**--**	**140**	**--**	**50**	**--**
2008-09 to 2010-11	--	--	--	--	--	--
2011-12	Khapar	--	--	--	--	--
	Akkalkuwa	--	--	--	--	--
	Taloda	--	--	--	--	--
	Molgi	**120**	**30**	**120**	**30**	--
	Kathi	**22**	**30**	**22**	**30**	--
	Wadafali	--	--	--	--	--
	Total	--	**60**	--	**60**	--
2012-13	Khapar	**157**	**25**	**157**	**25**	
	Akkalkuwa	**163**	**25**	**163**	**25**	
	Taloda	**482**	**25**	**482**	**25**	
	Molgi	**114**	**20**	**114**	**20**	
	Kathi	**48**	**25**	**48**	**25**	
	Wadafali	**75**	**20**	**75**	**20**	
	Total		**140**		**140**	
2013-14	Khapar	**160**	**25**	**160**	**25**	
		80	**25**	**80**	**25**	
		90	**25**	**90**	**25**	
		148	**25**	**148**	**25**	
		146	**20**	**146**	**20**	
	Akkalkuwa	**121**	**50**	**121**	**50**	
		394	**25**	**394**	**25**	
		171	**25**	**171**	**25**	
		177	**20**	**177**	**20**	
		152	**25**	**152**	**25**	
		402	**70**	**402**	**70**	
	Taloda	**431**	**25**	**431**	**25**	
		443	**25**	**443**	**25**	
		481	**25**	**481**	**25**	
		444	**25**	**444**	**25**	
		482	**35**	**482**	**35**	
	Molgi	**101**	**25**	**101**	**25**	
		118	**50**	**118**	**50**	
		52	**20**	**52**	**20**	
	Kathi	**33**	**25**	**33**	**25**	
		31	**25**	**31**	**25**	
		101	**25**	**101**	**25**	
		16	**35**	**16**	**35**	
		15	**35**	**15**	**35**	
	Wadafali	**11**	**25**	**11**	**25**	
		65	**25**	**65**	**25**	
		75	**35**	**75**	**35**	
	Total	**-**	**795**	**-**	**795**	

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt. No.	Area	Coup. No.
2014-15	**khapar**	--	--	--	--	
	Akkalkuwa	**174**	**25**	**174**	**25**	
		178	**25**	**178**	**25**	
	Taloda	**475**	**25**	**475**	**25**	
		438	**25**	**438**	**25**	
		442	**25**	**442**	**25**	
	Molgi	**98**	**25**	**98**	**25**	
		88	**25**	**88**	**25**	
		120	**25**	**120**	**25**	
	Kathi	**16**	**50**	**16**	**50**	
		40	**25**	**40**	**25**	
		33	**25**	**33**	**25**	
	Wadafali	**59**	**25**	**59**	**25**	
		20	**25**	**20**	**25**	
		10	**25**	**10**	**25**	
		6	**25**	**6**	**25**	
		11	**25**	**11**	**25**	
	Total	--	**425**	--	**425**	
2015-16	**khapar**	--	--	--	--	
	Akkalkuwa	**177**	**25**	**177**	**25**	
		401	**25**	**401**	**25**	
	Taloda	**472**	**25**	**472**	**25**	
	Molgi	**110**	**25**	**110**	**25**	
		73	**25**	**73**	**25**	
		90	**25**	**90**	**25**	
	Kathi	**40**	**25**	**40**	**25**	
		46	**25**	**46**	**25**	
	Wadafali	**61**	**25**	**61**	**25**	
		62	**25**	**62**	**25**	
		18	**25**	**18**	**25**	
		2	**25**	**2**	**25**	
		71	**22**	**71**	**22**	
	Total	--	**322**	--	**322**	
2016-17	Khapar	**138**	**20**	**138**	**20**	
		157	**10**	**157**	**10**	
		154	**10**	**154**	**10**	
		155	**25**	**155**	**25**	
		159	**25**	**159**	**25**	
	Akkalkuwa	**121**	**25**	**121**	**25**	
		177	**25**	**177**	**25**	
		401	**25**	**401**	**25**	
		496	**25**	**496**	**25**	
	Taloda	**483**	**15**	**483**	**15**	
		466	**50**	**466**	**50**	
		470	**10**	**470**	**10**	
		443	**25**	**443**	**25**	

Year	Range	Proposed Work		Actual Work done		
		Compt. No.	Area	Compt. No.	Area	Coup. No.
	Molgi	**50**	**25**	**50**	**25**	
		108	**25**	**108**	**25**	
		89	**25**	**89**	**25**	
		52	**25**	**52**	**25**	
	Kathi	**98**	**25**	**98**	**25**	
		44	**25**	**44**	**25**	
		32	**50**	**32**	**50**	
	Wadafali	**78**	**25**	**78**	**25**	
		10	**25**	**10**	**25**	
		59	**25**	**59**	**25**	
	Total	**--**	**565**	**--**	**565**	

[Source-DCF Mewasi]

From above statement, it will be too early to comment on success of these plantations. With average survival percent of 60% to 70% at 5th year it can be said that the plantation are fairly successful. Also the forests cover and soil and moisture conditions are seen to be improved.

Prescription of S.H.Patil Working Plan for this working circle found satisfactory. Hence changes in prescription are not suggested.

6.3.4. AFFORESTATION WORKING CIRCLE :

Since only last two year, work of seed sowing was carried out in protection areas and not dune since 2001-02 as per prescription. Results are satisfactory and germination of Sitapal, Khair, Hirda, Behda etc. species observed to be very good.

In open patches the results of all the prescription in S.H.Patil's Working Plan for this working circle found to be satisfactory. All the work done according to the prescriptions are useful and result are satisfactory. Hence change is not suggested. All the plantation raised in this working circle during last 5-6 year have the survival count around 60% at 5th year.

As per S.H.Patil's Working Plan, approx. 12000.00 ha. Area is to be taken-up during the period of 20 years (2001 to 2021). That means on an average 600.00 ha. Area is expected to be tackled per year.

Since 2001-02, only 601.00 ha. area has been afforested during last 7 years due to inadequate funds and encroachment problems. Following statement shows the year-wise area afforested in Mewasi Division.

Table-26 **(Area in ha.)**

Range	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Taloda	--	--	--	25	25	--	--	--
Akkalkuwa	--	--	--	--	--	--	--	--
Khapar	--	--	--	75	75	--	25	25
Molgi	--	--	90	50	50	--	25	25
Kathi	--	--	--	25	--	--	--	--
Wadafali	--	--	36	75	50	--	--	--

Range	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Taloda	--	--	85	115	70	210	160	154
Akkalkuwa	--	25	130	215	80.20	205	59	50
Khapar	--	50	25	210	20	45	--	30
Molgi	--	175	25	210	51.66	225	113.14	30
Kathi	--	25	150	278	76.40	271.60	120	100
Wadafali	--	--	50	210	25	200	48	--

[Source-DCF Mewasi]

Following statement shows the details of proposed afforestation work against area actually afforested.

Table-27

Statement Showing year wise Area Proposed & Actual work done in Afforestation Working Circle					
Year	Range	Proposed Work		Actual Work	
		Com. Nos.	Area ha.	Com. Nos.	Area ha.
2001-02	Khapar	124 B, 130, 81-A, 148	289.12	--	--
	Akkalkuwa	160-A	100.38	--	--
	Taloda	444	110.20	--	--
	Molgi	47, 90-AB, 108, 74-A, 51	300.60	--	--
	Kathi	45-A, 100-A	185.26	--	--
	Wadafali	55	168.70	--	--
	Total		**1154.26**	--	--

Year	Range	Proposed Work		Actual Work	
		Com. Nos.	Area ha.	Com. Nos.	Area ha.
2002-03	Khapar	124-B, 130, 81-A, 148,	289.83	--	--
	Akkalkuwa	160-A	65.60	--	--
	Taloda	444	115.69	--	--
	Molgi	47, 90-A, 108,74-A	598.44	--	--
	Kathi	45-A, 100-B	81.05	--	--
	Wadafali	55	181.90	--	--
	Total		**1332.51**	--	--
2003-04	Khapar	125, 130, 81-A, 148,	275.62	--	--
	Akkalkuwa	160-A	75.80	--	--
	Talodaq	461-A	96.77	--	--
	Molgi	47,91-AB, 109, 74-A, 100-B	412.55	100-B	90.00
	Kathi	45-A, 100-B	103.23	--	--
	Wadafali	56	130.55	56	36.00
	Total		**1094.52**	--	126.00
2004-05	Khapar	125, 132, 82, 148,	261.82	148, 158	50.00
	Akkalkuwa	161-A	116.40	--	--
	Taloda	464-A	89.65	441	25.00
	Molgi	48, 92-A, 109, 74-A, 52-A	434.95	48, 109	50.00
	Kathi	45-A, 101	96.70	39	25.00
	Wadafali	56, 74-A	90.60	60, 74	75.00
	Total		**1090.12**	**--**	**225.00**
2005-06	Khapar	126, 132, 82, 149,	323.26	126, 149	75.00
	Akkalkuwa	161-A	104.20	--	--
	Taloda	465-A	71.22	465-A,	25.00
	Molgi	48, 112-B, 109, 77, 52-A	499.17	48, 112-B	50.00
	Kathi	45-A, 101	140.60	--	--
	Wadafali	57, 77	172.60	77, 57	50.00
	Total		**1311.05**	**--**	**200.00**
2006-07	Khapar	126, 132, 82, 149	296.00	--	--
	Akkalkuwa	162	84.15	--	--
	Taloda	466-A	105.18	--	--
	Molgi	48, 112-A, 109, 77AB, Pt., 54	494.98	--	--
	Kathi	45-A	127.50	--	--
	Wadafali	57	165.60	--	--
	Total		**1273.41**	**--**	**--**

Year	Range	Proposed Work		Actual Work	
		Com. Nos.	Area ha.	Com. Nos.	Area ha.
2007-08	Khapar	126, 132, 82, 149	397.43	126	25.00
	Akkalkuwa	162	97.35	--	--
	Taloda	470	158.95	--	--
	Molgi	49-A, 113, 110, 77, 54,	565.16	49-A	25.00
	Kathi	46, 101	91.38	--	--
	Wadafali	67	182.30	--	--
	Total		**1492.57**	--	50.00
2008-09	Khapar	126,133,82,50A	328.57	126	25.00
	Akkalkuwa	162	115.30	--	--
	Taloda	471A	155.04	--	--
	Molgi	49A,113,110,77	457.62	49A	25.00
	Kathi	77,46,102	215.31	--	--
	Wadafali	67	131.50	--	--
	Total		**1403.34**		**50.00**
2009-10	Khapar	127,133A,83,150 A	349.63	--	--
	Akkalkuwa	163	120.41	--	--
	Taloda	472A	98.40	--	--
	Molgi	50AB,113,111,78 A	429.85	--	--
	Kathi	73,46,103ABCD	241.92	--	--
	Wadafali	68	111.30	--	--
	Total		**1351.51**	--	--
2010-11	Khapar	127,136AF,83,150 BCDEF	280.23	127,83	50.00
	Akkalkuwa	163	134.42	163	25.00
	Taloda	472A	94.20	--	--
	Molgi	50,114,111,78A	394.49	50AB,113, 111,73	175.00
	Kathi	73,46,104	186.80	103	25.00
	Wadafali	68	114.10	--	--
	Total		**1204.24**		**275.00**
2011-12	Khapar	82	25.00	82	25.00
	Akkalkuwa	397	25.00	397	25.00
		120	30.00	120	30.00
		164	25.00	164	25.00
		177	50.00	177	50.00
		193	25.00	193	25.00
	Taloda	470	25.00	470	25.00
		477	35.00	477	35.00
		472	25.00	472	25.00
	Molagi	73	25.00	73	25.00
	Kathi	26	50.00	26	50.00

Year	Range	Proposed Work		Actual Work	
		Com. Nos.	Area ha.	Com. Nos.	Area ha.
	Kathi	43	25.00	43	25.00
		44	25.00	44	25.00
		41	25.00	41	25.00
		46	25.00	46	25.00
	Wadafali	78	25.00	78	25.00
		5	25.00	5	25.00
		Total	**515.00**	**Total**	**515.00**
2012-13	Khapar	146	25.00	146	25.00
		142	25.00	142	25.00
		155	10.00	155	10.00
		157	25.00	157	25.00
		142	25.00	142	25.00
		148	25.00	148	25.00
		80	25.00	80	25.00
		136	25.00	136	25.00
		128	25.00	128	25.00
		Total	**210.00**	**Total**	**210.00**
	Akkalkuwa	170	30.00	170	30.00
		168	30.00	168	30.00
		177	20.00	177	20.00
		181	20.00	181	20.00
		121	25.00	121	25.00
		122	40.00	122	40.00
		152	25.00	152	25.00
		123	25.00	123	25.00
		Total	**215.00**	**Total**	**215.00**
	Taloda	479	35.00	479	35.00
		480	30.00	480	30.00
		473	25.00	473	25.00
		497	25.00	497	25.00
		Total	**115.00**	**Total**	**115.00**
	Molagi	111	20.00	111	20.00
		118	40.00	118	40.00
		95	20.00	95	20.00
		113	20.00	113	20.00
		53	25.00	53	25.00
		84	25.00	84	25.00
		96	20.00	96	20.00
		94	20.00	94	20.00
		25	20.00	25	20.00
		Total	**210.00**	**Total**	**210.00**
	Kathi	35	30.00	35	30.00
		107	30.00	107	30.00
		24	25.00	24	25.00

Year	Range	Proposed Work		Actual Work	
		Com. Nos.	Area ha.	Com. Nos.	Area ha.
	Kathi	45	25.00	45	25.00
		24	28.00	24	28.00
		108	40.00	108	40.00
		30	25.00	30	25.00
		98	25.00	98	25.00
		32	25.00	32	25.00
		42	25.00	42	25.00
		Total	**278.00**	**Total**	**278.00**
	Wadafali	73	20.00	73	20.00
		75	40.00	75	40.00
		60	25.00	60	25.00
		17	25.00	17	25.00
		2	25.00	2	25.00
		10	25.00	10	25.00
		4	25.00	4	25.00
		58	25.00	58	25.00
		Total	**1238.00**	**Total**	**1238.00**
2013-14	Khapar	142	20.00	142	20.00
	Akkalkuwa	173	50.00	173	50.00
		123	25.00	123	25.00
		167	5.20	167	5.20
	Taloda	499	25.00	499	25.00
		443	25.00	443	25.00
		491	20.00	491	20.00
	Molagi	84	25.00	84	25.00
		110	25.00	110	25.00
		94	1.66	94	1.66
	Kathi	45	20.00	45	20.00
		26	25.00	26	25.00
		33	25.00	33	25.00
		32	6.40	32	6.40
	Wadafali	72	25.00	72	25.00
		Total	**323.26**	**Total**	**323.26**
2014-15	Khapar	126	20.00	126	20.00
		150	25.00	150	25.00
		Total	45.00	Total	45.00
	Akkalkuwa	178	50.00	178	50.00
		121	25.00	121	25.00
		175	30.00	175	30.00
		176	25.00	176	25.00
		398	25.00	398	25.00
		121	25.00	121	25.00
		176	25.00	176	25.00
		Total	**205.00**	**Total**	**205.00**

Year	Range	Proposed Work		Actual Work	
		Com. Nos.	Area ha.	Com. Nos.	Area ha.
	Taloda	495	25.00	495	25.00
		475	30.00	475	30.00
		476	30.00	476	30.00
		443	25.00	443	25.00
		441	25.00	441	25.00
		440	25.00	440	25.00
		474	25.00	474	25.00
		444	10.00	444	10.00
		422	15.00	422	15.00
		Total	**210.00**	**Total**	**210.00**
	Molgi	51	25.00	51	25.00
		113	50.00	113	50.00
		109	30.00	109	30.00
		110	30.00	110	30.00
		84	25.00	84	25.00
		110	20.00	110	20.00
		115	25.00	115	25.00
		Total	**225.00**	**Total**	**225.00**
	kathi	27	25.00	27	25.00
		37	25.00	37	25.00
		16	25.00	16	25.00
		107	25.00	107	25.00
		36	30.00	36	30.00
		19	20.00	19	20.00
		41	25.00	41	25.00
		99	18.00	99	18.00
		32	38.60	32	38.60
		99	20.00	99	20.00
		46	20.00	46	20.00
		Total	**271.60**	**Total**	**271.60**
	Wadafali	7	25.00	7	25.00
		11	25.00	11	25.00
		58	45.00	58	45.00
		62	25.00	62	25.00
		58	25.00	58	25.00
		71	35.00	71	35.00
		20	10.00	20	10.00
		62	10.00	62	10.00
		Total	**1156.60**	**Total**	**1156.60**
2015-16	khapar	--	--	--	--
	Akkalkuwa	176	25.00	176	25.00
		398	25.00	398	25.00
		122	9.00	122	9.00
		174	10.00	174	10.00

Year	Range	Proposed Work		Actual Work	
		Com. Nos.	Area ha.	Com. Nos.	Area ha.
	Taloda	486	25.00	486	25.00
		474	25.00	474	25.00
		441	10.00	441	10.00
		440	10.00	440	10.00
		438	10.00	438	10.00
		443	10.00	443	10.00
		470	10.00	470	10.00
		425	10.00	425	10.00
		498	30.00	498	30.00
		421	10.00	421	10.00
		472	10.00	472	10.00
	Molgi	113	25.00	113	25.00
		89	25.00	89	25.00
		118	20.00	118	20.00
		114	10.00	114	10.00
		94	23.14	94	23.14
		112	10.00	112	10.00
		118	10.00	118	10.00
	kathi	46	25.00	46	25.00
		41	25.00	41	25.00
		25	10.00	25	10.00
		99	10.00	99	10.00
		42	10.00	42	10.00
		14	10.00	14	10.00
		37	20.00	37	20.00
	Wadafali	73	28.00	73	28.00
		2	10.00	2	10.00
		11	10.00	11	10.00
		Total	**510.14**	**Total**	**510.14**
2016-17	khapar	136	15.00	136	15.00
		142	15.00	142	15.00
	Akkalkuwa	177	25.00	177	25.00
		174	25.00	174	25.00
	Taloda	421	25.00	421	25.00
		464	26.00	464	26.00
		475	25.00	475	25.00
		477	28.00	477	28.00
		443	25.00	443	25.00
	Molgi	87	15.00	87	15.00
		98	15.00	98	15.00
	Kathi	98	25.00	98	25.00
		41	25.00	41	25.00
		58	25.00	58	25.00
		66	25.00	66	25.00
	Wadafali	--	--	--	--
Total			**339.00**	**Total**	**339.00**

From above statement, it will be too early to comment on success of these plantation. With average survival percent of 50% to 60% at 5th year it can be said that the plantation are fairly successful. Also the forests cover and soil and moisture conditions are seen to be improved.

6.3.5. **Bamboo (Overlapping) Working Circle** :-

No work is done during last working plan period for some reason or other such as bamboo rhanzis are malformed because of illicit cutting of bamboo by local people. Also in some villages of Kathi, Wadafali, Molgi ranges members of JFM committees are opposing for extraction of bamboo from forest areas.

Even though prescription includes Bamboo under planting for entire area for soil and water conservation, it is suggested that the working circle is to be continued as per past prescription.

6.4. SECTION 4: SPECIAL WORKS FOR IMPROVEMENT:-

1) AFFORESTATION :-

Since the beginning of S.H.Patil's Working Plan of Mewasi Division up to 2014-15 afforestation works were taken up under various schemes. The area afforested, year wise is given below in tabular form. Most of these plantations are successful. However some of them were cut for fuel and fodder.

Area afforested in Mewasi Forest Division,

Table-28

Year	Area Afforested in ha.
2004-05	1032.00
2005-06	768.00
2006-07	2842.70
2007-08	514.00
2008-09	3249.00
2009-10	2811.16
2010-11	586.70
2011-12	575.00
2012-13	1378.00
2013-14	1163.28
2014-15	1711.40
Total	**16631.24**

[Source-DCF Mewasi]

2) PILGRIM CENTER AT KUNDESHWAR: - A pilgrim centre at Kundeswar where hot water spring exists. A rest house and Anicut have been constructed at Kundeswar and also following constructions are carried out.

Table-29

Sr.No.	Range	Name of Site	Particulars	Expenditure	Remarks
1	Akkalkuwa	Kundeshwar	Construction work :	In Lakhs	
			1.Cement Concrete road	14.98	
			2. Construction of pagoda	9.13	
			3. Fixing of Paving blocks	12.23	
			Total	54.34	

6.5. SECTION 5 : PAST YIELD:-

The yield of timber and firewood from Mewasi Division, Taloda is given below.

Sr. No.	Year	Timber Cum.	Firewood Cum.
1	2001-02	78.143	226.200
2	2002-03	41.902	47.100
3	2003-04	20.937	44.348
4	2004-05	---	---
5	2005-06	20.925	40.945
6	2006-07	06.002	59.611
7	2007-08	16.380	38.00
8	2008-09		
9	2009-10		
10	2010-11		
11	2011-12		
12	2012-13		
13	2013-14		
14	2014-15		
15	2015-16		

[Source-DCF Mewasi]

The coupes could not be worked owing to sparse tree growth. The figures shown are the material seized in illicit in this area.

6.5.1. PAST REVENUE AND EXPENDITURE :

Statement showing the figures of Revenue and Expenditure for 2005-06 to 2016-17 are as below; **As per Appendix No.XV in Volume II.**

Table-29

Year	Revenue (Rs.in lakh)	Expenditure (Rs.in lakh)
2005-06	4.57	429.27
2006-07	3.67	541.51
2007-08	6.73	404.06
2008-09	5.13	621.60
2009-10	4.87	954.90
2010-11	4.04	951.71
2011-12	3.21	935.25
2012-13	5.51	1243.66
2013-14	4.50	1548.89
2014-15	5.16	1578.67
2015-16	5.45	1608.67
2016-17	5.62	1632.71

[Source-DCF Mewasi]

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CHAPTER – VII : STATISTICS OF GROWTH AND YIELD

7.1.1. Result Of Sample Tree Enumeration of Mewasi Division

Mewasi forest division is the one of the forest divisions of Dhule Circle. The Headquarter is at Taloda. The entire forest area of Mewasi division lies between 73^0 46'42" to 74^0 22'30" East Latitude and 21^0 29'50" to 21^0 43'53" North Latitude. The track is bounded as follows :-

North :- Rivers Narmada and Madhya Pradesh State

East :- Shahada Forest Division

South :- Rivers Tapi

West :- Gujarat State

Configuration of the Ground :- The Satpudas, a broad belt of mountain land tretching in a wall-like manner on the Northern side of the Tapi, rise from the first range of hills, ridge behind ridge to the central ridge to a height of about 600 meters above sea level, and then slope down rather steeply towards the Narmada amongst these, two ranges of relatively higher elevation than the rest are discernible. These two ranges of hills unite at Toranmal and enclose an irregular table and, about 50 km. long and 25 km. broad between their North and South faces. The whole surface of the region is very much rugged ranging in height from 300 mt. to 600 mt. from mean sea level.

Geology, Rock and Soil :- Deccan trap covers almost the whole area except a few narrow strip of alluvium on both sides of major streams. These trap rocks are the result of outpoaring on enormous lava flows which spread over vast areas of western, central, and southern India at the close of the Mesozoic area. The traps of the hills along the northern boundry of the district have generally low notherly dip, but it is not very regular.

Climate :- Drought is uncommon in this area since ground water availability is very good.

Forest Area :- According to Management & Legal Status, as per Annual Administration Report the following are the forest area figure as on dated 31/03/2016.

7.1.2. Classification of Forest area according Managenment & Legal status (Area in Sq.Km.)

Table No:-1

Sr. No.	Controlling Agency	Reserved Forest	Protected Forest	Un-Classed Forest	Total
1	Area in charge of Forest Department	206.87	0.04	0	206.91
2	Area in charge of F.D.C.M.	47.17	0	0	47.17
3	Private Forest brought under possession of Forest Department	418.22	0	0	418.22
4	Area in charge of Revenue Department	5.41	0	0	5.41
	Total	**677.67**	**0.04**	**0**	**677.71**
	% Total Forest Area	**99.99**	**0.01**	**--**	**100%**

Previous Working Plan of Mewasi Forest Division consist of Working Circles namely 1) Selection cum Improvement Working Circle 2) Protection Working Circle 3) Coppice with Reserve Working Circle. 4) Afforestation Working Circle and 5) Improvement Working Circle.

The area proposed for tree enumeration in previous Working Plan (2001-02 to 2010-11) by Shri S.H.Patil, Dy.Conservator of Forests, Working Plan Division, Dhule was as under.

Table No:-2

Sr.No.	Name of Working Circle	Area in ha.
1	Selection cum Improvement W.C.	7300.12
2	Protection Working Circle	7620.71
3	Coppice With Reserve Working Circle	3313.12
4	Afforestation Working Circle	27073.92
5	Improvement Working Circle	18914.41
	Total	**64222.28**

Now Conservator of Forest, Working Plan, Nashik has proposed following working circlewise forest area, for sample tree enumeration. **As per Appendix No.XVI in Volume II.**

Table No:-3

Working Circle Wise Area Proposed for Tree Enumeration

Name of Working Circle	Population Area in ha.
(1) Afforestation Working Circle.	26491.010
(2) improvement Working Circle	11854.590
(3) Protection Working Circle.	26491.010
Total	**60422.890**

7.1.3. Sampling Plan of Tree Enumeration :-

Actually the tree enumeration work was done by Conservator of Forests, (Working Plan) Nashik in April 2012 to April-2014. The entire forest division's area was considered for sampling enumeration plan. The trees are enumerated in girth classes started from 15-30 cms to Above 150 cms. The girth is measured at breast height (g.b.h.).

The statistical sampling method namely "Systematic Line Plot Sampling with Random Start" was used for tree enumeration. The plot size 60 meters x 60 meters, was found to be sutable with the least standard error. The complete enumeration of trees, Natural regeneration, Grass and Medicinal species were carried out in these plots. Similarly qualitative measurements were also carried out.

On scrutiny of data and preparation of results i.e. Stock per hectare was calculated and the result are being reported in the form of following statements.

1. Statement I :- Estimated Growing Stock- No. of Sound Trees in Population area.
2. Statement II: - Estimated Growing Stock-No. Of Sound Trees per Ha.
3. Statement III :- Percentage Distribution of Total stock to the Species Overall Girth Classes
4. Statement IV:- Percentage of Stock of Species in Girth Classes to the Total Stock in that Particular Girth Classes.
5. Statement V:- Estimated Growing Stock –Volume in Cubic Meter per Hectare.

Some noteworthy results of comparison of past and current enumeration are described in statement below in table no.4 (A) and 4(B) below.

Table No:-4 (a)

Statement showing estimated No.of trees per ha.for previous (January 1995 to June1995) and Current tree enumeration (April-2012 to April 2014.)

Sr. No.	Name of Working Circle	Past enumeration (January 1995 to June1995) No.of trees per ha.	Sr. No.	Name of Working Circle	Current enumeration (April-2012 to April 2014.)
A) Taluka-Taloda			1	Afforestation Working Cricle	15.989
1	Selection Cum improvement W.C.	147.00	2	improvement Working Cricle	15.801
2	Protection W.C.	142.85	3	Protection Working Cricle	11.621
3	Coppice with Reverve W.C.	119.41		**Weighted Average**	**14.36**
B) Taluka- Akkalkuwa					
4	Afforestation W.C.	58.95			
5	improvement W.C.	115.53			
6	Protection W.C.	135.10			
	Weighted Average	**98.58**			

It is observed that the total estimated number of trees per hectare in current enumeration (April -2012 to April-2014) is 14.36/ha. It comes to know that the No. of Trees decreases as compared to the previous enumeration (January 1995 to June 1995) i.e. 98.58/ha.

Table No:-4 (b)

Estimated percentage of trees in 15 U 30 and 31 U 45 girth class.

Working Circle	Girth class-wise estimated percentage of number of trees (%)			
	15 U 30	31 U 45	Remaining Girth Classes	Total Estimated No. of Trees
Afforestation W.C.	32.010	28.276	39.714	100
Improvement W.C.	34.871	26.378	38.751	100
Protection W.C.	38.585	27.769	33.646	100
Weighted Average	**34.974**	**27.718**	**37.308**	**100**

Working Circle wise estimated, number of sound trees per hectare are as follows.

Table No:-5
Working Circlewise No. of sound trees per ha

Sr No.	Name of Working Circle	Total	General Utility Species	Special utility Species	Minor forest produce species	Other species
1	Afforestation Working Circle	15.989	7.709	1.028	5.073	2.179
	% of stock to total stock	100.00	48.21	6.43	31.73	13.63
2	Improvement Working Circle	15.801	8.236	0.777	3.879	2.909
	% of stock to total stock	100.00	52.12	4.92	24.55	18.41
3	Protection Working Circle	11.621	6.586	2.248	1.313	1.474
	% of stock to total stock	100.00	56.67	19.34	11.30	12.69
	Total weighted average	14.37	7.40	1.43	3.47	2.07
	% of stock to total stock	100.00	51.56	9.93	24.14	14.37

Table No. 5 (a)
Working Circlewise Volume in cum. Per ha.

Sr No.	Name of Working Circle	Total	General Utility Species	Special utility Species	Minor forest produce species	Other species
1	Afforestation Working Circle	2.883	0.965	0.201	1.075	0.642
	% of stock to total stock	100.00	33.470	6.970	37.290	22.270
2	Improvement Working Circle	2.912	1.042	0.175	0.937	0.758
	% of stock to total stock	100.00	35.780	6.010	32.180	26.030
3	Protection Working Circle	1.668	0.655	0.256	0.377	0.380
	% of stock to total stock	100.00	39.270	15.350	22.600	22.780
	Total weighted average	**2.445**	**0.867**	**0.216**	**0.793**	**0.569**
	% of stock to total stock	**100.00**	**35.46**	**8.83**	**32.43**	**23.28**

Highlights from the results of tree enumeration as given in table No.5, are summarized below :-

1) Afforestasion Working Circle :-

Catagorywise percentage of Species to total growing stock in this working circle is as given below

Sr No.	Category of Species	Name of Species	% to Total Growing Stock
1	A:- Species of General Utility	Ain, Bondara, Kakad, Sadada, Shisam, Teak, Tiwas	48.21
2	B:- Species of Special Utility	Arjun, Dhawada, Haldu, Hiwar, Kalamb, Khair, Kuda, Salai, Sawar, Shiwan	6.43
3	C :- Species of Minor Forest Produce	Amba, Apta, Awala, Bel, Bor, Char, Hirda, Jambhul, Kaju, Moha, Neem, Nilgiri, Palas, Shiras, Sitaphal, Tendu	31.73
4	D :- Other Species	Akeshiya, Aal, Alive, Asan, Bahawa, Bhutkes, Buteapalas, Dhaman, Dudhkudi, Humb, Kumbai, Modal etc.	13.63

2) **Improvement Working Circle :-**

Catagorywise percentage of Species to total growing stock in this working circle is as given below

Sr No.	Category of Species	Name of Species	% to Total Growing Stock
1	A:- Species of General Utility	Ain, Bondara, Kakad, Sadada, Shisam, Teak, Tiwas	52.12
2	B:- Species of Special Utility	Arjun, Dhawada, Haldu, Hiwar, Kalamb, Khair, Kuda, Salai, Sawar, Shiwan	4.92
3	C :- Species of Minor Forest Produce	Amba, Apta, Awala, Bel, Bor, Char, Jambhul, Moha, Neem, Nilgiri, Palas, Shiras, Sitaphal, Tendu	24.55
4	D :- Other Species	Asan, Buteapalas, Humb, Dudhkudi, Modal, Sisu etc.	18.41

3) **Protection Working Circle :-**

Catagorywise percentage of Species to total growing stock in this working circle is as given below

Sr No.	Category of Species	Name of Species	% to Total Growing Stock
1	A:- Species of General Utility	Ain, Bondara, Kakad, Sadada, Shisam, Teak, Tiwas	56.67
2	B:- Species of Special Utility	Arjun, Dhawada, Haldu, Hiwar, Kalamb, Khair, Kuda, Salai, Sawar, Shiwan	19.34
3	C :- Species of Minor Forest Produce	Amba, Apta, Awala, Behada, Bel, Char, Jambhul, Moha, Neem, Palas, Shiras, Sitaphal, Tendu	11.30
4	D :- Other Species	Asan, Bhawa, Bhutkes, Dhaman, Fashi, Humb, Karanj, Modal, Papada, Sisu, Umber, Other	12.69

Table No. 6
Availability of Teak in Previous (Jannuary 1995 to June 1995) Enumeration

Sr No.	Name of Working Circle	Total Growing Stock per ha.	Teak/Ha	% of Stock of trees to the total stock
1	**2**	**3**	**4**	**5**
1	Selection cum Improvement W.C.	147.00	49.33	33.55
2	Protection W.C.	142.85	39.40	27.59
3	Coppice with reserve W.C.	119.41	47.08	39.42
4	Afforestation W.C.	58.95	16.28	27.62
5	Improvement W.C.	115.53	34.01	29.51
6	Protection W.C.	135.10	57.92	42.36
	Weighted average	**98.58**	**29.95**	**30.38**

(Working Circles mentioned in Sr. No. 1 to 3 were falling in Taloda Taluka and in Sr. NO. 4 to 6 were falling in Akkalkuwa Taluka)

Table No. 6 (A)
Availability of Teak in Current (April-2012 to April-2014) enumeration.

Sr No.	Name of Working Circle	Total Growing Stock per ha.	Teak/Ha	% of Stock of trees to the total stock
1	**2**	**3**	**4**	**5**
1	Afforestation Working Circle	15.989	6.972	43.61
2	Improvement W.C.	15.801	6.816	43.14
3	Protection W.C.	11.621	5.703	49.08
	Total (Weighted Average)	**14.356**	**6.476**	**45.12**

From Table No.6 and 6 (A) it is observed that the percentage of teak species in current enumeration has been increased as compared to previous enumeration. It is also seen that the common feature of growing stock in different working circle is that "Teak" is the prominent species having 45.12% of the total growing stock and highest growing stock in Protection Working Circle.

Estimated growing stock of Medicinal Plant, Natural regeneration and grass per Ha.

Table No. 7
A) Medicinal Plant, per ha (Sample plot size 5 mtr. X 5 Mtr.)

Sr No.	Working Circle	Population area (Ha.)	No. of Sample Plots	Sample area (Ha.)	No. of Medicinal Plants in sample area	No. of Medicinal Plants per Ha.
1	**2**	**3**	**4**	**5**	**6**	**7**
1	A.W.C.	26491.010	741	1.85	557	301
2	I.W.C.	11854.590	337	0.84	370	439
3	P.W.C.	22077.290	600	1.50	100	67
	Total	**60422.890**	**1678**	**4.195**	**1027**	**245**

Working Circle wise name of species of Medicinal Plants found in sample plot are as follows.

Sr No.	Working Circle	Name of Species of Medicinal Plants Local Name (Botonical Name)
1	**2**	**3**
1	A.W.C.	Alive, Askand, Awala (Emblica officinalis), Behada (Terminalia bellirica), Bel (Aegle marmelos), Bahawa (Cassia fistula), Bhuiringni , Bhutkes (Cassine glauca), Bondara (Lagerstroemia parviflora), Dhawada(Anogeissus latifolia), Dhayti(Woodfordia fruticosa), Kudi (Wrightia tinctoria), Dudhali, Galmani, Gugul, Gulchura, Hirda, Jangli kand, Rankel(Chivni) (Ensete superbum), Kadukand , Kangni, Kawalakand, Khadkya, Kudai, Lepti, Modal, Morisawel, Moya, Palas (Butea monosperma), Paunaya (Marvel) (Dicanthuium annulatum), Rajhans, Rantulas(Ocimum basilicum), Ratadi, Sadada(Terminalia tomentosa), Tantani(Gavati) (Tridax procumbens), Tarota, Tembhurni (Diospyros melanozylon), Ulasa, Umber(Ficus glomerata), Waras(Hetrophragma quadrilolculare).
2	I.W.C.	Agata, Agra, Awala (Emblica officinalis), Bahawa(Cassia fistula), Bel(Aegle marmelos), Bhuiringni, Dagadroptya, Devkudi, Dhyati(Woodfordia fruticosa), Kudi (Wrightia tinctoria), Gadadi, Lali, Moya, Palas (Butea monosperma), Parkodi, Paunaya (Marvel) (Dicanthuium annulatum), Rantulas(Ocimum basilicum), Sarki, Ran Shengwa (Moringa pterygosperma), Sitaphal(Annona squamosa), Tantani(Gavati) (Tridax procumbens), Tarota, Tembhurni(Diospyros melanozylon).
3	P.W.C.	Aghada, Behada (Terminalia bellirica), Chandrajyot, Kudi (Wrightia tinctoria), Gokharu, Kalikudi, Katali, Kumbharaiwel, Moya, Palas (Butea monosperma), Pathadi, Rantulas(Ocimum basilicum), Tantani(Gavati) (Tridax procumbens).

B) Natural Regeneration plant, per ha (Sample plot size 5 mtr. X 5 Mtr.)

Sr No.	Working Circle	Population area (Ha.)	No. of Sample Plots	Sample area (Ha.)	No. of Regenerated Plants in sample area	No. of Regenerated Plants per Ha.
1	2	3	4	5	6	7
1	A.W.C.	26491.010	741	1.85	1880	1015
2	I.W.C.	11854.590	337	0.84	1782	2115
3	P.W.C.	22077.290	600	1.50	839	559
	Total	**60422.890**	**1678**	**4.195**	**4501**	**1073**

Working Circle wise name of species of Regeneration Plants found in sample plot are as follows.

Sr No.	Working Circle	Name of Species of Regeneration Plants Local Name (Botonical Name)
1	2	3
1	A.W.C.	Akhun, Al (Moninda tihctoria), Ain, Alive, Amba (Mangifera indica), Apta (Bauhinia racemosa), Babhul, Bahawa (Cassia fistula), Banga, Behada (Terminalia bellirica), Bhutkes (Cassine glauca), Bondara (Lagerstroemia parviflora), Bor (Zizyphus mauritiana), Bovara, Chamel, Chandrajyot, Dahikudi, Dhawada (Anogeissus latifolia), Gangutai, Gohiya, Gultura, Henkal, Hit, Jambhul (Syzygium cumini), Kakad (Garuga pinnata), Kalamb (Mitragyna parvifolia), Kesara, Khair (Acacia catechu), Kinni, Kudisawar, Kudi (Wrightia tinctoria), Modhal (Lannea coromandelica), Mokha (Schrebera swietenioides), Nilgiri, Padav, Palas (Butea monosperma), Papada (Holoptelea integrifolia), Payar (Ficus religiosa), Pipri, Rekwi, Sadada (Terminalia tomentosa), Salai (Boswellia serrata), Shisam, Shivan (Gmelina arborea), Sitaphal (Annona squamosa), Teak (Tectona grandis), Tendu, Tiwas (Ougeina oojenesis), Umber (Ficus glomerata), Warul.
2	I.W.C.	Al (Moninda tihctoria), Ain, Akhand, Apta (Bauhinia racemosa), Aranya, Awala (Emblica officinalis), Behada (Terminalia bellirica), Bel (Aegle marmelos), Bondar (Lagerstroemia parviflora), Dhawada (Anogeissus latifolia), Dudhkudi, Kalamb (Mitragyna parvifolia), Khair (Acacia catechu), Kudi (Wrightia tinctoria), Maharukh, Modhal (Lannea coromandelica), Mokha (Schrebera swietenioides), Nilgiri, Palas (Butea monosperma), Papada (Holoptelea integrifolia), Sadada (Terminalia tomentosa), Shisam, Sitaphal (Annona squamosa), Teak (Tectona grandis), Tendu, Tiwas (Ougeina oojenesis), Umber (Ficus glomerata).
3	P.W.C.	Ain, Aal, Bahawa (Cassia fistula), Bel (Aegle marmelos), Bondara (Lagerstroemia parviflora), Bor (Zizyphus mauritiana), Budzudpe, Dhawada (Anogeissus latifolia), Dudhkudi, Gulyapalas, Jambhul (Syzygium cumini), Kalamb (Mitragyna parvifolia), Karanj (Pongamia pinnata), Khair (Acacia catechu), Kudi (Wrightia tinctoria), Neem (Azadirachta indica), Palas (Butea monosperma), Papada (Holoptelea integrifolia), Sadada (Terminalia tomentosa), Salai (Boswellia serrata), Sitaphal (Annona squamosa), Teak (Tectona grandis), Tiwas (Ougeina oojenesis).

C) Grass Species, Per ha (Sample plot size 1 mtr. X 1 Mtr.)

Sr No.	Working Circle	Population area (Ha.)	No. of Sample Plots	Sample area (Ha.)	No. of Grass roots in Sample area	No. of Grass roots per Ha.
1	**2**	**3**	**4**	**5**	**6**	**7**
1	A.W.C.	26491.010	741	0.074	1627	21957
2	I.W.C.	11854.590	337	0.034	913	27092
3	P.W.C.	22077.290	600	0.060	2911	48517
	Total	**60422.890**	**1678**	**0.1678**	**5451**	**32485**

Working Circle wise name of species of Grass found in sample plot are as follows.

Sr No.	Working Circle	Name of Grass Species Local Name (Botanical Name)
1	2	3
1	A.W.C.	Kalikusali, Sheda, Moya, Paunaya(Marvel) (Dicanthuium annulatum), Kusali (Heteropogon contortus), Kunda, Dhayti (Woodfordia fruticosa), Sheda (Sehima nervosum), Tarota, Gondal, Pandharibhoti, Safedghatali, Fulora, Lalburandi, Kaskuiri, Chikor, Agra, Kurdu, Pawada, Nagari, Dati, Harali, Chiknya, Kohada, Soplya, Ganya, Lavali, Ratad, Dhomsa, Khodka, Hiragawat, etc.
2	I.W.C.	Paunaya(Marvel) (Dicanthuium annulatum), Moya, Taprya, Lalbhatadi, Kalikusali, Fulora, Safedghatali, Gondala, Fulsari, Samira, Malmal, Burandi, Safedghatali, Gondala, Fulsari, Samira, Malmal, Burandi, Chimanchara, Lalbharadi, Tulsi, Gathya, Sarakhi, etc.
3	P.W.C.	Agra, Dudhya, Moya, Safedbhatali, Paunaya(Marvel) (Dicanthuium annulatum), Kathali, Pawadya, Karteli, Sheda (Sehima nervosum), Jadya, etc.

Table No.8

Working Circlewise Standard error

Sr. No.	Name Working Circle	Population area (Ha.)	Sample area in (Ha.)	Intensity of sampling %	% Standard Error
1	**2**	**3**	**4**	**5**	**6**
1	Afforestation Working Circle	26491.010	266.76	1.01	11.98 %
2	Improvement W.C.	11854.590	121.32	1.02	13.04 %
3	Protection W.C.	22077.29	216.00	0.98	8.57 %
	Total	**60422.890**	**604.08**	**1.00**	

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CHAPTER – VIII : WILDLIFE PRESERVATION

8.1. SECTION 1 : DESCRIPTION OF HABITAT

The tract dealt herewith was fairly rich in number and varieties of wildlife once upon a time. But it stands in perilous

8.1.1 The following species of fauna is found here.

(A) **Carnivorous :-** (i) Tiger (Panthera tigris) (ii) Panther (Pantrha pardus) (iii) Hyaena (Hyaena hyaena) (iv) Wild dog (Cuonal pinus) (v) Wold (Cains lupus) (vi) Jackal (Canis aureus) (vii) Fox (Vulpus bengalaensis) (viii) Cat (Felis bengalaensis) (ix) Jungle cat (Felis chaus)

(B) **Herbivorous :-** (i) Gaur (Bosgaurus) (ii) Sambar (Cervusunicolor) (iii) Cheetal (Axisaxis) (iv) Nilgai (Boselaphus tragocamelus) (v) Barking deer (Muntiacus munjak) (vi) Wild boar (Sus scrofa) (vii) Sloth bear (Melursus ursinus) (vi) Black buck (Antilopecervicarpra) (ix) Four horned antelope (Tetraceuos quadricornis) (x) Chinkara (Gazella gazella).

(C) **Fruitivorous :-** (i) Flying squirrel (Pteromya fibriatus) (ii) Three stripped palm squirrel) (Funambulus palmarun).

(D) **Omnivorous :-** (i) Porcupine (Hystrix indica) (ii) Hare (Lepus nigricollis)

(E) **Wild Birds:-** (i) Painted sand grouse (Pterocles indicus) (ii) Common sand grouse (Pterocolesexustus) (iii) Peafowl (Pavocristatus) (iv) Grey jungle fowl (Ballussooneratii) (v) Painted partridge (Francolinus pictus) (vi) Bray partridges (Frencolinus pondicerianus) (vii) Jungle bush quail (Perdicula asiatica) (viii) Black breasted or rain quail (Coturnix coromandelica) (ix) Common bustard quail (Turnixsuscitator) (x) Indian or yellow legged button quail (Turnixtunki) (xi) Red spur fowl (Balloperdixspadicea) (xii) Sarus crane (Grusantigone) etc.

8.2 SECTION-2 : THE LEGAL HISTORY OF THE WILDLIFE

8.2.1 In Year 1878, Indian Forest Act was passed and it was made applicable to this area. The Section-2(b) (iii) included the wildlife in its definition of the forest produce. Under Section 25(i) of the said Act, any person in contravention of

any rules, which the local Government may from time to time prescribe, kills or catches elephants, hunts, shoots, fishes, poisons, water or set traps or snakes shall be punishable for a term which may extend to six months or with fine not exceeding five hundred rupees or with both in addition to such compensation for damage done to the forests as the convicting court may direct to be paid.

8.2.2 Prior to re-organization of states, the wildlife conservation in this part was through the implementation of the provisions of Indian Forest Act, 1927, and the shooting rules framed under Section 26(i) and 76 (d), read with Wild Birds. By 1927, the shooting blocks system was started under this system, the Conservator of Forests in consultation with the Deputy Conservator of Forests use to declare certain blocks of reserve forests with abundant game as open for shooting. The Deputy Conservator of Forests used to issue permits for shooting.

8.2.3 The Bombay Wild Animals and Wild Birds Protection Act, 1951, for the protection of wildlife, was enacted. Though this act did not propose a significant change in the management of game in reserved and protected forests, it was important as it operated in areas outside reserve and protected forests also. Under the provisions of this Act, arms licence-holders for sports were to register themselves with the Wildlife Preservation Officer. This Act prescribed a closed season for hunting and classified game into a categories viz. small game, big game, special big game and pet animals. It also sought to control transaction in trophies and other wildlife products. The statutory Wildlife Advisory Board was constituted under this Act, to advise the Government on various important matters pertaining to wildlife.

8.2.4 The Indian Board of Wildlife was constituted in 1952 with the main object of devising ways and means for conservation of wildlife, through coordinated legislative and practical measures and sponsoring the setting up of National Parks and Wildlife Sanctuaries. A comprehensive and unified National and State Park Act, 1971 was passed which provided for appointment of an Advisory Committee to advise in its constitution and declaration of National Parks and Sanctuaries and formulation of administrative policy. The Parliament then enacted Wildlife (Protection) Act, 1972, which came into

force in the State of Maharashtra with effect from 1st June, 1973. From the commencement of this Act, the law in force in the State stood repealed. The subsequent rules made under the Act are as follows.

(i) The Wildlife (Stock declaration) Rules, 1973 (became effective in Maharashtra with effect from 01-06-1973).

(ii) The Wildlife (Transactions and Taxidermy) Rules, 1973 (became effective in Maharashtra with effect fom 01-06-1973.

(iii) Wildlife (Protection) Rules, 1975. (Became effective from 06-03-1975).

(iv) The Wildlife (Protection) Licencing (Additional Matters for Consideration) Rules, 1983 (became effective with effect from 13-04-1983).

8.2.5 The Wildlife (Protection) Act, 1972 is a piece of comprehensive legislation, which provides for effective protection and preservation of wildlife, restriction on hunting and regulation of trade in wildlife animal articles made out of wild animals.

8.2.6 Hunting of wild animals is strictly prohibited under this act unless it is specially permitted. Wild animals have been categorized in five schedules and animals included in schedule-I and part-II of schedule-II receive the privilege of strict protection. Animals specified in these schedules are permitted to be hunted with special permission, if (1) It has become dangerous to human life or property; (2) It has become so disabled or diseased as beyond recovery.

8.2.7 Animals specified in Schedule-II (Part-I), III and IV are prohibited from hunting except if it has become dangerous to human life or property or had become diseased or disabled beyond recovery. Only vermins, included in Schedule-V had been excluded from strict protection.

8.2.8 Hunting of young and female of any animal other than vermin and that of any deer with antlers in velvet, is strictly prohibited unless specially permitted (Section-15). The Act specifically requires declaration to be furnished by the individuals as well as trophies etc. in their control, custody or possession.

8.2.9 The Government of India vide letter dated 18-09-1975 envisaged that the control over tanks and rivers in National Parks and Sanctuaries should be

vested with management authorities and not with fisheries or Irrigation Department.

8.2.10 The Government of India vide letter No. E-11011/3/75 FRY (WLF) had clarified that the certificate of legal procurement to be issued by the Chief Wildlife Warden is not necessary where an animal is not included in any schedule of the Wildlife (Protection) Act, 1972. Its export will be regulated by Ministry of Commerce.

8.2.11 Subsequently the delegation of power and duties of Chief Wildlife Warden to Police Sub-Inspector for the purpose of Section 4(i) and Section 55 of the Wildlife (Protection) Act, 1972, was granted by Government Resolution No. WLP-1973/197578-FI dated 5th April, 1976.

8.2.12 The schedules are revised by the Government on and off as it was required under Section 61 of Wildlife (Protection) Act, 1972. The Government of Maharashtra, under Section 64 of Wildlife Protection Act, 1972, framed the rule vide letter No. WLP-1679/95507/F-5. These rules further amended Wildlife (Protection), Maharashtra Rule 1975.

8.2.13 The Wildlife Protection Act was again amended to be called as Wildlife (Protection) Amendment Act, 1986 and it came into force from 25th Nov., 1986.

8.2.14 Under Section 44 of Wildlife (Protection) Act, 1972, the Government of India vide letter No.WLP/1682/100208/CR-43/(i)/F-5 permitted the trapping of cobra and Russells vipers by a licensed dealer, for the purpose of extracting venom. Under the power conferred under sub-section (i) and sub-section (2) of the Section 64, the Government of India vide letter No.WLP-1682/10020 (iii)/F-5 framed new rules called Wildlife (Frog Leg Industry) Rule 1987, and it came into force from 25th Nov., 1987. The Government of India vide letter No. F-No.1-2/91/WL-I, dated 21 October, 1991 further amended the Wildlife (Protection) Act, 1972. The following are the important amendments.

(a) The plants have also been included in the purview of this Act.

(b) The zoo and circus have been defined, and are included under this Act.

(c) The “game reserves” have been dropped.

(d) Section 9 of Wildlife (Protection) Act, 1972 has been amended and there is a total prohibition of hunting of animals specified in schedule I, II, III & IV except as provided under Section 11 and 12.

8.2.15 The salient feature of Wild Life Act 1972, as amended, is below:-

The salient features of the Act, which envisages to provide protection to the wild animal of Schedule I, II, III & IV are as below:-

Section-3: The section provides for the appointment of Director.

Section-4: The section deals with the appointment of Chief Wildlife Warden, Wildlife Warden and Honorary Wildlife Warden.

Section-9: The section provides for a ban on hunting of any wild animal, mentioned in Schedule-I, II, III & IV.

Section-11: The section gives the power to Chief Widllife Warden to order destruction of any animals (other than schedule-I), if it has become dangerous to human existence. Killing in self defence is not offence.

Section-12: The Chief Wildlife Warden is empowered to grant permission to hun for specific purposes like (i) education (ii) scientific management (iii) scientific research (iii) collection of specimen etc.

Section-17A: The section provides for protection to specific plant.

Section-18: The section empowers the State Government to declare the sanctuary.

Section-35: The section provides for declaration of National Parks.

Section-36A: It empowers the State Government to declare conservation reserve. This is an additional provision.

Section-36 C:The section provides for declaration of community reserve.

Section-38 A: It states about the constitution of Central Zoo Authority.

Section-51: It provides a penalty of imprisonment upto three years and fine upto Rs. Twentyfive Thousand rupees or both for breach of any conditions of any license or permit granted under this Act.

It further provides a minimum punishment of three years which may extend upto seven years and a fine which shall not be less than ten thousand, if the

offence is related to animals of Schedule-I or Part-II of the Schedule-II or meat of these animals or offence is related to hunting in sanctuary or National Park, or it is related to shifting of boundaries of sanctuary or National Park.

Act further provides a penalty for second or subsequent offence, which may be minimum for three years and may extent to seven years and fine not less than Rs.25,000/-. The Act further provides for offence is in relation to core area of a tiger reserve or a hunting in a Tiger Reserve or altering the boundaries of the Tiger Reserve, such offence shall be punishable on first conviction with imprisonment of a term, which may not be less than three years, but may extend to seven years, and a fine not less than Rs. Fifty Thousand and may extend to Rs.2.00 lakh and in even of subsequent conviction, an imprisonment of not less than seven years and fine which shall not be less than five lakhs, and may extend to fifty lakhs.

It further states that an abettor shall also get a similar punishment.

Section further provides that court may direct that arm license issued under Arms Act, 1959 of any person convicted of any offence under this Act, shall be cancelled and that person will not be eligible to hold license for period of five years from the date of conviction.

Section-52: It makes the abetment as an offence .

8.2.16 Details Of Animals Census For The Year 2014.

Sr. No.	**Wild Animal**	**No. of Animals as per 2014 Census**
(1)	Leopard	5
(2)	Hyena	3
(3)	Jungal Cat	3
(4)	Sloth bear	3
(5)	Chital	2
(6)	Barking Deer	1
(7)	Rabit	18
(8)	Monkey	20
(9)	Other	8

8.3 SECTION-3: RIGHTS AND CONCESSIONS

8.3.1 No rights or privileges have been granted to any person over wildlife as there is no such legal provision in the Act.

8.3.2 Section 9 of Wildlife Act 1991 put an restriction on hunting of all wild animals specified in schedule I, II, III & IV except as provided under section 11 and section 12. The section 11 deals with the elimination of wild animals dangerous to human life and section 13 empowers Chief Wildlife Warden to permit license for shooting for the purpose of collecting specimen needed for-

(a) Educational

(b) Scientific Research

(c) Zoological Gardens and Museum.

8.4 SECTION 4 : INJURIES TO WILDLIFE

Fire and poachers are mainly responsible for the destruction of wildlife in this region. **As per Appendix No.XVII in Volume II.**

8.4.1 Fires:-Forest fires are of frequent occurrence, particularly, in remote areas which are the ideal abode for wildlife. These fires, besides destroying the natural habitat of the forest fauna drive them to take shelter near the human habitation and making them easy targets for poachers. Khandesh region is known for water scarcity particularly in summer. These fires aggravate the already existing water scarcity and compel them to migrate to the easy localities for food and water exposing these animals to above mentioned risks.

8.4.2 Poaching:-Poaching is an important reason for the depletion of wildlife in the area. With forest almost getting depleted, these are an easy target of poaching. The natural habitat has depleted to a large extent.

8.4.3 WaterSupply:- It is a great limiting factor on the survival of the wildlife.

8.4.4 Grazing :- The grazing by the domestic cattle has enhanced the competition for fodder and water.

8.5. SECTION 5:MEASURES ADOPTED FOR PROTECTING WILDLIFE:-

8.5.1 The newly amended Wildlife Act, 1991 will go a long way in protecting the wildlife. The amended section 9 of the said Act puts a total ban on hunting of wild animals specified in schedule I, II, III & IV.

8.5.2 The procedure for declaration of sanctuary has been simplified. No further enquiry is required after declaring a sanctuary of the area in question if it is a reserved forest.

8.5.3 The section 29 states that "No person shall destroy, exploit or remove any wildlife from a sanctuary or destroy or damage the habitat of any wildlife animal or deprive any wild animal of its habitat within such sanctuary except under and in accordance with a permit granted by the Chief Wildlife Warden and no such permit shall be granted unless the State Government being satisfied that such destruction, exploitation or removal of wildlife from the sanctuary is necessary for the improvement and better management of wildlife therein, authorizes the issue of such permit."

8.5.4 Provisions have been made to immunize the cattle, grazing in the sanctuary, against the communicable diseases.

8.5.5 The Act stipulates that no new arms license under this Act will be issued within 10 km. radius of the sanctuary, without the prior approval of Chief Wildlife Warden.

8.5.6 In 1972, with a view to check illicit shooting of wild game, the State Government sanctioned the grant of rewards to the informed or informer in respect of unlicenced shooting, provided that the information is found to be valid and leads to the conviction of the offender. In addition, the State Government has decided to grant reward, equal to 50 percent of the compensation actually recovered from the offender for illicit shooting, to the Gram Panchayat or its office bearer or individuals who have rendered cooperation in detecting of such illicit hunting in the State.

8.5.7 Trade in wildlife or mere possession of captive animals, animal articles trophies or salted skins derived from animals specified in schedule I and Part

II of schedule II is strictly prohibited without permission in writing from the competent authority.

8.5.8 The transport of any specified animals, animal article, trophy or uncured trophy from one place to another is strictly prohibited without permission in writing from the competent authority.

8.5.9 The quantum of punishment has been enhanced substantially. The terms of punishment has been advanced to three years and fine upto Rs.25,000/-. The Act provides for a minimum limit of the punishment of fine or both.

8.5.10 In order to avoid a man animal conflict, the Government of Maharshtra has taken measures to compensate for the loss incurred by the individual. These measures are listed below:-

8.5.11 GR-WLP-9094/115 /F-1 dated 23-08-2004

Preamble:- After the strict implementation of Indian Wildlife Act, 1972, there has been a proliferation in the population of wild animals and especially of herbivores. Carnivores did not proliferate to commensurate with the increase of herbivores population, with the result there has been a large scale destruction of agricultural crop by these wild animals causing a widespread resentment. The Government of Maharashtra vide its resolution listed above, had taken a decision to grant a compensation upto Rs.2000/ha, subjected to maximum of Rs.5000/- per family, subject to following restriction.

(a) The compensation shall be confined to the destruction of the crop done by wild bear, deer, elephant and the following procedure should be followed for preparing the case :-

(i) The agriculturist should lodge the complaint within three days with beat guar, round officer or with a Range Forest Officer.

(ii) The loss shall be confirmed by the Committee constituted of forester, sarpanchs and gramsevak/talathi within days of the reporting. The Committee after visiting site shall assess loss.

(iii) Dy. Conservator of Forest concern shall pass the order with 90 days.

(iv) Dy. Conservator of Forest shall hand over the sanctioned amount within one month of the passing of the order.

(b) The following categories of people shall not be entitled to compensation.

(i) The persons who have done encroachment on forest land.

(ii) The persons who have been booked for any offence related to wildlife under Wildlife Act, 1972.

(iii) The agriculturists who have more cattle and these cattle go for grazing on the forest land.

(iv) The agriculturist who have been provided license to keep guns for protection of crop.

(v) Poaching incidence to be reported within one month of the incidence in the village.

8.5.12 Government of Maharashtra G.R. No.WLP-1008/Cor. No.270/F-1, Revenue and Forest Department, dated 2nd July, 2010-

The Government of Maharashtra vide above resolution made a partial modification in their original order dated 23rd Aug., 2004. By this order, the quantum of compensation was enhanced and scope of compensation in addition to crop destruction, was also enhanced to fruit trees, to human being and to cattles. Similarly the list of animals causing destruction was also enlarged to include Nilgai and monkeys. The loss was to be calculated as a whole and not per hectare. It provided for a minimum compensation as Rs.500 and maximum upto Rs.15,000/-. Similarly for sugarcane, it was to be calculated at a rate of Rs. 400/- tonne. Loss to fruit garden by elephant and bison was to also be assessed as below:-

(i) Coconut - Rs. 2000/tree

(ii) Beatle nut - Rs. 1200/tree

(iii) Grafted Mango - Rs. 1600/tree

(iv) Banana - Rs. 48/tree

(v) Other Fruit Trees - Rs. 200/tree

Loss to sugarcane field was to be calculated on the basis of eight years of statistical data of that taluka.

The Government Resolution also included to compensate the loss to human lives or injuries to the, but restricted the loss caused to animals, tiger, panther, bear, bison, wild board, landga, hyena, jackal, elephant, crocodile and wild dogs. The following compensation was envisaged.

Sr. No.	Nature of Injury	Compensation
(i)	Loss to human life or injury causing causing Permanent disability	Rs.200,000/-
(ii)	Serious injury	Rs. 50,000/-
(iii)	Casual injury	Rs.7500/- per person in private dispensary(treatment as far as possible should be done in Govt. hospital

The G.R. also defined certain restriction while implementing the G.R. site reporting with 48 hour, the killing was not due to violation of any provision of Wildlife Act, 1972 etc. The Government Resolution also encompassed the loss to domestic animals like cow, buffalow, sheep, goat and other animals enlisted in Section-2 (18-A) of Wildlife Act, 1972. The Government order provided as below:-

Sr.No.	Type of Animals	Compensation to be paid
(i)	On the death of cow, buffalo and bull	75% of the market value or Rs.10000/-whichever is less.
(ii)	Sheep, goat and other animals	75% of the market value or Rs.3000/- whichever is less.
(iii)	Permanent disability to cow, buffalow or bull	50% of the market value or Rs.2000/- whichever is less

The compensation was to be paid subjected to certain condition enlisted in G.R. like reporting within 48 hours no. removal of carcass from the site of killing, no wild animal is killed within a day of killing within a radius of 10 kilomeer.

The Government Resolution also envisaged upon the loss to coconut trees due to vultures, where they nest or rest on it. Whereby the crop is destroyed due to excreta, the G.R. provided

(i) To calculate loss of coconut at a rate of Rs. 7/- per piece.

(ii) The loss to be limited to Rs. 400/tree

8.5.13 G.R. No. WLP-2012/Cor. No.337/F1, dated 30th March, 2013,

The Government of Maharashtra vide its resolution No. WLP-2012/Cor. No.337/F1, dated 30th March, 2013, further revised the compensation to human being as follow:-

Sr. No.	Type of Injury	Quantum of compensation
(i)	On death	Rs,500,000/- only.
(ii)	On permanent disability	Rs.400,000/- only.
(iii)	On serious injury	Rs. 100,000/- only

8.5.14 G.R. No.WLP-2012/Cor. No.337/F-1, dated 28th May, 2013

The relevant certificate from Civil Hospital is required vide Government of Maharashtra's resolution No.WLP-2012/Cor. No.337/F-1, dated 28th May, 2013. The Government of Maharashtra vide its above mentioned resolution, further simplified the procedure for giving compensation to the family members in case of death caused due to the attack of tiger, leopard, bear, bison, wildboard, landga, hyena and wild dogs. Under the new guidelines the compensation to the following people, will not require a legal heir certificate. In case of death of an old man his living wife and uneducated offspring will get the equal share and likewise similarly in case of a old woman, adolescent of age between 0-18. The resolution also provides for paying one lakh rupees as interim relief, out of five lakh compensation due: In events of death, Range Forest Officer shall obtain the legal heir certificate from Revenue Officer and shall obtain a bond paper duly signed from his legal heirs. In case of interior areas, naib tahsildar shall obtain the relevant bond papers, duly signed from the legal heirs. In even of human death, the incidence should immediately be

reported to Sub-Divisional Officer/Naib Tahsildar by the Range Forest Officer within two days, failing which a disciplinary action shall be initiated.

8.5.15 Besides the above mentioned legal provisions for protection of wildlife, public opinion for preservation of wildlife is being created through the wildlife week which is celebrated every year since 1951.

8.5.16 G.R. No. WLP-2012/Cor. No.337/F1, dated 16th Jannuary, 2015,

The Government of Maharashtra vide its resolution No. WLP-2012/Cor. No.337/F1, dated 16th Jannuary, 2015, further revised the compensation to human being as follow:-

Sr. No.	Type of Injury	Quantum of compensation
(i)	On death	Rs,800,000/- only.
(ii)	Casual injury	Rs.15000/- per person in private dispensary(treatment as far as possible should be done in Govt. hospital

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CHAPTER – I : BASIS OF PROPOSALS

9.1 SECTION 1: NATIONAL FOREST POLICY.

As per the Resolution No.3 .1 / 86-FP dated 7th December 1988 of the Ministry of Environment and Forests, the National Forest Policy, 1988 has come into force, prescribing a new strategy for forest conservation. The basic objectives governing the new policy are given below:

9.2 SECTION 2:Basic objectives of the National Forest Policy -1988

1. Maintenance of environmental stability through conservation and, where ever necessary, restoration of the ecological balance that has been adversely disturbed by serious depletion of the forest of the country.
2. Conserving the natural heritage of the country by conserving the remaining natural forests with the vast variety of flora and fauna. This represents the remarkable biological diversity and genetic resources of the country.
3. Checking soil erosion and denudation in the catchment areas of rivers, lakes, reservoirs in the interest of soil and water conservation, for mitigating floods and drought and for the retardation of siltation of reservoirs.
4. Checking the extension of sand-dunes in the desert areas of Rajasthan and along the coastal tracks.
5. Increasing substantially the forest/tree cover in the country through massive afforestation and social forestry programme, especially on all denuded, degraded and unproductive lands.
6. Meeting the requirements of fuel wood, fodder, minor forest produce and small timber of the rural and tribal population.
7. Increasing the productivity of forests to meet essential national needs.
8. Encouraging efficient utilization of forest produce and maximizing substitution of wood.
9. Creating a massive people's movement with the involvement of women, for achieving these objectives and to minimize pressure on existing forests.
10. The derivation of direct economic benefit must be subordinated to environmental stability and maintenance of ecological balance.

9.3 SECTION 3: Sailent Features of the National Forest Policy-1988

The salient features and the strategy as regards management of State Forests are as under--

1. The national goal should be to have a minimum of one third of the total and area under forest or tree cover.

2. Severe restrictions on schemes and projects which interfere with forests that clothe steep slopes, catchment of rivers, lakes and reservoirs.

3. No working of forests without the Government having approved the Management plan.

4. No programme should entail clear-felling of adequately stocked natural forests. Exotic plant species should not be introduced unless long-term scientific trials are taken.

5. The rights and concessions, including grazing, should always remain related to carrying capacity and should be achieved by increased investment and silvicultural research. Stall feeding of cattle should be encouraged.

6. The rights and concessions from forests should primarily be for the bonafide use of the communities living within and around forest areas, specially the tribals.

7. The right and concessions enjoyed by tribals and people living around forests should be fully protected. Their domestic requirement of fuelwood, fodder, and minor forest produce and construction timber should be the first charge on forest produce.

8. On the front of domestic energy, fuelwood needs to be substituted as far as practicable with alternate sources like bio-gas, L.P.G. and solar energy. "Fuel efficient Chulhas" as a measure of conservation of fuelwood needs to be popularized in rural areas.

9. Diversion of forest lands for non-forest purpose should be subjected to careful scrutiny. Projects, which involve such diversion, should provide funds for compensatory afforestation.

10. Forest management plans to take special care of the needs of wildlife conservation.

11. The tendency of doing encroachments should be checked and there should be no regularization of existing encroachment.

12. Forest based industries should raise the raw material needed by themselves in arrangement with the private cultivators.

13. People should be made forest conscious through extension activities.

14. Survey of forest resources to be completed on scientific line for updating information.

9.4 SECTION 4: FOREST CONSERVATION ACT,1980

In the past large tracts of forest lands were diverted for providing land for different developmental projects such as irrigation dams, hydro- electric projects, roads, railways, transmission lines, rehabilitation of project affected persons etc. As the country was already short of the desired forest cover, the need for some legislation to restrict and regulate further diversion of forest lands in the name of developmental projects resulted in the Forest Conservation Act, 1980. It came into force from the 25th Oct. 1980 and extends to the whole of India, except the State of Jammu and Kashmir. It places restrictions on the de-reservation of forest or use of forest land for non-forestry purposes. It mainly stipulates that-

1. No state Government or other authority shall make except with the prior approval of the Central Government, any order directing that any reserved forest or any portion thereof shall cease to be reserved and that any forest land or any portion thereof may be used for any non-forestry purpose.
2. The Central government may constitute a committee to advise the Government with regards to this Act and any other matter connected with the conservation of forests.
3. The Central Government may by notification in the Official Gazette make rules for carrying out the provisions of this Act.

9.5. SECTION 5:- THE MAHARASHTRA FOREST DEPARTMENT'S MISSION :-

The Maharashtra Forest Department carried out institutional reforms under the Maharashtra Forestry Project and came out with a clear mission statement and

objectives of the Forest Department. This mission and the objectives were approved by the Govt. of Maharashtra GR No. R&FD-FDM/1098/CR-540/F-11 dated 22nd April 1998. The mission statement and the objectives are as follows :-

9.5.1 The Mission :-

To activate the sector by catalyzing the positive involvement of all the stake-holders in enrichment, expansion and sustainable development of the forest resources by being a responsive and transparent learning organization.

9.5.2 Core Elements of the Mission :-

- Transformation of forestry into an important sector in the State's economy.
- Ensuring stability of the Eco-system.
- Ensuring equity of the various stakeholders in using the forest resource (especially needs of the local community)
- Enhancing productivity of the resources.
- Increasing forest cover.
- Conservation of Gene pool and Bio-diversity.
- Becoming a responsive and transparent organization.

9.5.3. Primary Objectives

Sectoral

- To recommend to the State Central government, policies which will provide an enabling environment for various non-governmental players to play an active role in this sector.
- To generate and disseminate knowledge and information relevant to the sector to various stakeholders and provide Research & Development support to the sector.
- To regulate the activities of various players involved in forestry sector development.
- To undertake and co-ordinate planning along with the other government departments and agencies.
- To develop a pro-active interface with the political and executive arm of the government and public.
- To act as a nodal agency at the grass-root levels in the forest lands.

9.5.4. Institutional

- To develop a skilled manpower base for the sector.
- To ensure technology upgradation.
- To promote a strong research base and build up an effective institution for effective knowledge management.

9.5.5. Operational

- To maintain accurate and reliable data and information on forest resources and undertake periodic resource monitoring.
- To ensure effective and efficient management of forest estates under its control.
- To upgrade the quality of the land by soil and water conservation measures.
- To identify, map and conserve the bio-diversity rich areas.
- To promote the efficient utilization and value addition of forest produce including promotion of substitutes.

9.6 SECTION 6 : FACTORS AFFECTING GENERAL OBJECTIVES OF MANAGEMENT

1. Under Sardar Sarowar Project, catchment areas of **9955.82** ha. comprising of Mewasi division was identified as catchment areas of Narmada river. This area directly drains water into river Narmada. To prevent future sittation of the Sardar Sarover reservoir and to preserve vegetal cover on the precipitous slopes and the catchment areas of Narmada river Protection Working Circle has been constituted.

2. Most part of akkalkuwa east, Akkalkuwa west and Molgi ranges have become understocked owing to heavy biotic pressure, mainly for the timber, fuelwood and grazing requirements of the villages. Hence Improvement Working Circle is proposed to bring back vegetal cover in this area to meet the small timber, fodder and fuel requirements of the local villagers.

3. In the acquired forest areas, there are small patches of forests interspersed with the revenue areas, which cannot be managed as tree forests, will be managed to meet small timber, fuelwood and fodder requirements of the villagers.

4. Bamboo is the most sought after produce by the villagers of this area. Since the time of last gregarious flowering of the bamboo in the area, there is an acute shortage of the matured bamboos, Hence bamboo underplanting is proposed to meet the future requirements of the villagers.

9.6.2. GENERAL OBJECTS OF MANAGEMENTS:

1. To protect and conserve the vegetal cover on steep slopes and catchment areas so as to check soil erosion and denudation in the catchment areas of Narmada river, for mitigating floods, droughts and for the retardation of siltation of reservoir.

2. To improve the vegetal cover in the understocked areas of the tract, so as to bring the growing stock to its normal condition.

3. To raise fodder and fuel wood plantations in order to meet the fodder and fuel demands of the villagers in future.

4. To improve the bamboo density in the forest by way of underplanting, so as to meet the bamboo requirement of the people.

9.7. SECTION 7 : FUNCTIONAL CLASSIFICATION OF FORESTS.

The State Government, vide Revenue and Forest Dept. Resolution No. MFP-1365/132211-Y dated 6.12.1969 has recognized the following classes of forests on functional basis:

a] Protection Forests.
b] Tree Forests.
c] Minor Forests.
d] Pasture Land
e] Miscellaneous Forests.

a) PROTECTION FORESTS :

These forests are confined to the precipitous slopes along the ridges of Satpudas and Autram ghat. These areas have basically been allotted to Protection Working Circle. No felling of trees, green or dead has been prescribed. Soil and moisture conservation to prevesnt sheet erosion has been stipulated. No grazing has been permitted in these areas. Few measures to increase stocking has been provided.

b) TREE FORESTS :

These forests are situated in good or moderate soil and edaphic conditions are prominently suited for commercial value. The forests of Taloda, Khapar &Akkalkuwa ranges are included in this category of forests. The forest of Molgi, Wadafali & Kathi ranges are also included in this category to improve the stocking, by providing a period of rest.

c) MINOR FORESTS :

These are the forests capable of producing small timber and firewood and for providing grazing, which are the indispensable needs of the adjoining agricultural population. This category of forests is spread all over the Division. Some of these areas are the degradation stages of other wise a high forest. These areas have been included either in Improvement Working Circle or Afforestation Working Circle, depending on the existing vegetation and the soil depth. Grazing has been prescribed here.

d) PASTURE LANDS :

Those openly stocked forests or scrub lands that have ceased to yield even small timber but which are conveniently situated for providing grazing to the cattle used for agricultural works. These Forests are spread over the entire part of the ex-proprietary forests of the Akkalkuwa tahsil and these areas are in small patches less than 20 ha. And they are interspersed with revenue areas.

9.8 SECTION 8 : RESERVE AND PROTECTED FORESTS.

Most of the forest area of this division has already been reserved through various notifications, issued from 1892 to 2005. However there is an urgent need to declare the remaining 4.09 ha protected forest under Section 4 of Indian Forest Act for its subsequent notification as Reserved Forest.

9.9 SECTION 9: METHOD OF TREATMENT.

The forests having been classified on functional basis under the different categories necessitate suitable treatment for each class. The methods of treatment will therefore differ in respect of each category of forests. It may also be necessary to adopt different methods of treatment for the different areas of forest, falling in the same functional category, with the main object of

achieving their development to the maximum possible extent. It is with this aim that the methods of treatment are proposed.

1. **PROTECTION FORESTS:-**These forests are confined to the precipitous slopes along the ridges of Satpudas. The object of management in these forests is to improve vegetation, soil conservation and sub-soil water regime. No felling even of dead / drying tree has been prescribed. Gap planting with seedlings and seed sowing with intensive soil and moisture conservation works will be carried out. Root suckers shall be promoted by the usual technique.

2. **TREE FORESTS:-** These are the forests are capable of yielding timber, restricted to fewer patches in Kathi, Wadafali & Molgi range. Improvement works such as gap planting, tending operations of the existing root stock has been proposed and extensive soil and moisture conservation works will be carried out.

3. **MINOR FORESTS:-**These forests, capable of yielding small timber and fuelwood and it cover all six ranges. Most of the areas are either under-stocked or open. So the main object is to re-clothe the area with vegetal cover and to prevent soil erosion. The method of treatment will involve assisting the natural regeneration by providing adequate protection from fire and grazing combined with soil and moisture conservation works. These areas have been put largely into Afforestation Working Circle.

4. **PASTURE LANDS :-** These forest areas which are small and nearer to the villages and interspersed with revenue areas of ex-proprietary forests of Akkalkuwa, tahsil will be managed as silvi-pasture lands. These areas beings small and scattered with sparse tree growth are unmanageable as forest land. Hence they are to be managed as silvi-pasture lands. These areas will be managed as silvi-pastures to provide fuel and fodder to the villagers.

9.10 SECTION 10: GRAZING SETTLEMENTS:

9.10.1 The grazing will be regulated as per the provision laid down in Grazing Policy 1968 of Maharashtra State issued vide Resolution No. MFP-1365/132211-Y dated December 6, 1968 and Grazing Rules issued vide no. MFP-1371/237035-Z dated November3, 1973.

9.10.2 The carrying capacity and period of closure should be calculated for the forest area adjoining each village. The grazing passes, free or otherwise to individual families are proposed to be distributed on the calculated carrying capacity basis. Village bodies should also be actively be engaged in the implementation of grazing regulations. Goats and sheeps shall not be permitted for grazing in the forest area, due to its close level grazing and for uprooting the seedlings from its base.

9.10.3 The surplus cattle should be kept under regular watch, and villagers should be encouraged to adopt stall-feeding or other means to address mismatch between cattle-heads and fodder availability. The admissible grazing incidences in various circles are detailed in table 45 below.

9.10.4 The Grazing Settlement Report for Mewasi Forest Division needs revision as the reorganization of the divisions and wildlife areas has led to the distribution / splitting of the then grazing units. Hence new Grazing Settlement Report shall be prepared as early as possible to avoid conflicts among the villages for grazing purpose. For this purpose, an Asstt. Conservator of Forest working with the Working Plan Division, Dhule can be designated as Grazing Settlement Officer and a proposal in this regard will be submitted by Dy. Conservator of Forest (Territorial), Mewasi for the consideration of the Government.

9.11 SECTION 11 : FORMATION OF WORKING CIRCLE

Keeping in view the objectives of management and methods of treatment as explained in the previous sections, following 9 Working Circle (4 main WC + 5 overlapping WC) are constituted:

Table No. 1

Area allotted to various Working Circles

Sr.No.	Working Circle	Area allotted (ha.)	% age of area allotted
1	Protection Working Circle	15833.36	22.62
2	Improvement Working Circle	17164.36	24.52
3	Afforestation Working Circle	3057.12	4.36
4	Non-Timber Forest(Overlaping) Working Circle	42295.56	-
5	Bamboo (Overlaping) Working Circle	23500.00	-
6	Bio-diversity Conservation (Overlaping) Working Circle	17164.36	-

7	Plantation Management (Overlaping) Working Circle	4997.96	-
8	Joint Forest Management (Overlaping) Working Circle	-	-
9	Miscellaneous Area Management	33924.86	48.47

The following table gives the comparative statement of different Working Circles of Shri.S.H.Patil Working Plan and the current Plan:

Table No. 2

Comparative Statement of Working Circles of S.H.Patil'sPlan and Current Plan

Shri.S.H.Patil Plan(4 main & 3 OL WC)		**Current Plan (4 main & 4 OL WC)No.**	
Working Circle	**Area (ha.)**	**Working Circle**	**Area (ha.)**
Protection W. C.	20722.15	Protection W. C.	15833.36
Improvement W. C.	11754.59	Improvement W. C.	17164.36
Afforestation W. C.	23864.09	Afforestation W. C.	3057.12
Miscellaneous W. C.	1364.14	Miscellaneous Area Management	33924.86
Bamboo (Overlaping) W. C.	-	Non-Timber Forest (Overlaping) W. C.	42295.56
Wildlife (Overlaping) W.C.	-	Bamboo (Overlaping) W. C.	23500.00
Non-Timber Forest(Overlaping) W. C.	-	Bio-diversity Conservation (Overlaping)	17164.36
	-	Plantation Management (Overlaping) W. C.	4997.96

9.11.1 PROTECTION WORKING CIRCLE :

All compartments of protection forests of previous Working Plan are included in this working circle in addition to few more area. The working circle includes the forest areas which are vulnerable to encroachment, fire, illicit felling, and poaching, illegal mining and soil erosion. The area is spread along the precipitous slopes of Satpudas hill ranges of Molgi, Kathi, Wadafali, Khapar, Akkalkuva and Taloda Ranges. The area will be protected intensively from encroachment, fire, illicit felling, and grazing. Improvement works such as dibbling and broadcasting of seeds of tree species on precipitous slopes and gap planting on gentle slopes($<25^0$) will be taken up in implementing the provisions of this working circle, along with soil and moisture conservation works, for the betterment of the area. The area under this working circle is **15833.36** ha. Statement showing the details of compartment allotted to Protection Working Circle into working searies. **As per Appendix No.XVIII in Volume II.**

In this working plan, the special emphasis has been laid on survey, demarcation, erection and maintenance of boundary pillars, so as to prevent illicit felling & encroachment, in the forest area. The forests suffer heavy biotic pressure, especially due to illicit felling, fire, and uncontrolled grazing, which results in trampling of young regeneration and in compactness of top soil. Excessive grazing and uncontrolled fires are the main adverse factors causing degradation of forests in the division. The situation requires some bold measures to minimize these adverse influences. Boundary demarcation will be carried out in time-bound manner for ensuring territorial integrity of forest. The Deputy Conservator of Forests, Mewasi shall ensure maintenance forest boundaries, updating land records and reconciling revenue records in accordance with forest notifications. Management of forests close to village will give a priority of meeting demand of local people for small timber, firewood, pasture, non-wood forest produce, etc. Local people will be actively involved in forest management, forest protection, plantations and development of natural resources in the village. The Government of Maharashtra vide its notification No. S-30/10/2000-CR-456/F-6, dated 21st April, 2001 has issued the notification, empowering Range Forest Officer and Forester, under section 72(i) (b) of Indian Forest Act, 1927 to enter upon the land to survey and to demarcate it. Though the notification may have a limited scope of surveying the forest land, for the purpose of settlement, yet it can be interpreted for demarcating other forest areas.

9.11.2. IMPROVEMENT WORKING CIRCLE:

This working circle includes the compartments from erstwhile all 6 ranges part included in earlier plan and it also include the compartments having reasonably good vegetation of Molgi, Kathi and Wadafali ranges. Improvement works such as artificial regeneration in under stocked / blank areas with teak and other miscellaneous species, found locally in the area, has been proposed. Natural regeneration will be associated by carrying out a cut back operation, on multiple shoots. Root suckers will be promoted. Improvement works such as dibbling and broadcasting of seeds of tree species on precipitous slopes and gap planting on gentle slopes($<25^0$) will be

taken up in implementing the provisions of this working circle, along with soil and moisture conservation works, for the betterment of the area.Soil conservation works like gully plugging and nallah bundings will be carried out, subject to availability of funds. The total area of this working circle is **17164.36** ha. Statement showing the details of compartment allotted to Improvement Working Circle into working searies. **As per Appendix No.XIX in Volume II.**

9.11.3 AFFORESTATION WORKING CIRCLE:

The forest areas which are blank or very much under stock constitute this working circle. The forest areas which are blank or very much understocked constitute afforestation working circle. It aims at to meet the small timber, fuel wood and fodder demand of the local population living in and around forest areas and also aims at to bring back the vegetal cover in the area.

Total area allotted to this working circle is **3057.12** ha. and the method prescribed here in regeneration through artificial method. Statement showing the details of compartment allotted to Afforestation Working Circle into working searies. **As per Appendix No.XX in Volume II.**

9.11.4. NON TIMBER FOREST PRODUCE (OVERLAPPING)WORKING CIRCLE

This is an overlapping working circle and includes the entire forest areas, of the Division. The emphasis in this Working circle is to increase quality and quantity of forest produce and to ensure proper harvesting of non-timber forest produce. This Working Circle also aims to generate employment for local tribals and other rural folk. The prescriptions will also cover the medicinal plants found locally. The total area of this Non Timber (overlapping) Working Circle is **42295.56** ha.

Non- timber forest produce (NTFP) has a great potential for sustainable economic improvement of local people. For communities involved with the conservation of forest resources, sustainable NTFP production will be given high priority in the forest management. Assessment of the existing NTFP yielding species, estimation of the NTFP potential by enumerating species

of girthwise and a beatwise namely gum of yielding (kadai, salai,dhawada etc), host trees(bor, kusum, khair, palas etc), bio fuel trees (mahua, neem, karanj etc, is the most important prescription of this chapter.

9.11.5. BAMBOO (OVERLAPPING) WORKING CIRCLE

This is an overlapping working circle spreading over the forest area mainly under Protection and Improvement Working circle as well as Afforestation Working Circle. The emphasis in this working circle is to improve the stocking and density of bamboo and to harvest existing bamboo scientifically, so as to get maximum yield and to meet the local demand of bamboos to the maximum possible extent. This will also generate the employment opportunities. The total area of this bamboo (overlapping working circle) is **23500.00** ha.

9.11.6. BIODIVERSITY CONSERVATION WILD LIFE MANAGEMENT AND ECO TOURISM (OVERLAPPING) WORKING CIRCLE:-

Special habitat management for wildlife conservation will receive a high priority. Riparian zones important for wildlife management, will receive added protection and treatment. Adequate buffer will be provided to such sites while preparing treatment maps. Snag, den trees and down logs shall be provided sufficiently protected, to meet the habitat requirement of birds and small animals. Wildlife requirements shall be the most important consideration for conserving bio diversity of the area and improvement of habitat of wild life.This working circle also overlaps the other working circles and covers the entire forest area under this plan. The total area of this Biodiversity (Overlapping) Working Circle **17164.36** ha.

In order to preserve and improve the variety of fauna and to provide suitable conditions for the well being of wildlife of the area a Wildlife (Overlapping) Working Circle is proposed. The area spreads over the entire tract of the division. It is proposed to identify and locate permanent water holes and make provision of salt licks near waterholes.

9.11.7. PLANTATION MANAGEMENT (OVERLAPPING) WORKING CIRCLE:-

Afforestation works done in Mewasi Division during last few years have shown good results. However the plantation schemes are prepared generally for five years only. These plantation if treated and protected up to ten years, will help in improving the tree cover.

Method of treatment suggested here includeds reboisement of old plantations along with mulching, singling and cleaning operation, watch and word, repairing of TCM, live hedge fencing and soil and moisture conservation works etc. as per requirement of sites. This will also increase the number of visits to the plantation site of by the field staff and supervisory officers.

9.11.8. JOINT FOREST MANAGEMENT (OVERLAPPING) WORKING CIRCLE:

1. National Forest Policy 1988 envisages the importance of involvement of local people in the protection of forests. It also emphasizes the importance of traditional rights of forest dwellers. Priority for sharing of usufruct has been given to forest dwellers yet the deviation of forest land for the industrial use has been discouraged.

2. As a follow up action on this new forest policy, regarding J.F.M., the Government of India issued a set of guidelines in 1990 encouraging the Forest Departments, to involve local people in the management of forests. Over the past 27 years, most of the states have issued their own guidelines. The Government of Maharashtra has also issued its own guidelines and passed Government Resolution no SLF-1091/CASE NO 119/91/F-11 with the effect from 16th March 1992, and there by the JFM activity was adopted for improving the status of degraded forest area of the state and a new set of guidelines was again issued vide GR No. MSC/2000/C.No. 143/F-2, dated 25.4.03, to encompass still a larger area.

3. Villagers themselves are required to voluntarily participate in the programme. Forest Protection Committee (FPC) are formed in each

village. The members of the committee provides help in protection and development of forests and they will receive in turn, a share in the usufructs, obtained from the forest area assigned to them for that purpose. The JFM area will be managed according to micro-plans prepared jointly by Deputy Conservator of Forests and members of Forest Protection Committee. These micro-plans shall contain details of forest and village development. This has to be based on a sustainable management practice and must cater the aspirations of local communities and at the same time meet the silvicultural requirements of the forests in question.

4. Later, the government of India advised the state governments to take up the Joint Forest Management in well stocked forest areas on experimental basis and accordingly issued the guidelines, dated 25.4.03 cited above which has authorized the State Forest Department to apply JFM concept even in well stocked area.

9.11.9 MISCELLENEOUS AREA MANAGEMENT :

This working circle constitutes the areas submerged under Sardar Sarovar Project dam as **1348.30** in ha. and areas Under FRA 2006 as Sanctioned and Pending cases in terms in **15220.309 ha.** and as per section 3(1) for communities forest right as **8974.61 ha.** Statement showing the details of compartment allotted to Miscellaneous Area Management into working searies. **As per Appendix No.XXI in Volume II.**

9.12. SECTION 12 : BLOCKS AND COMPARTMENTS

9.12.1 The Taloda range was divided into compartments. But the ex-proprietary forests of Akkalkuwa tahsil consisting of Akkalkuwa, Khapar, Molgi, Kathi, and Wadafali ranges are also divided in to compartemts. The work of delineation of compartments on the toposheets has been done newly and the areas have been divided into 277 compartments.

9.13. SECTION 13: PERIOD OF THE PLAN

The period of this Working Plan will be for ten years that is from the year 2016-17 to 2026-27. The plan prescriptions will be implemented only after the receipt of approval from Government of India.

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CHAPTER – II : WORKING PLAN FOR THE PROTECTION WORKING CIRCLE

10.1.SECTION-1 : GENERAL CONSTITUTION OF THE WORKING CIRCLE.

Forests on steep & precipitous slopes

10.1. This working circle includes compartments that are spread along the high slopes, upon the ridges of Satpudas hills in Molgi, Kathi and Wadafali ranges and along with watersheds of river Narmada in other ranges prone to encroachment, fire, illicit felling, and poaching, illegal mining and soil erosion. The area is spread over Molgi, Kathi, Wadafali, Akkalkuwa, Khapar and Taloda ranges. The area included here are steep slopes, with shallow soil except in depressions, where the soil depth is appreciable. The area requires protection so as not to disturb the delicate balance between the vegetation and the soil supporting it. The area included in this working circle is **15833.36** ha. The area and percentage wise distribution of this working circle is given in various ranges is given in table-34 below;

Table- 34

Distribution of area of Protection area Working Circle in various Ranges

Sr.No.	Range	Total Area	PWC	% wise Distribution
1	Taloda	17044.250	7067.08	41.46%
2	Akkalkuwa	11795.220	1801.81	15.27%
3	Khapar	9719.120	462.22	4.75%
4	Molgi	8659.600	659.87	7.62%
5	Kathi	10471.680	2308.41	22.04%
6	Wadafali	12289.830	3533.97	28.75%
	Total	**69979.700**	**15833.36**	--

10.2 SECTION-2 : GENERAL CHARACTERS OF THE VEGETATION.

10.2.1 The steep and precipitous slopes of Satpudas bear species like salai (Boswellias errata), modal (Lannea coromandelica), Kakad (Garuga pinnata) etc. In other areas, only shruby growth interspersed with Kusali and Shedya grasses are present. The shrubby growth includes tarota (Cassia tora), tarwad (Cassiaa uriculata), karvi (Strobilanthes callosus), rankle (Enseta superbum) etc.

10.3 SECTION-3: SPECIAL OBJECTS OF MANAGEMENT:-

10.3.1 The special objects of management of the forest in this working circle are:-

(1) To preserve and improve the existing vegetal covers so as to conserve soil and moisture and protect the catchment of Narmada from erosion, which may otherwise lead, to siltation of the newly constructed Sardar Sarovar Project.

(2) To carry out soil and water conservation measures such as nalla bunding, gully plugging, vegetative measures etc. to improve the water regimes of the forest areas that are catchment to various water bodies.

(3) To improve understocked areas by assisting natural regeneration, through seed sowing, stump planting etc.

(4) To prevent Fire, illicit felling, encroachment, illegal mining, poaching and to encourage J.F.M. activities.

(5) And to complete survey and demarcation (along with erection of boundry pillars) of the area.

10.4. SECTION 4 :- COMPARTMENTS AND WORKING SERIES.

The compartments allotted to different Working Series and the sequence of working of annual coupes are given in the **As per Appendix No.XVIII TO XXI in Volume II.**

10.5 SECTION-5 : ANALYSIS AND VALUATION OF THE CROP.

1. STOCK MAPPING

The forest areas included in this WC have been stock-mapped with the help of local territorial staff. The stock mapping results indicate nearly **73%** area to

be Under and Well Stocked. The details of the stock mapping exercise for the areas included in this Working Circle are given in **Appendix No. XXII A** of Volume II while the abstract of the result is given below:

Protection Working Circle

Sr. No.	Range	Well Stocked	Under Stocked	Eroded Scrub	Plan tation	Blank	Encroa chment	Total
1	Khapar	62.00	300.22	100.00	0	0	0	462.22
2	Taloda	500.00	5272.08	1245.00	50.00	0	0	7067.08
3	Akkalkuwa	100.00	501.81	1000.00	200.00	0	0	1801.81
4	Kathi	250.00	1129.41	724.00	205.00	0	0	2308.41
5	Wadafali	550.00	1753.97	980.00	250.00	0	0	3533.97
6	Molgi	80.00	279.87	200.00	100.00	0	0	659.87
	Total	**1542.00**	**9237.36**	**4249.00**	**805.00**	**0**	**0**	**15833.36**

The protection forests of Molgi, Kathi, Wadafali range are having a crown density between 0.4 to 0.5, and the rest of the area has a sparse tree growth. The tree growth wherever occurring is mostly malformed, because of lopping, fires and grazing. No appreciable natural regeneration of any tree species has been observed. In some of the areas, the soil cover has almost been completely lost.

i. Age & Density :

The crop in this WC is young to middle aged. The upper hill slopes have poor density or blank areas while the density on the lower slopes and in valleys varies from 1.2 to 0.98.

ii. Enumeration :

Enumeration work in the field was done by the SOFR unit, Nashik and partly done by the field staff of the Mewasi division while its analysis was done by the Chief forest statistician, MS, Nagpur and partly by this office. Average total number of trees per hectare is found to be 100 out of which nearly 34.97% fall within 15-30 cm girth class while nearly 27.718% fall within a larger girth class of 31-45 cm. It implies majority of the crop is young. A detailed statement showing WC wise enumeration results is given below as per **Appendix No. XVI in Volume II.**

Table No.35

No. of trees per hectare

Girth Classes (cms)										
15-30	**31-45**	**46-60**	**61-75**	**76-90**	**91-105**	**106-120**	**121-135**	**136-150**	**>150**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
62.066	62.319	57.576	44.681	43.073	26.414	22.009	15.152	8.182	0.000	56.673

Table No.36

Categorywise percentage of Species to total growing stock in this working circle is as given below

Sr. No.	Category of Species	Name of Species	% to Total Growing Stock
1	**A:- Species of General Utility**	**Ain, Bija,Bondara,Kakad,Sadada, Shisam, Teak, Tiwas.**	**56.67%**
2	**B:- Species of Special Utility**	**Arjun, Dhawada, Hed, Hiwar, Kalamb, Khair, Kudi, Salai, Sawar, Shiwan.**	**19.34%**
3	**C:- Species of Minor Forest Produce**	**Amba, Apta, Awala, Behada, Bel, Char, Jambhul, Moha, Neem, Palas, Shiras, Sitaphal, Tendu.**	**11.30%**
4	**D:- Other Species**	**Asan, Bahawa, Bhutkes, Dhaman, Fashi, Humb, Karanj, Modal, Papada, Sisu, Umber, Other.**	**12.69%**

The enumeration data pertaining to the NR is given below. The young recruits of Ain, Teak, Karvand etc. appear profusely after first few showers of the season but not many survive to establish later. As per the NR data, it was found that out of total 100 NR plants 57 i.e. nearly 56.67% are less than 1 meter in height and are therefore not fully established.

10.6 SECTION-6 : PREPARATION OF TREATMENT MAP.

1) These areas are situated on steep and precipitous slopes of Satpuda, having slope more than 25% and hence no felling has been envisaged here. The existing vegetation in the area shall be preserved.

2) The area of the coupe due for working will be demarcated by the Range Forest Officer and the treatment map will be prepared one year in advance. The treatment map will show.

(A) Area with steep slopes of more than 25^0 (45%) - It will include the area diverted under FRA - 2005.

(B) The areas with with the crown density less than 0.4.

(C) Area with crown density more than 0.4.

3) The above mentioned areas will be clearly identified on the ground as well as on the treatment map.

10.7 GENERAL PRESCRIPTION

10.7.1 Nallah bunding & gully plugging will be carried out wherever required. The nallah bunds will be stabilized by local green vegetation like Euphorbia, Vitex cutting etc.

i) The whole area will be closed for grazing.

ii) Bush sowing of neem and sandalwood seed will be carried out.

iii) Area will be strictly fire protected.

iv) No felling of trees include dead /dying will be carried out.

v) Climber cutting will be carried out.

vi) Harvesting of bamboo on silvicultural line will be permitted.

vii) The entire area has been divided into 8 water sheds and a separate provision for its fund exists. The development of water shed as per scheme will be dealt all along the area.

10.8 SECTION – 7. METHOD OF TREATEMENT

(A) Type area- Area having slope more than 45% (25^0):- No treatment other than general prescriptions will be carried out area.

(B) Type area- Area having density less than 0.4. The following treatment will prescribed in addition to general prescription.

i) Stump planting of species teak, neem, sissoo etc will be carried out in the area having deep soil.

ii) Root suckers of species teak, Dalbergia latifolia, Ougeiniadal bergioides, Albizzia lebbek, Albizzia melanoxylon, Schleichera trijuga, Schrebera Swieteniodes Trewia nudiflora, Pongamia glabra, Garuga pinnata, Butea frondosa, Randia dumetorum, Aegle marmelos, Croton oblongifolius, Ficus hispida, Randia uliginosa, Holarrhena antidysenterica, Helicteres isora, Vitex negundo, Calycopteris

floribunda (climber), Combretum ovalifolium (climber), Schrebera swietenioides will be promoted by digging one meter deep trench around the trees of above species. The root system will be damaged to promote adventitious roots.

(C) No specific treatment is required, except promotion of root suckers by digging a trench around the plant, in a method prescribed above.

10.9 SECTION-8 : CHOICE OF SPECIES.

10.9.1 Species like tiwas, bamboo, moha, hirda, behada amla, khair and ficus Spp. are recommended, for planting wherever the soil depth is appreciable and it is practicable to plant.

10.10 SECTION-9 : EXPLOITABLE GIRTH / HARVESTABLE GIRTH.

10.10.1 No felling has been stipulated.

10.11 SECTION-10 : FELLING CYCLE.

10.11.1 A working cycle of 10 years has been proposed to treat the whole area of the division during the period of this plan.

10.12 SECTION-11 : FORMATION OF WORKING SERIES .

10.12.1 Approximate 10 working felling series have been provided.

10.13 SECTION-12 : REGULATION OF YIELD.

10.13.1 No yield has been stipulated.

10.14 SECTION-13 : AGENCY OF WORKING SERIES.

10.15.1 All works will be done either departmentally or through J.F.M. Committee.

10.16 SECTION-14 : CUTTING BACK OPERATION.

10.16.1 No cut back operation has been envisaged.

10.17 SECTION-15 : SEQUENCE OF FELLING WORKING SERIES .

10.17.1 The plantation and nursery technique as provided in Afforestation Working Circle shall be followed, wherever it is proposed.

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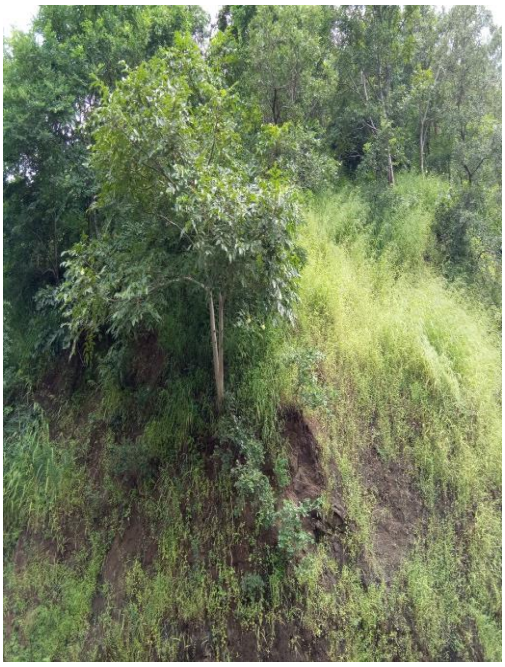
CHAPTER – III : WORKING PLAN FOR THE IMPROVEMENT WORKING CIRCLE

11.0 SECTION 1: GENERAL CONSTITUTION OF THE WORKING CIRCLE :



Mix Trees bearing forest

11.1 The tree forests of Taloda, Akkalkuwa, Khapar, Molgi, Kathi and Wadafali ranges are included in this working circle. The areas with substantial vegetation and which require improvement through silvicultural operations and through artificial regeneration have been included in this working circle. The main aim is to improve the status of the crop, its form and composition. Therefore obtaining produce of any kind is neither expected nor regulated. This Working Circle also includes the areas belonging to the upper precipitous and very steep slopes, and as far as possible a continuous blocks of such forests have been included, while formulating this working circle.

11.1.2 This working circle is constituted mostly from area earlier included in Selection cum Improvement working circle. Total area of this working circle is **17164.36** ha., spread over in Six ranges. The table showing range wise area is given in table-37 as below:-

Table- 37

Distribution of area of Improvement Working circle in various ranges

Sr.No.	Range	Total Area	IWC	% wise Distribution
1	Taloda	17044.250	3922.38	22.36 %
2	Akkalkuwa	11795.220	3593.40	23.01 %
3	Khapar	9719.120	2173.91	30.46 %
4	Molgi	8659.600	2335.28	26.96 %
5	Kathi	10471.680	2389.64	22.82 %
6	Wadafali	12289.830	2749.75	22.37 %
	Total	**69979.700**	**17164.36**	---

11.2 SECTION 2 : GENERAL CHARACTERS OF THE VEGETATION.

11.2.1 Teak is the principal species with anjan, khair, bor, salai, shisham and tembhurni, awla etc. as its associates. The forests are partly well-stocked in general with some exception of open and blank patches. In higher hill slopes and in plateaus with poor soil, khair is predominantly found. The crop is generally young to middle aged. Nearly 90% of the crop is less than 60 cms girth size. Quality is generally IV-a, IV-b. The crop has been badly damaged due to repeated heckling.

11.3 SECTION 3 : SPECIAL OBJECTS OF MANAGEMENT.

(i) To improve the condition of the growing stock by tending existing rootstock.

(ii) To convert blank areas into a well-stocked areas through artificial regeneration.

(iii) To safeguard the areas against soil erosion and thereby preserving and improving the site quality.

(iv) To protect the upper ridges of the steep slope so as to promote the establishment of grasss.

(v) To increase the proportion of valuable species in the growing stock.

11.4. SECTION 4 : COMPARTMENTS AND WORKING SERIES : The details of the compartments and WS allotted to this Working Circle are given in **Appendix No. XVIII to XXI in Volume II.**

11.5 SECTION 5 : ANALYSIS AND VALUATION OF THE CROP.

1. STOCK MAPPING

The forest areas included in this WC have been stock-mapped with the help of local territorial staff. The stock mapping results indicate nearly **54%** area to be Under and Well Stocked. The details of the stock mapping exercise for the areas included in this Working Circle are given in **Appendix No. XXII B** in Volume II while the abstract of the result is given below:

Improvement Working Circle

Sr. No.	Range	Well Stocked	Under Stocked	Eroded Scrub	Plan tation	Blank	Encroachment	Total
1	Khapar	125.00	453.91	790.00	805.00	0	0	2173.91
2	Taloda	550.00	1718.38	500.00	1154.00	0	0	3922.38
3	Akkalkuwa	300.00	1018.40	950.00	1325.00	0	0	3593.40
4	Kathi	630.00	1759.64	0.00	0.00	0	0	2389.64
5	Wadafali	170.00	883.75	500.00	1196.00	0	0	2749.75
6	Molgi	190.00	1182.00	875.00	1474.00	0	0	2335.28
	Total	**1965.00**	**7016.08**	**3615.00**	**5954.00**	**0**	**0**	**17164.40**

11.5.1 The site qualities of the area are IV-a & IV-b. Teak forms the major species in the growing stock in Taloda and AkkaluwaTaluka in other dry areas with khair is seen as dominant species. The growing stock predominantly contains young and middle-aged crop. As per enumeration data, 34.871% of the crop is 15-30 cms girth class, of which 26.378 % of the crop is between 31-45 cm girth classes, and 38.751% of the crop is remaining girth classes. The stock mapping of the compartments has been done by the field staff and the result of stock mapping is given in **Appendix No. XXII B in Vollume II.**

Soil depth is sufficient in most of the areas but in the areas close to revenue land, soil has become compact due to cattle trampling.

11.5.2. i. Age & Density :

The crop in this WC is young to middle aged. The mature and over mature trees are few and scattered in the area. The forests included in this WC are generally under and well stocked and density varies from 1.02 to 0.131. Few scattered patches with high-density below 0.4 are also found at places.

11.5.3. ii. Enumeration :

Enumeration work in the field was done by the SOFR unit, Nashik and partly done by the field staff of the Mewasi division while its analysis was done by the Chief forest statistician, MS, Nagpur and partly by this office. Average total number of trees per hectare is found to be 100 out of which nearly 34.87% fall within 15-30 cm girth class while nearly 26.37% fall within a larger girth class of 31-45 cm. and remaning girth class 38.75%. It implies minimum majority of the crop is young. A detailed statement showing WC wise enumeration results is given as per **Appendix No. XVI in Volume II.**

Table No.38

No. of trees per hectare

Girth Classes (cms)										
15-30	**31-45**	**46-60**	**61-75**	**76-90**	**91-105**	**106-120**	**121-135**	**136-150**	**>150**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
64.736	55.759	44.594	41.404	40.736	35.374	32.843	13.114	12.00	0.000	52.123

Table No.39

Categorywise percentage of Species to total growing stock in this working circle is as given below

Sr. No.	Category of Species	Name of Species	% to Total Growing Stock
1	A:- Species of General Utility	Ain, Bija,Bondara,Kakad,Sadada, Shisam, Teak, Tiwas.	52.12%
2	B:- Species of Special Utility	Arjun, Dhawada, Haldu, Hed, Hiwar, Kalamb, Khair, Salai, Sawar, Shiwan.	4.92%
3	C:- Species of Minor Forest Produce	Amba, Apta, Awala, Behada, Bel, Char, Jambhul, Moha, Neem, Palas, Shiras, Sitaphal, Tendu.	24.55%
4	D:- Other Species	Asan, Bahawa, Bhutkes, Dhaman, Fashi, Humb, Karanj, Modal, Papada, Sisu etc.	18.41%

The data pertaining to NR is given below. As per the NR data, it was found that out of total 100 NR plants 55 i.e. nearly 52.12% are less than 1 meter in height and are therefore not fully established. Hence the status of natural regeneration is not satisfactory.

11.6. SECTION 6 : SILVICULTURAL SYSTEM

The majority of the crop is young to middle aged and is mainly situated on moderate slopes. Number of mature trees for harvesting purpose is very few. Therefore silvicultural system involving selection fellings and creating larger openings in the canopy is not suitable to these areas. The major objective here essentially, is to improve and enrich the existing growing stock/area by carrying out improvement works including 'improvement fellings'. But 'improvement fellings/works' do not constitute any silvicultural system since they are being carried out only with a view to improve the existing crop and which may thereafter be worked under a suitable silvicultural system in future.

11.7. SECTION 7: WORKING CYCLE

The Improvement cycle has been fixed at 10 years.

11.8. SECTION 8: HARVESTABLE GIRTH

Improvement fellings shall include removal of only dead, diseased, unsound and malformed trees for which there is no need to prescribe any harvestable girth. The removal of such trees shall help in establishment of NR along with overall improvement of the Nandurbar forest flora. No such fellings shall however be done to create permanent openings in the canopy.

11.9. SECTION 9 : FORMATION OF COUPES

The details of sequence of working of annual coupes are given in**Appendix No. XVIII to XXI in Volume II.**

11.10. SECTION 10 : REGULATION OF YIELD

Since only improvement fellings have been prescribed, the yield of timber will be negligible and hence has not been calculated.

11.11. SECTION 11: AGENCY OF HARVESTING

The coupes will be worked departmentally or by an agency as per the prevalent government rules/policy.

11.12 SECTION 12 : PREPARATION OF TREATMENT MAP

11.12.1 **Preparation of Treatment Map**: It will be prepared by RFO and shall be verified by ACF concerned. The trace of the coupe map will show the contours along with important features like nala, streams, old plantation, etc. The map generated in GIS platform can be used for preparing coupe maps.

The area will be classified as follows: -

1. **Type 'A'- PROTECTION AREAS:** The area will consist of patches over 25^0 slopes or more, and 20 meter strip on both sides of the rivers or *nalas*. It will include the area diverted under FRA – 2005.

2. **Type 'B'- UNDERSTOCKED AREAS/BLANKS:** It will consist of blanks and under stocked patches (crown density less than 0.4), with slopes below $25^{0,}$ and minimum area exceeding 2 hectare in extent.

3. **Type 'C'- PATCHES OF ADVANCED GROWTH:** This will include patches of well-grown poles for retention as future crop. The patches should not be less than one hectare in extent.

4. **Type-'D': WELL STOCKED AREAS:**This will include areas with crop density more than 0.4. The area will be further divided into two classes:

   Type D1: Areas having adequate regeneration (625 established seedlings or more per hectare)

   Type D2: Areas having inadequate regeneration. It will include the area with established seedling less than 625 per hectare.

(Established regeneration means- A seedling that is over 10 feet in height and one and half in dbh).

11.13 SECTION-13 : METHOD OF TREATMENT:

11.13.1 The various treatments proposed are as under:

[I] Type 'A' areas (a) : The following operation will be carried out .

a. **Dibbling of seeds in the blank area:-** (i) Acacia catechu (ii) Acacia niloticas sp. Indica (iii) Ailanthusexcelsa (iv) Azardirachta indica (v) Hardwickia binata (vi) Holoptelia integrifolia (vii) Pongamia pinnata will be dribbled in the blank area.

b. In addition to dribbling in blank area the stump of Ailanthus excelsa, Albizia lebbeck, Dalbergia sissoo, Mahuca latifolia, Ougeinia oojeinesis, Schleicher aoleosa, Terminalia chebula, Xylia xylocarpa prepared from one year old seedling in the risen beds, shall be planted in the field with the help of crowbar.

c. **Bush sowing:-** bush sowing of neem and sandalwood seeds will be done, just before the monsoon.

d. Protection of root suckers:-

The root system of species of root suckers Dalbergiasissoo, Dalbergia latifolia, Madhuca latifolia, Dalbergia paniculata, Dalbergia lanceolaria, Azadira chtaindica, Diospyros melanoxylon, Santalumalbum, Aegle marmelos, Garuga pinnata, Qugeinia oojeinensis Bombaxceiba, Stereospermum suaveolens, Stereospermum xylocarpum, Stereospermum chelonoides, Millingtonia hortensis, Oroxylum indicum, which proliferate root suckers when their root system is injured, shall be dug to promote root suckers.

e. No felling of green trees shall be permitted, however dead trees shall be removed, subjected to retention of two trees per hectare as den trees.

f. Soil and moisture conservation works will be carried out, which may include gully plugging, nalla bunding etc.

g. All the high stumps found in the area shall be cut flush to the ground and dressed with a sharp axe to get vigorous coppice shoots.

h. These areas having steep and precipitous slope and therefore, most of the water goes away as run off from this area. To arrest this run off and in turn to raise the underground water table, suitable soil and moisture conservation works, such as gully plugging, nalla bunding, bandharas etc. shall be taken up. It will also help in the establishment of the young seedlings and will provide water to the wildlife after rainy season.

i. No plantation will be carried out in this area, however, seeds of local suitable species will be dibbled in the accessible under stocked areas having good soil depth. In the blank areas, with soil depth, stumps of Dalbergia sissoo, Dalbergia latifolia, and will be planted. Bulbils of Agavesis alana will also be planted to clothe the blank areas and to prevent soil erosion. Bush sowing of seeds of suitable species like neem, khair, bamboo etc. shall be carried out. No cultural operation other than fire tracing, for a minimum period of 3 years, shall be done. Bamboo will be planted in accessible under stocked area, within 20 meters wide strip on either side of water course.

j. Any patch having good natural regeneration will be identified and shall be given the treatment, as prescribed at the end of this chapter.

k. FRA -2005 area will be demarketed on the ground.

[II] Type 'B' areas (i) In areas containing adequate rooted stock, a singling operation will be carried out in 200 stumps, by retaining healthy shoots. All shoots retained shall be marked with geru at half its length. In case the callus shoot is on a broken / decayed stump, it will be flushed to ground, to promote a healthy preferably a side shoot. Only superior species shall be dealt with.

a. The congested pole crop will be thinned. The deformed and damaged pole will be flushed to the ground.

b. All dead trees leaving two trees / hectare as den trees, shall be harvested.

c. The plantation of miscellaneous species will be raised by pit method. An annual target of 200 ha. shall be envisaged.

d. The malformed and stunted rooted stock which has been hacked repeatedly will be cut back flush to the ground with axe.

e. All the high stumps also shall be cut flush to the ground with sharp exe and dressed to get vigorous coppice shoots.

f. The bushes that are likely to interfere with the proper growth of coppice seedlings will be removed.

g. All climbers interfering with the growth of established seedlings shall be removed.

h. All pollarded trees will be cut back.

[III] Type 'C' areas- Advanced growth : The following treatments will be carried out **:-**

a. Congested pole crop shall be thinned to maintain a distance of 1/3 of its height, from the adjacent pole.

b. No planting shall be done in these areas.

c. All the dead and malformed poles, shall be marked first for removal.

d. The poles of the coppice origin will be removed whereas the poles of seed origin will be retained.

e. All the high stumps found in the area, shall be cut flush to the ground with sharp axe to get vigorous coppice shoots.

f. Climbers interfering with the pole crop, will be cut back.

[IV] Type 'D' areas :- This will include the area with crop density more than 0.4. The area will be further divided into two classes.

Type D_1 - Area having adequate regeneration i.e. 625 established seedlings or more per hectare.

Type D_2 - Area having established seedlings less than 625 per ha.

Treatment – The following treatment is prescribed:-

[A] Type D_1 - The over matured tree of growth higher than 120 cm at breast height will be removed, provided, it is not situated on the periphery of the forest patch and elsewhere there is another tree within a distance of 10 meters, to fill the canopy.

[B] No treatment is required.

Type D_2 - The crop planting of seedlings will be carried out.

11.14 SECTION-14. NATURAL REGENERATION: Usually patches of natural regeneration are found in the existing crop. As given in the foregoing paragraph, these patches of promising young regeneration will be shown on the treatment map. If these patches are not treated properly, the young regeneration will die due to various factors, such as trampling, forest fires etc.

11.14.1 Therefore, these patches of natural regeneration will be given the following treatment.

a. The undesirable undergrowth and climbers interfering with the growth of young seedlings will be removed.

b. The coppice shoots hindering their growth will be removed. One promising coppice shoot may be retained as a security.

c. The young seedling of natural regeneration will be properly spaced and the entire area will be strictly fire protected. The unregulated grazing will also be controlled.

d. A little opening will also be created for the young seedling by removing some of the marked trees in order to provide better conditions.

e. All the weeds hampering the growth will be cleaned form this area.

11.15 SECTION -15 : SEQUENCE OF WORKING: The sequence of felling is given the Appendix-VIII.

11.16 SECTION 16: CHOICE OF SPECIES: Teak and marketable injaili species will only be removed as per the provision contained in the treatment of D type areas.

11.17 SECTION 17: EXPLOITABLE GIRTH/HARVESTABLE GIRTH: An harvestable girth of 120 cm has been prescribed, but the felling is only incidental and no regular yield has been prescribed.

11.18 SECTION 18: FELLING CYCLE - A felling cycle of 10 year has been proposed.

11.19 SECTION 19: REGULATION OF YIELD- No yield in only incidental.

11.20 SECTION 20: AGENCY OF HARVESTING- All works shall be carried out departmentally.

11.21 SECTION 21: SUBSIDIARY SILVICULTURAL OPERATIONS.

Singling Operation: This operation will be carried out one year after the treatment of the coupe.

The established natural regeneration will be tended again to provide better growing conditions for it. All the multiple coppice shoots will be cut back and reduced to one per stool. The healthy and most promising shoot will be retained in first year. In second year again, all the coppice shoots except the one retained in first year will be cleaned.

Cleaning Operation: It will be carried out in the 3rd and 6th year after the treatment of the coupe.

1. All the inferior seedling and undergrowth interfering and hindering the growth of established young seedlings of desired species will be removed.
2. The new coppice shoots coming up and competing with the old established shoots will be cleared.

11.22 SECTIONS-22: OTHER REGULATIONS.

11.22.1 **Fire protection:** Strict fire protection will be provided to coupes of improvement working circle for a period of five years. All the cut material of bushes, branches and dry leaves will be cleaned by the end of February, to protect it from the fire hazard. Fire lines will be cleared and burnt under strict controlled conditions. A special care will be taken to protect the promising established natural regeneration. Village forest protection committees will be geared up may be assigned the responsibility of protecting these coupes from fire.

11.22.2 **Closure to grazing:** The annual improvement coupes will be strictly closed for grazing for a period of five years after their working.

11.22.3 **JFM Micro Plans:** If any area of this working circle is allotted to JFM or FDA committee, all the operations will be carried out as per the prescription of this working circle.

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CHAPTER – IV : WORKING PLAN FOR THE AFFORESTATION WORKING CIRCLE

12.0 SECTION - 1: GENERAL CONSTITUTION OF WORKING CIRCLE.

12.1 Degraded forest sites

12.1 The compartments allotted to this working circle are mostly blank or degraded or are having a poor vegetation. The soil depth varies from reasonable depth to even deep soil in depression. The all India Site Quality varies from III to IV. The undulating surface further reduces the water holding capacity of the soil, causing the prevalence of xerophytes conditions. The areas included in this working circle comprises of few compartments of Afforestation, Protection, Improvement working circles of previous Working Plans. The total area included in this working circle is **3057.12** ha. The area statement is as given in table 40 below:-

Table- 40

Distribution of area of Afforestation Working circle in various ranges (Area in ha.)

Sr.No.	Range	Total Area	AFF WC	% of WC wise
1	Taloda	17044.250	1004.00	5.89 %
2	Akkalkuwa	11795.220	490.00	4.15 %
3	Khapar	9719.120	407.17	4.18 %
4	Molgi	8659.600	669.97	7.73 %
5	Kathi	10471.680	200.00	1.91 %
6	Wadafali	12289.830	285.98	2.32 %
	Total	**69979.700**	**3057.12**	--

12.2 SECTION 2: GENERAL CHARACTERS OF THE VEGETATION

12.2.1 The area encompasses whole of the division and the forest types has already been discussed in Part-I. The most of the area falls in category as Dry deciduous mixed forests as per the classification of Champion and Seth. By and large the area allotted to this working circle is degraded and open, with sparsely scattered trees. Due to intense biotic pressure, the vegetation in these areas has a shrubby growth. Some of these areas are subjected to heavy soil erosion. The state of natural regeneration is very poor. The species unusually found in this type of forest are teak, ain, haldu, dhawada etc.

12.3 SECTION-3 - SPECIAL OBJECTS OF MANAGEMENT:-

(1) To reclaim the area by intensive soil and moisture conservation works.

(2) To increase the vegetation growth, by planting or by other silvicultural practice.

(3) To increase the productivity of forest land.

(4) To involve the local people in mitigating the biotic pressure;

(5) To maintain and preserve the biodiversity of the area by encouraging the plantation of indigenous species.

12.4. SECTION 4 : COMPARTMENTS AND WORKING SERIES

The statement showing various Working Series under this Working Circle and the annual sequence of working is given in **Appendix No. XVIII to XXI in Volume II.** A coupe that could not be worked in the designated year shall be worked in the next year along with that year's coupes.

12.5 SECTION 5: ANALYSIS AND VALUATION OF THE CROP

1. STOCK MAPPING

The forest areas included in this WC have been stock-mapped with the help of local territorial staff. The stock mapping results indicate nearly 75% area to be Blank Area and 25% area is under stocked. The details of the stock mapping exercise for the areas included in this Working Circle are given in **Appendix No. XXII C** of Volume II while the abstract of the result is given below:

Afforestation Working Circle

(Area in ha.)

Sr. No.	Range	Well Stocked	Under Stocked	Eroded Scrub	Plan tation	Blank	Encroa chment	Total
1	Khapar	0	101.75	0	0	305.42	0	**407.17**
2	Taloda	0	251.00	0	0	753.00	0	**1004.00**
3	Akkalkuwa	0	122.50	0	0	367.50	0	**490.00**
4	Kathi	0	60.00	0	0	140.00	0	**200.00**
5	Wadafali	0	71.49	0	0	214.48	0	**285.98**
6	Molgi	0	167.49	0	0	502.47	0	**669.97**
	Total	**0**	**774.23**	**0**	**0**	**2282.87**	**0**	**3057.12**

12.5.1 The bulk of the crop cover is of site quality IV .The crop is mainly young to middle-aged with a few scattered mature and over mature trees. Nearly 32% of the crop is below 30 cms girth, 28% of crop is in 31cm to 45cms girth class and about 40% of crop is in remaining girth class. The stock mapping of the compartments has been carried out by physically visiting the compartment. The result has been analyzed and is given as pe the table. The soil depth is not that adequate so as to support a luxuriant plant life, however, the area can be afforested through suitable choice of species.

12.5.2 The result of stock-mapping shows that about 70 to 75% of the area of this working circle is blank and about 20 to 25 % of the area is an open forest i.e. forest having crown density less than 0.4. The result of stock-mapping is given in **Appendix No. XXII - C in Volume II..**

i. Age & Density :

The main crop seen in this WC is due to the plantations raised in the past and is young. The natural crop is young to middle aged. The upper hill slopes have poor density or blank areas while the density on the lower slopes and in valleys varies from 0.2 to 0.5.

ii. Enumeration :

Enumeration work in the field was done by the SOFR unit, Nashik and partly done by the field staff of the Mewasi division while its analysis was done by the Chief forest statistician, MS, Nagpur and partly by this office. Average total number of trees per hectare is found to be 100 out of which nearly 58.03% fall within 15-30 cm girth class

while nearly 50.49% fall within a larger girth class of 31-45 cm. and remaining girth class 48.21%. It implies majority of the crop is young. A detailed statement showing WC wise enumeration results is given as pe **Appendix No. XVI in Volume II.**

Table No.41

No. of trees per hectare

Girth Classes (cms)										
15-30	**31-45**	**46-60**	**61-75**	**76-90**	**91-105**	**106-120**	**121-135**	**136-150**	**>150**	**Total**
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
58.03	50.49	48.519	42.930	31.852	33.771	27.607	12.921	8.506	0.000	48.215

Table No.42

Categorywise percentage of Species to total growing stock in this working circle is as given below

Sr. No.	Category of Species	Name of Species	% to Total Growing Stock
1	A:- Species of General Utility	Ain, Bondara,Kakad,Sadada, Shisam, Teak, Tiwas.	48.21%
2	B:- Species of Special Utility	Arjun, Dhawada, Haldu, Hiwar, Kalamb, Khair, Kuda, Salai, Sawar, Shiwan.	6.43%
3	C:- Species of Minor Forest Produce	Amba, Apta, Awala, Bel, Bor, Char, Hirda, Jambhul, Kaju, Moha, Neem, Nilgiri, Palas, Shiras, Sitaphal, Tendu.	31.73%
4	D:- Other Species	Akeshiya, Aal, Alive, Asan, Bahawa, Butakesa, Butea palas, Dhaman, Dudhkudi, Humb, Kumbai, Modal etc.	13.63%

The enumeration of the NR has been done and is found that nearly 48.21% of the NR falls within 0-1 meter height class and is therefore not established.

12.6. SECTION 6 : WORKING CYCLE

The Working cycle has been fixed at 10 years. This period is also sufficient for the successful establishment of the regeneration.

12.7. SECTION 7: DEMARCATION OF COUPES, PREPARATION OF THE TREATMENT MAP AND METHOD OF TREATMENT

1. The proposed annual working coupes will be demarcated one year in advance of working. After demarcation of the area, a treatment map shall be prepared by the

field staff and shall be verified by a gazetteer officer. Site specific treatment plan needs to be prepared giving due weightage to the site conditions.

The following areas shall be shown distinctively in the map:

I) Area 'A' – Protection areas : It shall include the following areas

i. Areas with steep slopes i.e. more than 25^0

ii. Eroded areas or areas liable to erosion.

iii. Twenty meters wide strip on either side of the water courses.

II) Area 'B'–Under stocked areas: include areas with crop density less than 0.4.

Area suitable for taking up afforestation shall be marked on it and shall also show prominently the type and location of SMC works to be undertaken.

III) Area 'C'- Old plantation areas: include areas under old plantations.

IV) Area'D'–Well stocked areas: include areas with crop density more than 0.4.

All prominent nallahs, perennial sources of water, water bodies etc. shall also be shown in the TM and numbered. Laying of grids shall be done only in B and D type areas. In B areas where plantations are prescribed, grids of 0.5 (100X50 mtrs) hectare size while in C areas, grids of 1 ha. size (100x100 mtrs) shall be laid. Grid wise record of operations eg. Planting of seedlings, tending of NR, root stock management, singling of coppice, weeding etc. shall also be maintained by the RFO.

2. Method of Treatment :

Inadequate sub-soil moisture, highly compact soil structure, fire damage and heavy biotic pressure are the main limiting factors for the establishment of seedlings in this area. Top soil has been washed away from many of the areas. Areas are mostly degraded. Hence intensive soil and moisture conservation measures need to be taken up in these areas. Afforestation works will be undertaken in the next year only after the area has been fully treated for the SMC measures.

The various treatments proposed for the above mentioned areas are as follows:

I. Area 'A':

i. The SMC works including nalla- bunding and gully plugging will be carried out wherever needed.

ii. Cutting of Ficus, Vitex spp. (Nirgudi), bulbils of Agave etc. shall be planted for binding the soil where ever possible.

II. Area 'B' :

These area shall be treated in following two stages:

a. Restorative Phase : This phase will be of one year duration and will prepare the site for the planting activity by improving its soil moisture content. During this phase, soil and moisture conservation works shall be carried out during the initial first year. The area of the annual working unit shall be protected completely from biotic interference by digging a T.C.M. During this phase various works will be taken up as under:

i. Preparation of the T.C.M. and/or live hedge around the working area: Preparation for the live hedge should be started before the rains set in so that the seeds/cuttings/seedlings of suitable local species should be sown/planted at the onset of the rains. TCM may be dug after the rains.

ii. Species like Chilhar, Agave, Vitex negundo, Bamboo, Karvand and other sutable local species should be grown on the mound of the hedge and TCM.

iii. The SMC works like van tale, nalla-bunding, gully-plugging, contour trenches etc will be carried out as per the site suitability before the rains set in and as per the prescriptions given in Section 8.

iv. Singling and cutting back of the rooted stock.

v. Motivating and encouraging the villagers for undertaking planting and forest protection under J.F.M.

b. Productive Phase : In the second year, the planting activity shall be taken in the same working unit only after ensuring that the area is fully treated with SMC works.

i. Rooted stock shall be properly tended.

ii. Suitable local miscellaneous species including fuel wood, folder tree species NTFP and medicinal plant species will be planted in the under-

stocked areas having good soil depth, Preferred species are indicated in the Section 9 on Regeneration. Areas prone to excessive grazing as well as areas found unsuitable for afforestation shall be excluded from planting activity.

iii. Erstwhile Kuran areas of previous Plan with existing good growth of fodder grasses as well as other areas suitable for growth of fodder grasses and natural grass lands shall be identified and closed to grazing. All obnoxious weeds, thorny shrubs and bushes shall be uprooted from these identified areas. Seeds/Tussocks of superior fodder grasses like Sheda, Paunya, Marvel, Dinanath etc. should be sown/planted on the freshly excavated and heaped soil bund on the lower side of the contour trenches in the suitable areas. Other suitable models for raising fodder grasses may also be used after getting prior approved from the CCF (T),Dhule.

iv. No tree species except for only suitable fodder trees to limited extent shall be introduced in the erstwhile Kuran areas as well as other natural grass lands to conserve grass land eco systems.

III. Area 'C' :

i. The plantations shall be treated as per the prescriptions and sequence of working as given in the 'Old Plantations Management W.C.'.

ii. Any other successful old plantation or its part on slopes less than 25^0 that is not included in 'Old Plantations Management WC' inadvertently but falls within the coupe shall be worked as per its year of formation and sequence of working given for other plantations in the appendix.

IV. Area 'D' :

i. No planting shall be done in these areas.

12.8. SECTION 8: SOIL AND MOISTURE CONSERVATION WORKS

The area gets heavy average annual rainfall ranging between 500 to 700 mm. but most of the valuable rain water goes waste as run-off into the streams of Narmada rivers. On the other hand gets a scanty average annual rainfall of about 550 to 650 mm. only. Therefore a large tract of the division faces an acute shortage of water during the

summer months. The soil becomes compact during the pinch period resulting in poor drainage as well as poor aeration of the soil. Intensive SMC works viz. gully plugging, nalla-bunding, contour trenching, van-tale and other appropriate water harvesting structures shall be undertaken as per site requirement for helping young regeneration to establish easily. Ridge to valley concept shall be followed while treating the watershed. A village shall be taken as a unit of holistic development. For this purpose, it shall be endeavored to integrate forestry management interventions with development schemes of other departments.

12.9. SECTION 9 : REGENERATION

12.9.1.Natural Regeneration:

The young recruits of Ain, Dhawada, Teak, Kuda, Dhaman, Neem, Ber, etc. appear profusely after first few showers of the season but not many survive to establish later due to fire and unregulated grazing. Nearly 75% of the young recruits are found to be less than 1 meter in height and are therefore not fully established. Therefore it is imperative to tend the young recruits to help them establish. Areas having good NR of the above species will be identified. NR within such patches shall be properly spaced and tended as well as protected from fire and grazing.

So to help the young recruits of above mentioned species to establish and to further induce the NR, the following prescriptions shall be followed.

i. The areas not less than 0.5 hectare in compact patch containing promising NR shall be identified inside the coupe.

ii. The undesirable undergrowth which is preventing or likely to prevent the development of seedling regeneration of the desired species shall be removed.

iii. Congested NR seedlings in identified patches shall be properly spaced out and tended.

iv. Soil working should be done so as to loosen the top soil upto 1 meter diameter around the plants.

v. Coppice shoots interfering with the development of young seedlings shall be removed.

vi. Such patches should be rigidly protected from fires and grazing.

12.9.2. Artificial Regeneration and Choice of the Species:

The limiting factors of a plantation to be successful are listed below. They should be properly addressed before taking up any new plantation activity-

i. Timely plantation targets.
ii. Selection of suitable plantation sites.
iii. Choice of species as per the sites and as per the requirement of the village communities.
iv. Analysis and eradication of reasons for previous failures.
v. Timely release of budgetary grants.
vi. Seed procurement from known sources.
vii. Healthy and hardy nursery stock.
viii. Proper depth of trenches or pits.
ix. Proper soil-working.
x. Protection from biotic-interference.
xi. Co-operation and active involvement of village communities under JFM.

The choice of the species to be planted shall depend upon the area suitability of the species and its local demand and shall be decided by the DCF and his field staff in close consultation with the local village communities. Local plant species should be preferred. The species suitable for these areas for planting are Aonla, Jambhul, Amba, Hirda, Behada, Ain, Shisham, Shiwan, Khair, Shikekai, Karvand, Karanj, Asana (Grewia nervosa), Sawar, Palas, Amruta, Bamboo etc. However, the list of all suggested species is only indicative and not exhaustive. Areas suitable for bamboo plantations should be identified and planted preferably with locally available and sought after bamboo species viz. Managa bamboo (Oxytenanthera stocksii) using offset planting or Kanak bamboo (Bambusa bambos). Care shall be taken to give due representation to local fuel and fodder tree species (about 15% of the misc. stock) as well as to the edible fruit and NTFP tree species (another 15% of the misc. stock). Seedings raised preferably in root-trainer containers shall be used. Tall plants of 1.5 to 2.5 years old should also be raised in the nurseries and few plantations should be raised using these tall plants in 1x1 meter deep pits on the barren hillocks on experimental basis. The DCF should also try to raise plantations using tall plants with drip irrigation at suitable places having permanent sources of water. The DCF

Mewasi should consult the CCF (T.) Dhule for seeking his guidance to introduce endemic /RET species for field trials.

Suitable fodder grasses shall also be raised either on the mounds of the contourt-trenches or on the fodder beds as per the plantation model adopted. The objective shall be to provide fuel and fodder to the local community under JFM and to encourage them to raise fast growing fuel and fodder trees and fodder grasses on the mounds of their fields or fallow lands and community lands under appropriate schemes of the Social Forestry department so as to make them self-sufficient and to reduce their dependence on forests. Fodder so produced in the forest shall be disposed of to the JFMCs of the area as per the previous pertaining to JFM given in the Government of Maharashtra, Resolution no. MSC/2000/case no.143/F-2 dated 25.04.2003 and fodder grass disposal as per the provisions of Govt. of Maharashtra vide No. TAG/1089/C.R./2161/Mumbai 11.dt.20/10/1989.

12.10. SECTION 10 : PRE-PLANTING AND PLANTING OPERATIONS

I) Pre-Planting Operations:

PPO shall be carried out during the restorative phase i.e. one year before the actual planting works are to be taken up.

(a) Soil Working

It will include digging up of pits/trenches along with nall-bunding, check-dams and other SMC works. Proper depth of the pits/trenches as per the plantation model is essential for the early establishment of the seedlings and therefore should be given appropriate attention by the inspecting officers.

(b) Fencing

The area to be planted shall be fenced with a TCM/live hedge but care shall be taken not to dig it across the contour. Instead live-hedge fencing shall be provided across the contour. On the mound of the TCM, a row of suitable fast growing species like Chilhar, Vitex negundo shall be planted along with Agave bulbils and tussocks of Khus and Sabai grasses on either side. Karvand and Bamboo may also be planted at suitable places on the TCM. In the drier areas on the eastern side of the district,

Neem, Maharukh, Khair can be the preferred species to be planted on the mound. Repair of the TCM in the following years shall be attended to, if required in order to keep it effective and cattle-proof. Live-hedge fencing works should be started before the rains.

(c) Nursery

Nursery shall be raised well in time using root trainers/poly pots as per the yearly requirement of the stock. Only good quality seeds of known origin should be used. The CCF (T.) Dhule has maintained many seed orchards across the State. The DCF should first try to procure good quality seeds of the required. Adequate budgetary grants must be provided to the DCF in time so as not to affect the nursery operations. Nursery stock should be a judicious mix of indigenous species valuable to the local community for their daily needs like that of timber, fuel, fodder, NTFP as well as of bamboo. Tall plants (1.5 to 2.5 years old) of miscellaneous species should also be raised in the nursery so as to introduce them in the field at a large scale. The stock should be tended with great care so that the seedlings of various species grow into healthy and hardy planting stock and attain sufficient height should be done on regular basis and only healthy and hardy seedlings of sufficient height and age should be allowed to leave the nurseries for planting in the field. A list of central nurseries is given in **Appendix No.XXIII in Volume II.**

ii) <u>Planting Operations :</u>

(a) Planting :

The planting of miscellaneous species shall be done in the pits/trenches during the Productive phase in the next year only after the area has been treated fully with SMC works. Planting shall be completed within a fortnight from the outbreak of monsoons. The teak seedings or stumps should be planted even earlier, just after the first shower of the monsoons. The DCF should also try to raise irrigated plantations of tall plants using drip irrigation at suitable places having permanent source of water. Afforesting barren, degraded sites, hillocks with tall plants in deep pits/trenches as per the site suitability should also be tried.

(b) Weedings, Soil-working and Casually-replacement Weedings, Soil-wokring and Casualty-replacement shall be done timely and as per the plantation model adopted. Proper soil-working of the seedlings planted is absolutely essential and therefore close attention should be given to it by the inspecting officials.

12.11. SECTION 11 : OTHER REGULATIONS

i) Fire Protection : Main Afforestation coupe shall be fire-traced and rigidly fire-protected for a period of five years from the 1st year of its working. The area shall be cleared-off of all the dry and cut remains of bushes, leaves etc. by end of February to avoid fire hazards to standing crop as well as to NR. Effective Protection against fire for a period between Feb.15 to June 15 is a must to ensure survival and establishment of NR of all species for developing it into the future growing stock. 'Joint Forest Management committees' shall be formed and fire tracing and other related works will be carried out through these committees.

ii) Closure to grazing : Coupe shall remain closed to grazing for a period of 5 years from the 1st year of its working.

iii) Protection Measures: The plantations will be strictly protected from illicit felling and encroachments including seasonal encroachment for the purpose of agriculture with the active with the active cooperation of the JFMCs.

iv) Resolving conflict with Micro Plans made under JFM/FDA : If any conflict is noticed between the prescriptions given in this WC and the Micro Plan written under JFM, FDA etc. for the same area, then the said area shall be treated in accordance with the special objects of management pertaining to this W.C. and suitable amendments shall be made in the Micro Plan, if necessary.

v) Training Workshops : The DCF Mewasi with the help from the CCF (T.) Dhule should organize Workshops in the division to sensitize and train the field staff in implementing the prescriptions of this WP. The induction training of the field staff should be organized on priority by the CCF(T.) Dhule which will help in effective implementation of various WP prescriptions.

vi) Research areas : The prescriptions of this WC will not be applicable to the areas allotted to this WC but which are otherwise in possession of the CCF (T.) Dhule.

These areas are managed with a perspective of research and extension in forestry and hence will be managed as per their Silvicuture requirements as included in the Plan of Operations duly approved by Research and Advisory Committee (RAC), MS.

vii) Forest area reconciliation : It has been observed during the course of forest area reconciliation work that the boundaries of few newly constituted forest gut numbers from the old forest survey numbers after 'consolidation' show large variations at places and do not coincide in many villages thereby reducing or changing the RF area. The notifications of disforestation of such RF areas could also not be traced and therefore such discrepancies in the forest areas remain unresolved. The DCF Mewasi should undertake the forest area reconciliation work on top most priority to be followed by survey and demarcation in the field to resolve all such issues.

Old village maps bearing survey nos. should only be used for the survey and demarcation purpose in the field fill the time all such issues pertaining to forest area get resolved.

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CHAPTER – V : WORKING PLAN FOR NON TIMBER FOREST PRODUCE (OVERLAPPING) WORKING CIRCLE

13.1 SECTION 1 : GENERAL CONSTITUTION OF WORKING CIRCLE.

This overlapping working circle extends over the entire Mewasi Forest Division, however with the new policy of the Government for the collection of NTFPnew PESA Act is recomonded. The 73rd Constitutional Amendment which came into force w.e.f. 24th April, 1993, inserted Part IX in the Constitution of India and accorded Panchayats a Constitutional status as institutions of local self-governance for rural India. Article 243 of the Constitution, while exempting the Fifth Schedule Areas (FSA) from implementation of Part IX of the Constitution, provides that Parliament may by law extend its provisions to the Scheduled and Tribal Areas subject to such exceptions and modifications as may be specified in such law and no such law shall be deemed to be an amendment to the Constitution. On the basis of the report of the Bhuria Committee submitted in 1995, Parliament enacted. "The Provisions of the Panchayat (Extension to the Scheduled Areas) Act, 1996" popularly known as PESA Act, extends Part IX of the Constitution with certain modifications and exceptions to the Fifth Schedule Areas notified in ten States viz. Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pardesh, Maharashtra, Odish, Rajasthan and Telangana. These Schedule areas in ten States extend in 108 districts (45 fully and 63 partly covered).

The most important activity in the Divisions, however, with the new policy of the Government as PESA Act.

13.2 SECTION 2 : SPECIAL OBJECTS OF MANAGEMENT

The special objects of management of this working circle are as below:

1. To generate employment for the members of Forest Protection Committee in the villages and to improve the economic situation of the local rural people.

2. To identify and assess different NTFP resources in the division, their distribution and their number in girth class wise, beat wise, expected yield from commercially important NTFP species like Anogeissus latifolia, Sterculia urens, Boswellia serrata, Schleichera oleosa, Butea monosperma etc.

3. To educate the local people about the collection technique of different N.T..F.P.

4. Reduce poverty and out-migration among tribal population as they will have control over natural resources such as minor water bodies, minor forest produce, minor minerals, etc. control over and management of these resources will improve their livelihoods and incomes.

5. Provision of the Act :-

4(m)(ii): Ownership of Minor Forest Produce to PRI and Gram Sabha

13.3 SECTION 3 : GENERAL CHARACTER OF VEGETATION :- This working circle overlaps the entire Mewasi Forest Division and hence the vegetation is the same as discussed in Chapter-II of the Forest.

13.4 SECTION 4 : ANALYSIS AND VALUATION OF THE CROP

Timber, in general, is defined as wood, whose value is mainly on account of its mechanical properties that includes compressive and tensile strength, and fuel wood, whose value is measured only on account of its calorific value. Minor forest produce comprises of all forest products other than timber and fuelwood and includes bamboo, medicinal plants, gums, resins/oleoresins, essential oils, fatty oils, edible and wild plants, tanning acids, fodder and forage plants, colouring material, katha, oxalic acids, saponins, insecticides, green manures, beads, rubber plants, plants useful for paper baskets, work including canes, beedi leaf, thatching material, broom material etc. Besides these plant products, animal products such as lac, honey and wild animal extracts like horns, hoover, ivory, hides, which are now banned from trading, are included amongst minor forest produce or non timber forest produce. These products seem to yield minor income to the Department in comparison with timber and fuelwood, yet local villagers earn a substantial amount of money for their livelihood, by collecting minor forest produce by paying nothing. Similarly the local

people collect rosha grasses and get a good enumeration for collecting tendu leaves either as a bonus or as a collecting charge. As far as the Forest Department is concerned, these products yield murge revenue to the Government and hence are being termed as 'MINOR FOREST PRODUCE'. Oftenly these products are procured by local traders from forest dwellers at a much less price than due, and by a subsequent value addition, they make a substantial profit out of it.

13.3.1 The revenue of the Division for the year 2006-07 to 2015-16, when the working plans were in operation last, is given below in Table No. 43 below:

Table - 43
Revenue from N.T.F.P.

Amount in rupees

Year	Timber	Firewood	Bamboo	Bidi Leaves	Grass & grazing	Other MFP	Other Receipts
2006-07	0	0	27,80,400	0	0	0	0
2007-08	0	0	7,88,050	0	0	0	0
2008-09	0	0	2,40,000	0	0	0	0
2009-10	0	0	15,10,065	0	0	0	0
2010-11	0	0	0	0	0	0	0
2011-12	0	0	17,22,000	0	0	0	0
2012-13	0	0	0	0	0	0	0
2013-14	0	0	0	0	0	0	0
2014-15	0	0	0	0	0	0	0
2015-16	0	0	0	0	0	0	0
Total	**0**	**0**	**70,40,515**	**0**	**0**	**0**	**0**

13.3.2 It is evident that Minor Forest Produce contributes a trivial percentage to the Divisional revenue, but it is a illusive. A large quantity of Minor Forest Produce is removed directly by the forest dwellers, either for their personal consumption or for barter trade: The revenue is thus only symbolic and a large quantity is utilized as concession by the local people.

13.3.3 The present procedure of disposal of N.T.F.P. by auction and the rest of N.T.F.P. is collected by the local people and disposed off accordingly.

13.3.4 Besides different types of gums, honey, grass, anjan leaves are also collected and sold off in the local market. Presently there is absolutely no system existing to monitor the quantities available in the forest, quantities extracted from forest and the market potential of any particular NTFP. Species-wise inventory of all standing trees, which includes gum yielding trees, species of bio-diesel importance, and other NTFP bearing trees, has been carried out in the girth class above 15 cm. This will provide a valuable information about the approximate production of these products in the division. The DCF Mewasi will take an initiative to study the present NTFP status in different parts of the Division and record the quantities collected by the local people. On identifying the important and economically viable NTFP that are available, Dy. Conservator of Forest, Mewasi shall call the expert, to train forest staff and the villagers on scientific collection, treatment and storage of NTFP. He should also make special efforts to maintain the records of collection and disposal of NTFP. All harvesting should be carried out on sustained basis.T.F.R.I., Jabalpur has carried a detail study about the sustainable harvesting of selected N.T.F.P. and which has been given at the end of this Chapter in concise.

13.4 SECTION 5 : METHOD OF TREATMENT.

13.4.1 The trade of tendu leave is governed by Maharashtra Minor Forest Produce (Regulation of Trade) Act, 1969 and Maharashtra Forest Produce (Regulation of tendu leaves) Rules, 1969. The trade of tendu has been nationalized, however, as per revised instruction of Government of Maharashtra, 50% of the sale produce is distributed among the tendu collectors, and leaves are auctioned in-situ to the highest bidder and oftenly the purchaser restores to prunning of tendu sapling in the forests, so as to promote a new flush of tender tendu leaves. Tender long leaves are preferred for bidi making.

13.4.2 Fire Protection measures:Collection of NTFP is oftenly associated with forest fire, because the villagers set fire around NTFP-yielding trees, for clearance of leaf litter and intervening undergrowth. Fires are also caused by agents of tendu contractors, to get better flush of tendu leaves than by pollarding. If left unattended, such fires spread into forests as forest fires.

13.4.3 The village *panchayats* and JFMCs shall be involved in awareness generation programme to control forest fires. Villagers should be encouraged to ensure that such cleaning does not end up in forest fire.

13.4.4 Documentation of NTFP collection: The Beat Guards shall send monthly reports to Range Forest Officer on the quantity of NTFP collected in their beats. Range Forest Officers shall compile and send the details to the division office. The Division office shall compile the figures for each species for the division with a view to monitor their collection and quantity harvested, so as to limit within its sustainable limit.

13.4.5 Non-destructive collection of NTFP: Unless detrimental to wildlife conservation and site conditions, sustainable harvesting of herbs by non-destructive removal of flower, fruit and other medicinal parts shall be permitted.

13.4.6 MY RABOLONS:

USE:These NTFP are used in many ways. *Hirda, Beheda* and *Aonla* are the most common amongst My robalans. These are of high medicinal value and are being used in many Ayurvedic medicines. *Hirda* and *Beheda* are given to children in villages invariably for cold, cough and stomach disorder.

13.5 FORMATION OF UNITS AND COUPES: The range shall be the unit.

13.6 AGENCY FOR HARVESTING: As per the latest amendment to Panchayati Raj Act, the ownership of the minor forest produces in Schedule Areas is with Gram Panchayat. The collection and disposal of NTFP, is to be carried out by the Gram Panchayat, as decided by the concerned Gram Sabha. Hence the collection and disposal of these minor forest produces will be governed by the panchayat concerned. In the non-scheduled areas, for large-scale operation, the units shall be given on lease. The lessee will collect the same as per the direction of D.C.F. Mewasi. The lease period shall be from 1st July to 30th June. Lease will be given for one year.

13.7 GUM:

The forests of Mewasi Forest Division has substantial gum yielding trees like Anogeissus latifolia (Dhawada), Boswellia serrata (Salai), Sterculia urens (kadai),

Acacia Senegal (Babul), Acacia Arabica (gum arabica) etc. These are used in medicines, chemicals, cosmetics and other food industries. *Salai* gum is mostly used as incense and is said to be used in Indian medicines for rheumatism and nervous diseases. It has the possibility of becoming an important substitute for imported Canada balsam, used as mounting media in the preparation of microscopic slides. This gum is very similar to turpentine oil. It may be suitable in the manufacture of elastic adhesive, lacquers, oilcloth compositions, ink and perfumery. *Kulu* gum is the costliest gum and is having export potential. *Dhawada* gum is very good for the preparation of many food items. It is mostly used in the preparation of sweets.

13.7.1 **Regeneration of Gum Yielding Trees:** Natural regeneration of **gum yielding trees** such as *kulu, dhawra and salai* shall be provided soil working along with other planted seedlings, during coupe operations of area specific working circles.

13.7.2 **Soil Working of Gum Yielding Trees:**

i) Digging of 30cm deep trench encircling *kulu, dhawda and salai* trees of diameter matching the tree crown has been found to be useful in regenerating the species from roots; by doing so roots are injured and from which profuse shoots come out. Singling and tending of root suckers will increase the population of this species. The practice is proposed to regenerate areas deficient of *kulu, dhawda and salai* in stocking.

13.7.3 **Use Of Ethephone To Increase Exude Gum Yield:**

i) Experimental tapping of gum from Acacia senegal was carried out at Central Arid Zone Research Institute (CAZRI) a unit of ICAR India, and a study of the properties of the gum was made. An important finding of CAZRI scientists was that gum exudation from most of the gum yielding trees can be increased (nearly doubled), by injecting two drops or 2ml of plant hormone called ethephone (2- Chloroethyl Phosphonic acid) into the tree.

ii) Ethephone, a plant growth regulator, has been known to be a precursor of ethylene, which accelerates the ripening of the fruits and for increasing boll opening in cotton plants. It was for the first time that CAZRI scientists have shown its effect on increasing gum yield from trees.

iii) While using ethephone injection, it is not necessary to scar of the tree trunk and in fact exudation starts, due to abscission of cellulose tissues at various places on the tree. Increase in exudation of gum, when ethephone is injected, suggests that the gum is a normal metabolic product in certain plants, which is already present as sap in gum ducts. When cellulose cells are broken due to ethephone, creating abscission of gum ducts at several points, gum ooze out at such points.

iv) It has been observed that this method causes a minimum injury to the tree and exudation is not confined to a particular site (e.g. place of blazing of the stem) as in the case of conventional method of gum tapping.

13.7.4 **Tapping Rules:** The rules for tapping, derived by FRI, *Dehradun*, are as follows:

i) The tapping season shall commence from November till the end of May, each year. No tree below 90 cm in girth will be tapped.

ii) Tapping will be confined to the main bole of trees between 15 cm from ground level to the point from which first branch is given off.

iii) Only trees above 90 cm in girth at breast height will be tapped.

iv) Each tree will be tapped continuously for 3 years and will be given a rest for 3 years thereafter. The second tapping cycle will begin in 7^{th} year after the commencement of tapping season and will continue for another period of 3 years.

v) The initial blaze of 20 cm wide and 30 cm in length or height may be made in the month of November on trees, at 15 cm above ground level, with a sharp edge having 7.5 cm wide blade. The blaze is made 0.6 cm deep in the bark.

vi) Blaze may be made horizontally leaving approximately equal space between the blazes. The blazes should not have any loose fiber.

Table No. 44

NO OF BLAZES ON EACH TREE

Sr. No.	Girth at breast height	Max. No. of blazes to be made on each tree
1.	0.9 m to 1.3 m	2
2.	1.3 m to 2.0 m	3
3.	2.0 m to 3 m	4
4.	Over 3 m	1 blaze for every 45 cm girth in addition to category 3 above

a) No fresh blaze will be made on partially healed up surface or old wounds.

b) Each blaze will be in a shape of parabola with 2.5 cm wide base. The curved side of the parabola will be upwards and with height not more than 7.50 cm and the depth of the blaze will not exceed 0.6 cm in the wood.

c) At the end of the season, the height of the blaze shall not be greater than 12.50 cm. Maximum permissible dimension of each blaze shall be 10 cm x 12.5 cm x 0.6 cm in width, height and depth respectively.

d) Since the tapping is to be done continuously for three years the total height of the blaze at the end of three years of tapping will be 37.5 cm, the width and depth will remain the same.

e) In second cycle i.e. in 7^{th} year (after three years of rest) new blazes will be made in the same way in the unblazed portion that is, in between the blazed portions of the first cycle. This blazing will continue for another three years in the manner described above and the operation will be repeated till unblazed portion is fully covered.

13.7.5 **Grading:-** The collected gum is graded into three classes:

i) White
ii) Yellowish
iii) Black coloured.

White coloured gum fetches higher price in the market compared to yellow and black gum. Black gum fetches the lowest price. When gum is collected, it is a mixture of all the three kinds of grades. By grading the gum, the trader is

able to assess correctly and offers the correct price. So the skill of grading is provided to people by organizing training to gum collectors.

The colour of the gum is dependent upon the climatic conditions. It is believed that in a clear sky, during night the plant will exude white coloured gum.

13.7.6 **Formation Of Units And Coupes:-** The unit shall be range and each unit will be divided into three annual coupes, details of which will be given in **Appendix No.XVIII to XXI in Volume II.**. The working cycle will be of three years.

13.7.7 **Agency:-** As per the latest amendment to *Panchayat Raj* Act, the ownership of the minor forest produces in Schedule Areas is with gram *panchayat*. The collection and disposal of Minor Forest Produce is to be carried out by the gram p*anchayat* as decided by the concerned gram sabha. Hence the collection and disposal of these minor forest produces will be governed by the *panchayat* concerned. In non-scheduled areas, for large-scale operation, collection may be done either by FLCS or by JFMC or by any other agency, under terms and conditions, as decided by the Government. At present, there is no systematic market.

13.7.8 **Other Regulations:**

i) The compartment wise list of gum yielding trees shall be prepared and maintained at beat, round and range levels.

ii) Cleaning around the trees to facilitate gum collection and to avoid fire, shall be done.

iii) Gum producing trees shall be reserved from felling.

iv) A strict watch is necessary to enforce tapping rules and check unauthorized collection of gum and tapping during the period of rest. The blaze should be slightly slopping outwards to avoid lodging of guggul in the blazed pocket in case initial blazing is done by an edge.

vii) The *guggul* starts oozing out soon after blazes are made and may be collected initially after a month i.e. by about December when blazes may also be

freshened. Subsequent collections and freshening may be done at fortnightly up to May. Thus 12 freshenings may be required to be made during the year.

viii) In each freshening, the lower surface is not to be freshened. The edges may be scraped so that only 3.8 cm is increased on either side in width at the end of 12^{th} freshening. This means that about 0.3 cm should be scraped off either side in width in each freshening.

ix) The lowest row of blazes will be at one metre above the ground level. The next row of blazes will be made at the height of 60 cm from the lower end i.e. at a total height of 1.6 metre from the ground level. The vertical portion of the blaze of upper row will alternate with similar portion of the lower row and no two blazes of the two rows will be directly one above the other.

x) The number of blazes to be made on each tree will depend on its girth at breast height.

13.8. **MOHA:**

***Moha* collection:** *Moha* trees were found all over Mewasi Forest Division. The local villagers in the tract have indigenous system for allocation of collection rights of *moha* flowers and fruits. In view of traditional approach of allocation of collection rights by the local communities, it is advised to give serial numbers to *moha* trees and document them with the allotted moha collector. In each beat, girth-class wise moha trees should be enumerated by the territorial staff, both on forest and non forest lands. This allocation of Moha trees to the local people may prevent fire instances.

13.8.1 ***Moha* regeneration:** Natural regeneration of *moha* will be provided in each plantation estimate by dibbling of moha seeds, in each plantation site and by carrying out weeding and soil working, along with other planted seedlings, during the coupe operation of area specific working circles.

13.8.2 **Soil working of *Moha* trees:** Digging of 30cm deep trench encircling *moha* trees of diameter matching the tree crown has been found useful in regenerating the species through root suckers. By doing so, roots are injured and from which profuse adventitious shoots come out. Singling and tending will increase the

population of this species. The practice is proposed to regenerate areas deficient of *moha* stocking.

13.9. ***Moha* Flowers:**

i) Use and nutritive Value: *Moha* flower is a rich source of sugar, vitamins and calcium. The flower, in its ripe form, has almost 73% sugar and is, therefore, even a better medium of fermentation than grapes. Moha flower is eaten raw or cooked. This is eaten after frying or baking into cakes. More usually, the corolla tubes, after removing the stamens, are boiled for about 6 hours and are left to simmer, until water evaporates completely. The odour disappears as a result of cooking and the material becomes soft and jelly like. It is eaten with rice, tamarind, grains or other food or as sweetmeat. Dried *moha* flower is also boiled with rice and is mixed with wheat flour and this provides a wholesome food to the tribals. After drying, it becomes valuable food additive to diet. Moha flower is largely used in the preparation of distilled liquor also.

ii) Syrup of good quality is prepared from corollas by boiling with hot water and activated with charcoal and then evaporation under vacuum. This syrup with very high sugar content (61%) has a golden yellow colour, with the odour of fresh flower. It is a substitute for honey. Apart from human consumption, *moha* flower offers an excellent food to the livestock and wild animals as well.

13.10 ***Moha* Fruit:**

i) Use and Nutritive Value: A ripe fruit has cream coloured epicarp, which is edible. Moha berries are eaten raw or cooked. Cattle, sheep, goats, monkey and parrots also eat them. They have medicinal value as well. Fruit fallen on the ground are easily attacked by insects and ants, thus becomes unfit for human consumption.

ii) The *moha* seed oil:- A thick oil, light yellow in colour and extracted from the seeds, is used by forest tribes as cooking media and as an illuminance in the household and as hair oil. It is also used in the manufacture of soaps, particularly, laundry chips. In many areas, it is also used as an adulterant for 'Ghee' for which it is clarified with butter milk to mask the disagreeable colour. The oil finds use in medicines as well. The yield of oil from seeds

depends on the efficiency of the equipment employed for crushing them. It is 20-30% of the weight of the kernels, when crushed in *'ghanis'*, 34-37% in expellers and 40-48% when extracted by solvents.

ii) Refined oil finds use in manufacture of lubricating grease and fatty alcohol. The oil is also used for candles, as batching oil in Jute industry and as a raw material for the production of stearic acid.

Table No. 45
Moha Oil Properties

Sr. No.	Characteristics	GRADE		
		I	**II**	**III**
1.	Moisture and insoluble impurities% by mass max.	0.10	0.25	0.50
2.	Color in a ¼ in a cell on the Loviband scale expressed are Y + 5R not deeper than.	0.20	30	50
3.	Refractive index at 40°C	1.459	to	1.460
4.	Sp.gravity at 90°F /30°C	0.862	to	0.875
3.	Saponification value	187	to	196
6.	Iodine value	58	to	70
7.	Unsaponification matter % by mass	2.0	3	3.0
8.	Acid value max	0.5	20.0	>20

13.10.1 **Yield:**

(i) Moha tree starts bearing flowers and fruits between 10th to 15th years of planting. A study with reference to the yield of moha flowers and fruits was conducted by MVSS, Chandrapur in comptt.No.195 in Tadgaon Range of Bhamragarh Forest Division in year 1992. The trees of different shapes and girths were selected for the purpose of this study and results obtained are as below:

Table No. 46
Yield Of Moha flower And fruits

Weight in Kg.			
Sr. No.	**G. B. H. in Cm**	**Flower**	**Seed**
1.	076 - 090	06.00 kg.	1.20 kg.
2.	091 - 105	10.00 kg.	1.00 kg.
3.	106 - 120	11.25 kg.	2.00 kg.

4. 3. 6. 7.	136 - 150 151 - 175 176 - 190 206 – 220	13.30 kg. 13.00 kg. 13.00 kg. 20.00 kg.	2.75 kg. 3.80 kg. 4.00 kg. 4.30 kg.
	Average	**12.94 kg.**	**2.72 kg.**

ii) The collection of *moha* flowers and seeds is presently being done by individuals. Normally they confine themselves around their village only, to collect *moha* flower and seeds. As per the latest amendment to *Panchayati Raj* Act, the ownership of the minor forest produce in Schedule Areas is vested with Gram P*anchayat*. The collection and disposal of forest produce is to be carried out by gram *panchayat* as decided by the concerned *gram sabha*. Most of the tract is under Schedule Areas. Hence the collection and disposal of these minor forest produces is governed by panchayat concerned. In the non-scheduled areas, collection is by the individual and it is disposed off individually. No specific rules have been laid down and it is disposed off as concession.

13.11 **BIO-FUEL PLANTS:**

13.11.1 **Jatropha seeds (Jatropha curcas):-** This seed is in demand for its oil. The oil can also be used as biofuel and can supplement the depleting petroleum resources. The plant can be raised from cuttings or by dibbling seeds and forms a very good live hedge. It shall be planted on CCTs, on nallah bunds to stabilize them, on T.C.M.s and also on other types of boundaries, fencings etc.

13.11.2 **Karanj (Pongamia pinnata):** - The oil from its seed can be used as biofuel and it has medicinal properties as well and it is used for arthritis cure. The raw seed is also used for bronchoitis cure in the traditional system of medicine. The plantation shall be raised on a large scale in the forest area, with seeds from plus trees. Karanj tree raised from a plus tree can yield even upto 10-15 kg. of seeds. Diesel engines run very efficiently on the bio-diesel produced from Karanj seeds, after saponification.

Neem and Moha seeds to have oil content, which can be used as biofuel. For lower end machines like diesel pump and diesel generator, these oil can be an excellent substitute. It can also be blended with diesel fuel, to an

extent of 10 to 15% and can run a diesel vehicle. These two have a matching viscosity.

13.12. OTHER NON TIMBER FOREST PRODUCE WITH POTENTIAL IN THE DIVISION:

13.12.1 **Apta leaves (Bauhinia racemosa):-** These leaves are also used for making beedis. The manufacturing units of beedis are mostly confined to the State of Gujarat. The Apta seedlings should be planted in plantation areas to increase their relative proportion.

13.12.2 **Awla fruits (Emblica officinalis): -** The fruit is eaten raw and is used in making pickles. Being one of the richest sources of vitamin 'C', it also forms a part of various formulas in ayurvedic system of medicine. It is one of the three ingredients of "Triphala", which is an important ayurvedic preparation. This species does well in afforestation areas and particularly in dry zones and it should be made a part of the plantation programme, all over the division.

13.12.3 **Agave leaves (Agave sisilana,Agave americana):-** Agave leaves are in demand due to it fibres. It is a good live-hedge and should be planted on TCM and nallah bunds.

13.12.4 **Tarwad bark (Cassia auriculata) :-** This shrub grows well in open exposed forests and especially in dry areas. It has a demand in tanning industry. Production can be increased by broadcasting seed on T.C.M., nallah bunds, and in space between two trenches in afforestation programme.

13.12.5 **Khair wood (katha) (Acacia catechu):-** Khair has a great demand in Katha industry and there used to be a "Khair Overlapping Working Circle" in the earlier working plans. There is a marked depletion in its population, and there is a need to take up its plantation on a large scale in this division. Besides katha, khair tree also exudates a gum and is a good host plant for Lac insect.

13.12.6 **Rosha grass (Cymbopogon martinii):-** This grass has a demand due to its essential oil, which is of medicinal value. It can be introduced in

afforestation areas between the trenches by dibbling of its seeds. It is a powerful soil binder. .

13.12.7 **Tarota seed (Cassia tora):-** The seed in demand, as it is used in beverages and in cattle feed. The plant comes up naturally in blank areas. However its proportion can be increased by dibbling seed in blanks areas with shallow soil.

13.12.8 **Safed Musali (Chlorophytum tuberosum):-** It is a herb with tuberous roots. The tubers are used as tonic and are of great medicinal importance. It is collected and sold by tribals at the rate of Rs.400-500 per kg. to the traders. Its indiscriminate removal from the forest needs to be regulated.

13.12.9 **Ghat bor fruits (Zizyphus xylopyra):-**The fruits are in demand for tanning industry. The plants can be raised by dibbling seeds on the plantation sites; on T.C.M.s and on steep slopes. This tree is also a good host for lac insect.

13.12.10 **Honey: -** Honey produced by honeybees is a very important forest product because of its medicinal and nutritional value. The extraction of honey should be done scientifically, to get more yields. It can be a very good cottage industry for the people living in the midst of forests. The processing and marketing can be managed by forming co-operatives.

13.13 SUSTAINABLE HARVESTING TECHNIQUE:-

TIFR, Jabalpur has empirically standardized the harvesting technique of few of the species, twelve of which is listed below:-

13.13.1 **Rauwolfia serpentina** :- The harvesting of roots should be done from mature plants (18 to 30 month) and it should be done in the month of December or January. All plants in nature should not be harvested and 30 to 40% of the plant in nature should be left undisturbed. Roots must be harvested from matured plants by digging up the soil and by uprooting roots and leaving 2-3 small roots having at least 2 nodes, for care should be taken not to damage roots while uprooting as root bark contains the maximum amount of active ingradients: The harvested roots are dried in

sun to minimize moisture and then in shade till it is completely dried off. Reserpine is the major alkaloid present in the roots.

13.13.2 **Wihania somnifera**:- The seedling is planted in rainy season in the month of August-September and it is harvested after 150-170 days of sowing, in the month of December-Febuary. It is harvested when its fruit turn red and leaves dries off. The harvesting roots of Withania somnifera (Ashwaganda) is done by uprooting the plant completely. The roots are separated from the stem with the help of knife/sickle. The plant is long, brown tuberous roots, which can be used for medicinal purposes. The plant is used in preparation of Aswagandharista chavan prash.

13.13.3 **Terminalia belerica** :- (Baheda)- Baheda fruits should be harvested after maturity in the month of December-January, because only mature fruits produce viable seeds and there is a significant increase in the quality and fruit size from October to January. 5-10% seeds should be left on the tree for natural regeneration. The pulp from baheda seeds is extracted immediately after harvesting and it is dried in sun for a day to minimize moisture and then in shade till it dries off completely. Extracted pulp is graded according to its maturity, colour and cloth, or gunny bags and stored in clean and dry place. Baheda pulp is a good source of gallic acid and its kernel contains fatty acid. It is used for liver disorder anti oxidant etc. Baheda is used in the preparation of Elanir kujambu and Baheda churna.pulp content of the fruit. The dried baheda pulp should be packed in polythene,

13.13.4 **Asparagus racemosus**:- (Shatavari) – The dried roots are used in the medicinal plant. The first harvesting is advisable after one & half to 2 years of field planting and if the plants (tuber) is harvested sustainably, the tuber can still be obtained from the same plant for next 5-10 years. Tubers are harvested from fully grown, mature and healthy plants and is done in the month of December to January. While harvesting, all plants should not be harvested , 20-30% plants should be left untouched to maintain sustainability. The entire tuber of the plant should not be harvested. 3-4 tubers along the disc should be left in the ground for its regeneration to

maintain sustainability. For harvesting tubers, soils should be dug out from 30 cm radius of the plant to minimize damage to the tubers. After harvesting, small and big tubers are separated and while the big tubers are washed and are processed, the small tubers are stored as such in a cool place, without washing, to be used as planting material next year. The harvested tuber is washed with water and is packed off with a sharp knife immediately, as later it becomes difficult to do it. Tubers are cut transversely into small pieces and dried in shade. The tuber contains steroid "saponis" and it is used in preparation of Shatavarikalpa, Phalaghrita and Vishnutaile.

13.13.5 **Arjuna (Terminalia arjuna)** :- For sustainable harvesting, ¼ or 1/3 of the nature trunk barks of the trees is extracted. Only the outer and middle bark is removed, leaving the inner bark for regeneration. The length of the blaze may very depending upon the girth of the tree. Sustainable bark, harvesting may be done after two years by removing opposite quarters of trunk bark rather than girdling of the trees. Barks of the old branches can also be harvested from a mature tree (about 20 years onward). About one quarter of the bark has to be removed alternately to the upward direction from the main trunk. The equal portion of the bark may be harvested in the next year. This alternate removal helps the tree in maintenance of translocation of organic solutions. The bark recovery by this technique is approximately 42% in one year. The younger tree shows a faster recovery and this recovery is fast in moist area, than in dry area. The recovery (re-growth) is faster if the cut is sharp and in unsharped blaze, the recovery is slow. The cut should be limited to cambium layer only and when it extends beyond into wood, it may not heal at all. No fungal attack is noticed, if the harvesting is in month of February and March. The arjuna bark can be obtained on sustainable basis, if the bark is harvested through non-destructive harvesting techniques in a proper season, and a sufficient time is allowed between two successive harvest, for the plant to regenerate its new bark. Trunk bark contains maximum tannin and oxalic acid.

13.13.6 **Maida (Litsaea chinensis)** :- The bark is used for making agarbatii. It has a use in pharmaceutical industry. The current harvesting technique is destructive and the collector basically goes for girdling and removes every things upto the branch. This has led to near depletion from the forest. For sustainable harvest, only ¼ or 1/3 of the mature trunk bark of the tree should be extracted. In Maida it is very difficult to find out mature trees having GBH more than 60 cm. Strip harvesting is a superior method in comparison to making blazes on the trunk, as only young trees are available. The regeneration of bark in young tree is faster in comparison to older trees. In older trees, the regeneration of bark takes more than two years. In older trees with GBH greater than 90 cms., the thickness of the bark is more than in younger trees, with girth less than 40 cm. However, mucilage and tannin content is less in older trees in comparison to younger trees. 82% recovery of bark is seen in trees with GBH less than 40 cm. The best time to harvest is from December to March. Sustainable bark harvesting is done after one year, by extracting the opposite quarter of the trunk bark.

13.13.7 **Aonola (Phyllanthus emblica) :-** For sustainable harvesting, only 80% of the fruits on maturity should be removed and 20% should be left for regeneration. If it is difficult to leave 20% fruit, then 10% trees should be left for regeneration purpose. The fruit should be harvested during December to January when they become dull greenish yellow. The amount of gallic acid is more in the fruits harvested in the month of November.

13.13.8 **Baividang (Embelia tsjeriam-cottam):-** It is a woody climber. Sustainable harvesting technique includes collection of fruit at appropriate time after maturity. Maturity comes when colour of the fruit change from green to pink or red. Fruit should be plucked by hand instead of cutting the branches. If the population of Baividang is more than 20 fruit plants per 100 Sq.M., then 5 to 10% fruits are enough to maintain susttainability and if between 10 plants to 20 plants per 100 square meters, 20% fruits should be left to achieve sustainability and if density is still less, 30% seeds should be left in situ for regeneration.

13.13.9 **Gudmar (Gymnema sylvestre)** :- It is a medicinal climber and is woody. Leaves and roots are the useful part of the plant. To maintain sustainability, selective harvesting is done without affecting the main plant. All leaves should not be harvested, at a time. Only mature leaves (60%) should be plucked by hand in the month of October. Young immature leaves should be left on the plant. The second harvest should be taken in June and at this time also, the mature leaves should be harvested. The leaves left at the time of first harvest matures by April, and is due for second harvest. By excluding leaves, the growth is not affected. On an average, 1146 leaves should be harvested per year from a two years old plant.

13.13.10 **Kalmegh (Andrographis paniculata):-** It is a bitter annual herb. The fresh and dried leaves of Kalmegh and the juice extracted from the herb is used in drug making. It contains an active chemical called androgarphotide. Best harvesting period is found between 100 to 120 days after planting, as it contains maximum androgarphotide (2-21%) . Out method is adopted for sustainability, as it improves natural regeneration of the herb. The present method is just uprooting of it.

13.13.11 **Giloe (Tinospora cordifolia**):- It is a succulent climbing shrub. The whole plant is used as a medicinal plant. The present practice is just to uproot the entire plant. The sustainable harvesting includes of Giloe stem. 15 cm above the ground level at different time of the year. The stem should be harvested from two year old plants and cut up to small pieces and dried under sun. The size of the cut is 1.25 cm. It is seen that if Giloe is not cut in small sizes, it will not dry for months together.

13.13.12 **Nagar motha (Cyperus scariosus)**:- Tuber of this plant is used for medicinal purposes. The sustainable harvesting includes removal of 90% of plants with rhizomes, and 10% to 15% plants are left well distribute for better growth and its multiplication and to ensure sustainability. The next harvesting is done after 6 months. Tillers left in soil multiply and grow into a rhizome.

13.14 SECTION:6 MEDICINAL PLANTS

13.14.1 Development of Medicinal Plant – Annually 50 hectare of medicinal plantation shall be taken, preferably of the species locally found and is widely in ayurvedic preparations. A permanent nursery of medicinal plants shall be prepared in the Division to make this activity acontinuous process. Medicinal Plant Board of India, New Delhi provides funds for this activity and it should be actively used. To start with this activity, the species whose nursery technique is the simplest should be adopted. The following are 24 species of medicinal plants, which can be easily propagated.

(1) Abelmoschus moschatus
(2) Acorus calamus
(3) Adhatoda zeylanica
(4) Aloe barbadensis
(5) Alpinia galangal
(6) Asparagus racemosus
(7) Bacopa monnieri
(8) Boerhavia diffusa
(9) Cardiospermum halicacabum
(10) Celastrus paniculatus
(11) Psoralea corylifolia
(12) Terminalia chebula
(13) Tinospora cordifolia
(14) Withania somnifera
(15) Centella asiatica
(16) Chlorophytum borivilianum
(17) Costus speciosus
(18) Eclipta prostrate
(19) Emblica officinalis
(20) Gymnema sylvestre
(21) Moringa oleifera
(22) Mucuna pruriens
(23) Oroxylum indicum
(24) Plectranthus barbatus

For harvesting, a sustainable harvesting technique should be followed.

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CHAPTER – VI : WORKING PLAN FOR BAMBOO (OVERLAPPING) WORKING CIRCLE

14.0 SECTION-1: GENERAL CONSTITUTION OF WORKING CIRCLE.

Silviculturally untreated bamboo

14.1. This working circle overlaps the other working circles except the area falling in Protection Working Circle, and extends over all ranges, and includes all the areas included in this working circle in the earlier Plan. The area is distributed over Taloda, Akkalkuwa, Khapar, Molgi, Kathi and Wadafali ranges. It includes all these compartments with the distance between of 100 clumps per ha or more in average. The area statement is givenin Table-47 below.

Table- 47

Distribution of area under Bamboo (Overlapping) Working Circle in different Ranges (Area in ha.)

Sr. No.	Range	Total Area	Bamboo (O/L) WC	% of Total Area
1	Taloda	17044.250	4500.00	26.40 %
2	Akkalkuwa	11795.220	2870.00	24.33 %
3	Khapar	9719.120	2680.00	27.57 %
4	Molgi	8659.600	4950.00	57.16 %
5	Kathi	10471.680	3860.00	36.86 %
6	Wadafali	12289.830	4640.00	37.75 %
	Total	**69979.700**	**23500.00**	**----**

14.2 SECTION-2 : SPECIAL OBJECTS OF MANAGEMENT:

1. To improve the stocking and density of the bamboo in the area by under planting of bamboo.

2. To harvest mature bamboo scientifically so as to improve the crop as well as get maximum sustained yield.

3. To meet the local demand for bamboo to the maximum possible extent.

14.3 SECTION-3 : GENERAL CHARACTERS OF THE VEGETATION.

14.3.1 The bamboo species occurring in the areas are Manvel (Dendrocalamus strictus) in the teak forests of Taloda, Akkalkuwa, Khapar, Molgi, Kathi and Wadafali ranges. Luxuriant growth of bamboo is seen confined to slopes, sheltered valleys and along the banks of the water courses. Earlier there was a ruthless harvesting of bamboo culms in the area, and that has led to the deterioration of the clumps.

14.3.2 The forests belong to the category of Southern Tropical Dry Deciduous Forest. The site quality is IV. The crown density varies from 0.3 to 0.5 and the main timber species of the growing stock are teak, shisham, sadada, kalamb, bija, sawar etc. Dendrocalamus strictus is found in compartments of Akrani, Toranmal and Shahada ranges.

14.4 SECTION-4 : ANALYSIS AND VALUALUATION OF THE CROP.

The distribution of the bamboo is sparse, and enumeration details show that area is having less than 100 clumps /ha. Low quality bamboo with an average girth of 10 – 12 cms and an average length of 6mtr. are found in the tract. Bamboo is associated with teak, shisam, sadada and bija. No natural regeneration of bamboo is noticed in the area, however there is a satisfactory recruitment of bamboo culms every year.

14.5 SECTION-5 : METHOD OF EXECUTING THE CUTTNGS.

The coupes will be demarcated, as per the standard procedure and for harvesting bamboo clumps, the following rules will be followed:

1. No harvesting works should be permitted between 15th June to 15th October, in order to facilitate the growth of new bamboos / shoots.

2. No clump should be considered fit for harvesting unless it contains more than 12 mature clumps. No clumps below the age of two years will be felled.

3. In a mature clump the following types of clumps (green and living) will be retained.

   (a) All of current season i.e. less than one year old clumps.

   (b) From rest of the culms, equal in number to the current season s (i.e. less than one year old) culms or eight whichever is more.

4. The cutting height of culms will be between 15 cms. to 45 cms. above the ground level i.e. above the first inter-node from the ground. The cut shall be slant with a sharp instrument. All cutting debris shall be removed at least one meter away from the periphery of each worked clump.

5. Following acts will be strictly prohibited:-

   a. Digging of rhizome.

   b. Lopping of bamboo clumps for fodder.

   c. Use of tender bamboo clumps for bundling.

6. Felling cycle of 3 years will be adopted.

7. No clumps below the age of two years will be felled.

8. Following culms shall be removed from all clumps.

   a) All dead, decayed and dry bamboos.

   b) Culms whose half or more top part is broken or damaged.

   c) Twisted or malformed culms.

9. In case of any flowering, no clump from flowered clump shall be felled in the year of flowering.

10. Harvesting of bamboos shall be done in a manner so as to ensure that the retained culms are evenly spaced and that some mature culms i.e. more than two years old are retained on the periphery for the purpose of support to the new culms.

11. Climbers infesting the growth of bamboo clumps shall be cut.

12. The minimum number of culms to be retained in each clump is fixed on the basis of quality classes as follows.

    a) Quality-I - 20 culms.

    b) Quality-II - 15 culms.

    c) Quality-III - 10 culms.

13. However the number could be exceeded so that the total number of mahila (1 to,2 year old) & Pakia (older) culms together is not less than the total number of Karlas (culms up to one –year age) in the clump.

14. No grazing should be permitted during the rains in bamboo forest which has been worked in the previous open season.

14.6 SECTION-6: CHOICE OF SPECIES

Dendrocalamu s strictus shall only be felled.

14.7 SECTION-7: SILVICULTURAL SYSTEM-

Coppice selection system will be followed, as each culm a coppice shoot from the stem (rhizome)

14.8 SECTION-8: FELLING CYCLE

The felling cycle will be of three years. The entire area will be divided into three coupes. Every year one coupe will be worked. The areas planted with bamboos will be taken for working after completion of 8th years.

14.9 SECTION-9: FORMATION OF FELLING SERIES REDUCING FACTORS & REDUCED AREA

Three felling series of bamboo has been constituted.

14.10 SECTION-10: REGULATION OF YIELD.

No fixed yield has been stipulated.

14.11 SECTION-11: AGENCY OF HARVESTING.-

All harvesting will be done departmentally.

14.12 SECTION-12: SEQUENCE OF FELLING-

The sequence of felling is given in **Appendix No.XVIII to XXI in Volume II.**

14.13 SECTION 13: TECHNIQUE OF RAISING PLANTATION.

(ARTIFICIAL REGENERATION)

14.13.1 The bamboo plantations will be taken up as per the approved model of bamboo plantations. Nearly 278 seedlings at a spacing of 6m x 6m shall be planted. Standard planting technique shall be followed. Full one year old seedling will be used for planting in the field raised from rhizome growth in beds in monsoon seeds of only gregarious flowering should be used for raising seedlings. Seeds of sporadic flowering should be avoided unless the flowering period of that phenotype is known and unless there is at least a difference of 20 years left for gregarious flowering.

14.13.2 The demand for bamboos both for cottage industries i.e. basket & mat making, and household requirements is increasing gradually. But the area under bamboo has shrunk in course of time. It is therefore desirable to take up bamboo plantations in the areas where natural bamboo is non-existent, but the potential exists for its production. Thus bamboo will be planted in suitable areas at 6m.x 6m spacing, and in addition to that bamboo seedling will also be planted as one of the species in all plantation activities in different working circles, where planting or gap planting has been prescribed. The planting will be done only in closed annual coupes or in old teak plantations during thinned on slivicultural basis. Hence no planting coupes have been proposed here separately.

14.14 SECTION 14: GREGARIOUS FLOWERING METHOD FOR EXECUTING THE WORK.

14.14.1 As soon as gregarious flowering is noticed from any locality, its extent should be correctly assessed and recorded in the compartment histories and also in the "Divisional Note Book". A report should also be made to the Chief Conservator of Forests (Territorial), Dhule, Chief Conservator of Forests (Research), and Conservator of Forests (Working Plan), Dhule.

14.14.2 As the bamboos start flowering gregariously, the whole area will have to be effectively closed to grazing. It should also be strictly fire protected for the next ten years so as to facilitate the germination of bamboo seeds falling on the ground and their subsequent establishment and clump formation. The division will be required to equip itself, to cut and transport the dry clumps after flowering in the shortest possible time.

14.14.3 Fresh seeds of bamboo will be collected from the flowed clumps. The requirement of seeds by various divisions, silviculturist and private buyers will be ascertained in advance by giving wide publicity and the seeds will be dispatched promptly as per demand. The division will also raise nurseries as per requirement.

14.14.4 Tending operations:- It is essential to look after the young regeneration properly, till the time the clump formation starts. The following operations will be carried will be carried out depending on the age of the crop:

14.15 CROP AGE BETWEEN 1 TO 3 YEARS:

During this period, the area will normally contain thick seeding crops more or less a carpet, and clump formation does not start. During the period this following tending operations will be carried out.

i) The area will be thoroughly gone over and .6m diameter foci at the rate of 300 per hectare will be formed and distributed evenly over the whole area.

ii) All the rank growth of grasses, weeds and even bamboo seedlings up to a distance of 1.5m all round the foci formed as above, will be cleared so that the growth of the seedlings in the selected foci is not hampered.

iii) All climbers within and around the foci upto 1.5 m distance will be completely removed.

iv) The whole area will be strictly protected from fire and grazing.

14.16 CROP AGE BETWEEN 3 TO 8 YEARS-

During this period the clump formation starts but the crop is yet immature for harvesting. During this period following operations will be carried out.

i) All badly grown twisted and damaged culms from the selected foci will be removed.

ii) All weeds, grasses and climbers within and around the foci upto a distance of 1.5m will be completely removed.

iii) Tree growth of species other than teak, ain, shisham, bija, tinsa, tiwas, dhaora, haldu, karam, semal, mowai and bhirra over topping the clumps will be removed.

iv) The whole area will be strictly protected from fire and grazing.

v) After the completion of eight year, the clump will be included for harvesting.

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CHAPTER – VII : NOTE ON BIODIVERSITY CONSERVATION

15.1. SECTION 1 : GENERAL CONSTITUTION OF THE WORKING CIRCLE.

1 It extends over entire area of Mewasi Forest Division comprising of tehsils falling entirely in Mewasi District. The Deputy Conservator of Forests, Mewasi Forest Division stationed at Shahada, is an ex-officio Deputy Wildlife Warden, who is responsible for protection, conservation and development of wildlife in this Division and he is assisted by Assistant Wildlife Warden and by the staff working under his control. A large part of the area is denuded, carrying the scrubby growth, which constitutes an ideal habitat for antilopes.

2. The tract dealt with was once fairly rich in the number and varieties of wildlife but it stands in perilous state today. However a conducive condition can be created by the manipulation of habitat, for the wildlife to multiply. The area statement is as below:-

3. Forest Management in this Division has been drafted to take a special care of the needs of wild life conservation and for the corridor linking with others. It is essential to provide and maintain genetic continuity, between artificially separated, sub sections of migrant wildlife.

4. National Forest Policy 1988 aims at conservation of natural heritage of the country preserving the remaining natural forests with the vast variety of flora and fauna, which represents the remarkable biological diversity and genetic resources of this country. The Wild Life (Preservation), Act 1972 emphasizes to protect wildlife.

15.2. SECTION 2 : SPECIAL OBJECTS OF MANAGEMENT:

This overlapping working circle has been constituted to achieve the following objectives,

(i) To ensure maintenance of viable population of wildlife.

(ii) To preserve for all time areas of such biological importance as a national heritage for the benefit, education and enjoyment of the people.

(iii) To preserve biological diversity so as to derive the ecological services in perpetuity.

(iv) To introduce some of the wildlife species that have disappeared from the area.

(v) To preserve the ecosystem so as to conserve the biological resources.

15.3. SECTION-3: BIOGRAPHIC CLASSIFICATION

Under biographic classification of India, this area has been categorized into class 6 "Deccan Peninsula and Biotic province" 6 E Central high land".

Biomes: According to Champion and Seth, the area is classified into "5A Southern Tropical Dry Deciduous Forests. According to Gaussen classification, it is classified into two series:-

(A) Tectona - terminalia series.

(B) Anogeissus - terminalia- Tectona series.

15.4. SECTION-4: THE FOLLOWING WILDLIFE IS SIGHTED:

(A) Carnivorous :- (i) Panther (Panthera pardus), (ii) Hyaena (Hyaena hyaena), (iii) Wild dog (Cuonal pinus), (iv) Jackal (Cains aureus), (v) Jungle cat (Felischaus), Sloth bear (Melursus ursinus), Indian Pangolin (Maniscras sicaudata),

(B) Ominivorous :- Indian Porcupine (Hystrix indica), Smooth Indian Otter (Lutra perspicillata),

(C) Herbivorous:- (i) Barking deer (Muntiacus muntjak), (ii) Wild boar (Sus scrota), (iii) Four horned antelope (Tetracerus quadricornis), (iv) Chinkara (Gazella gazella), (v) Grey languor (Presbytis entellus), (vi) Rhesus macaque (Macacamulat laradiata), (vii) Hare (Lepus nigricollis).

(D) Snakes :- Cobra (Naja naja), Common krait (Bungarus caeruleus), Indian Python (Python molurus), Sawscaled viper (Echis carinatus).

(E) Avifauna :- (i) Painted sand grouse (Pterocles indicus), (ii) Common sand grouse (Pterocles exustus), (iii) Peafowl (Pavo cristatus), (iv) Grey jungle fowl (Gallus sonneratii), (v) Painted partridge (Francolinus pictus), (vi) Grey partridge (Francolinus pondicerianus), (vii) Jungle bush quail (Perdicula asiatica) (viii) Black breasted or rain quail (Coturnix

coromandelica), (ix) Common bustard quail (Turnix suscitator), (x) Indian or yellow legged button quail (Turnix tanki), (xi) Red spur fowl (Galloperdix spadicea), (xii) Sarus Crane (Grusan tigone), (xiii) Spotbill duck (Anaspoecilor phyncha), (xiv) Common green Pigeon (Treronphoenic optera), (xv) Dove (Streptoplia spps), (xvi) Cotton teal (Nettapus coromandelianus), (xvii) Lesser Whistling teal (Dendrocygna vanica).

15.5. SECTION-5 : DESCRIPTION OF HABITAT

The forests of Mewasi Forest Division has a lot of varieties of grass and browse like coise lachrymal jolin, Dendrocalamus strictus, Themeda triandra, Bauhinia racemosa, Cassia fistula (Only fruits), Ehretialaevis, Emblica officinalis, Gmelina arborea, Mallotus philippinensis, Syzygium cumini, Termina liaarjuna, Terminalia tomentosa. These species provide fodder to big harbivora like. Among the shrubs consumed by these harbivora, the important are, Helictere sisora tender shoots in burnt area, Securine gavorosa, during April, May when green, Brindelia retusa- when in shrub form, Holorrhena antidysenterica, when in shrub form, Boswellia serreta- young coppice shoot, Zizyphus xylopyra, when in shrub form, Lantana camera, tender sprout, Grewia abutilifolia young coppice shoot Carvia callosa, fruits, Hibiscus ovalifolius level.

Zizyphusxylopyra :- (Ghoti) and Lantana camera fruits are eaten by sloth bear. Panther is found all over this Division, since it has no specific habitat preference. Rodents are normally site specific. Flying squirrel is seen around riparian zones. Ratel are found around river or nallah banks.

15.6. SECTION-6: METHOD OF TREATMENT

The method of treatment will aim at increasing the wildlife population, by better utilization, and improving the existing resources available. Two methods of treatment have been prescribed.

ECO-DEVELOPMENT STRATEGY :- It will have an ecosystem approach and will involve a plan by a multi-disciplinary team aiming at providing a better input to the local population, and making themselves reliant. This in turn will benefit the entire ecosystem. The wildlife will be beneficiary.

HABITAT MANIPULATION :- The habitat manipulation aims at improving the habitat and thereby increasing the carrying capacity of the forests. Obviously it is in reference to target species. The habitat improvement work will include development of three basic necessities of wild fauna, food, water and shelter.

DEVELOPMENT OF FOOD AND FODDER RESOURCES :- The development of food resources will be carried out by raising fodder plantation, increasing most and fruit production, browse production and necessary grazing control.

FODDER DEVELOPMENT :- The production of grasses shall be increased by inducting the better varieties of palatable grasses among the local grasses. They should not be planted pure. The cereal crop should always be planted with legume, as animals need 70% cereal and 30% legume in their diet. Cereal grasses, Schimaner vosum, Schima sulcatum, Dicanthium annulatum, should be planted along with legume grass like Atylocias corboides and Alyscia rpusrigosis.

Some improved varieties of cereal grasses, Pnnisetump edicellatum, Cenchris cilians, should be included in pasture land along with legume grasses. Stylohamata, Deshmanthes virgatus. Pavnya (Sehiman urvosum, Sehimasulcatum) is best suited as fodder grass. It is rich in protein and is easily digestable. Stylohamata and Pennisetum pedicellatum.

Remains palatable till December, which Dicanthium annula tumremains green till early summer.

DEVELOPMENT OF FRUIT TREES: Mast and fruit contributes the important component of food for many wildlife species. The fruits of Bel, Aonla, Char, Ber, Gular are relished by wild animals. Mast is maximally used by wildlife. To improve mast, the following operations shall be carried out, planting of fruit trees, direct sowing and removal of competition. These competition can be removed physically or chemically. Protection to these trees is very important.

BROWSE PRODUCTION: Browse is the major food for most of sthe herbivorous animals. Brows, manipulation, thus, becomes an integral part of

habitat manipulation. For achieving browse production, the pollarding of selected fodder species should be done in the lower girth class subjected to a maximum of 30% of these poles.

While working of bamboo clump in a coupe two to three culms will be cut at third to fourth intermode, to produce a green forage for the herbivorous.

For stimulating browse production, the following technique will also be tried.

(i) Thinning will be carried out in congested crop.

(ii) Small patches of size ½ chain x ½ chain will be burnt at 2 to 3 places into current coupes.

(iii) Planting or sowing directly of browse species will be carried out.

(iv) **Herbaceous Planting**:- At places especially near river beds, the seeds of herbaceous plants shall be broadcasted.

(v) **Lure Cropping** :- Some seeds of Maize (Zeamay), Jowari (Sorghum vulgare), Gram (Phaseolus awieus) and buimung (Crachis hypogaea) shall be mixed with grass mixture and sown in meadows, as lure crop. No separate plot of lure crop shall be raised.

(vi) **Edge Effect**:- Creation of interspersion is very important for wildlife. This can be achieved by producing edge effect. Felling has been prescribed to produce edge effect.

15.7. SECTION-7: WATER

The typical geomorphological character of the area restricts the availability of surface water especially during summer. However by using improvised methods, the availability can be enhanced even in summers. The water is available in plenty till January end. During summer, the water is extremely scarce and is available only at few places. The following steps will be, taken to improve water supply to animals.

TREATMENT OF WATER HOLES :- The storage capacity of waterholes should be improved by deepening it. This should be done by desilting. Cleaning of selected waterhole should also be carried out occasionally.

15.8. SECTION-8: MANAGEMENT OF RIPARIAN ZONES :- Riparian Zones are life veins of the forest and hence should be the least distributed area.

MANAGEMENT OF SNAGS AND DEN:- While carrying out enumeration for marking an inventory of snag trees should be separately prepared and especially those used by rare and threatened species. A minimum of 3 to 4 snag trees should be maintained. The snags used by rare and threatened birds should not be marked for felling. Species like Dalbergia paniculata with very low timber utility should be kept as reserve in a large number. At least 20% of the trees in higher girth class should be retained. Trees like Ficus bengalensis, Ficus glomerata should be reserved against felling.

15.9. SECTION–9 : INJURIES TO THE WILD LIFE

Fire and poaching are mainly responsible for destruction of Wild Life in Mewasi forests. Forest fires, which occur frequently in these forests, destroy the natural habitat of the wildlife, also the scarcity of water, forces the animals to migrate.

15.10. SECTION–10 :- INCIDENCES OF ATTACK BY WILD ANIMALS

Though incidences of attack on human beings are rare, however, in year 2010-11 up to a number of persons were killed or injured due to attack by wild animal in Mewasi Division, thereafter, no incidence of wild animal attack has been reported. The attack by wild boar and bear on human being is also reported in this division. The cases of cattle lifting by wild animals are not very alarming.

15.11. SECTION-11 PRESCRIPTIONS FOR THIS WORKING CIRCLE:-

These prescriptions are applicable to all forest areas and also to the whole civil district, where ever possible.

(a) Soil and moisture conservation works will be taken up, wherever possible and in all forest areas, additional measures are to be taken to construct water holes.

(b) Reorientation of people's awareness about wildlife through programmes like Wildlife week celebrations, in educational institutions and in remote villages shall be taken.

(c) Involving local student and general public for wildlife census which may include counting of water fowls at water bodies and in wetlands during every winter.

(d) In suitable places, salt licks will be provided

(e) Wildlife watchtowers at suitable spots, if available, will be created.

(f) Shelter and hiding places if not existing naturally, will be provided by artificial means.

(g) Inoculation of cattle permitted to graze in these forests is to be compulsorily resorted, to protect the wild life from contagious diseases usually carried by domestic cattle.

(h) Creating artificial barrier to restrict the wildlife from raiding agricultural fields.

(i) Estimation of wildlife will be carried out every third year during first week of May.

15.12 SECTION-12: GENERAL MEASURES FOR PROTECTION:-

(a) Areas should be strictly and effectively protected from fire

(b) A vigilant watch should be kept on poachers by creating checking nakas at strategic points vis-à-vis check post for checking the forest produces in transit.

(c) During summer, the scarcity of water, drives the animals to few water holes, thereby exposing themselves as prey to poachers, thus such areas should be kept under constant vigilance.

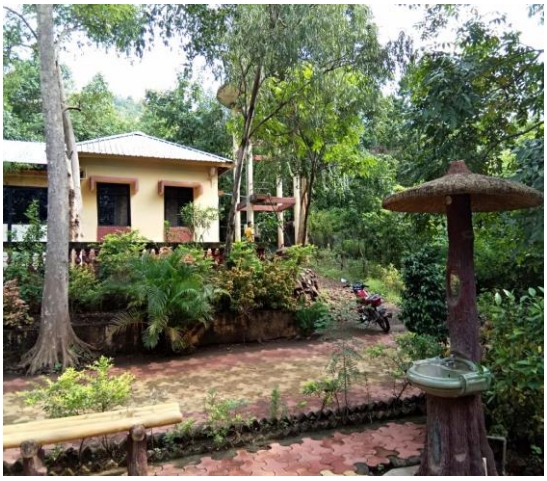
(d) Compensation for cattle and human killings by wild animal should be made promptly, as admissible under law, to create sympathy towards wildlife, and to check any possible revenge, by the villagers.

(e) If there is any cattle lifter or a man-eater, carnivore, that should be translocated to safe areas, preferably to a zoo.

(f) A general awareness about the preservation of genepool should be created among all..

(g) An orphanage should be created in the division for recouping of an ailing animal, and then for its subsequent release in nature.

15.13.SECTION 13: ECO-TOURISM:



ECO-TOURISM

The division is taking up eco-tourism works under plan funds to develop certain sites. This will attract tourists and create awareness about eco-tourism. However, these works will be carried out after taking the necessary permission (where ever required) under section 2 of Forest (Conservation) Act 1980. Kundeshwar and Vallerhi are the most appropriate site to be developed for Eco-Tourism.

15.14. SECTION-14: WATER SUPPLY:

In areas, where there is an acute shortage of drinking water, required by wild life, construction of water holes will be carried out with a provision for a regular supply of water there. Creation of vantalis (Vantalab) to harvest water for purpose of wildlife and construction of anicuts, bunds on nalas at suitable sites, should be carried out to provide permanent water holes to wildlife.

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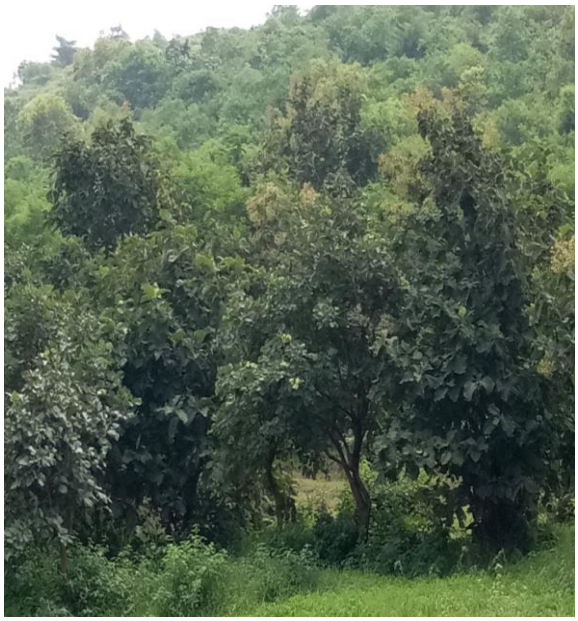
CHAPTER – VIII : PLANTATION MANAGEMENT

16.1. SECTION 1 : Plantation Management (Overlapping) Working Circle :-



10 Years old mixed species. Plantation

Afforestation works done in Mewasi Division during last few years have shown good results. However the plantation under various schemes are managed and maintained for Five years only. These plantations if properly treated and protected up to Ten years, will help in improving the tree cover.

Under Planting bamboo, reboisement of old plantations and gap filling by native species, will be important treatment for raising tree cover.Method of treatment suggested also includes mulching, singling and cleaning operation, watch and word, repairing of TCM, live hedge fencing and soil and moisture conservation works etc. as per requirement of sites. This will also increase the number of visits to the plantation by the field staff and supervisory officers.

Table No.48
Norms for plantations as per Evaluation code

Sr. No.	Area Category	Successful Plantations	Partially Successful Plantations	Failure Plantations
1	Suitable sites with soil depth > 2', rainfall 50" to 150", average prevalence of adverse biotic factors, gentle to moderate slopes	60% and above	33% to 60%	Less than 33%
2	Medium quality sites with soil depth > 1', rainfall 35" to 50" average prevalence of adverse biotic factors, moderate slopes.	50% and above	25% to 50%	Less than 25 %
3	Poor sites with soil depth < 1', rainfall <35" or > 125", excessive prevalence of mist and fog, adverse biotic factors.	40% and above	20% to 40%	Less than 20%

16.2. SECTION 2 : GENERAL CONSTITUTION

This overlapping Working Circle deals with the management of miscellaneous species 4998.80 hectares of total plantations taken since 2001-02 ot 2016-17. Lists of successful old miscellaneous plantations are given in the following table.

16.3. SECTION 3: SPECIAL OBJECTIVES OF MANAGEMENT

1. To improve the silvicultural conditions and productivity of old successful plantations.

2. To enrich the area by taking AR of suitable species.

3 To create employment opportunities for the natives.

4 To involve JFMCs in protection and management of old plantations.

16.4. SECTION 4 : WORKING CYCLE

Since area under old plantations vary considerably in different ranges, hence working cycle will vary depending upon the species and the total area to be tackled in each range.

16.5.SECTION 5 : DEMARCATION OF COUPES AND PREPARATION OF TREATMENT MAP

The annual coupes shall be demarcated one year in advance. The RFO shall inspect the plantations due for tending operations and shall prepare treatment map for the successful as well as partially successful plantations as per the norms laid in the Evaluation Code and will show the following areas.

I. Area ‘A’ – Protection Areas : include the following areas.
   i. Areas with steep slopes i.e. more than 25^0 .
   ii. Eroded areas or areas liable to erosion.
   iii. Twenty meters wide strip on either side of the water courses.
II. Area ‘B’ – Under stocked Areas : include areas with crop density less than 0.4
III. Area ‘D’ – Well Stocked Areas : include areas with crop density more than 0.4

The following norms are laid down to adjudge success or failure of plantation as per the ‘Evaluation Code’.

The plantations which are found to be failure as per the Evaluation Code shall be evaluated by the DFO Evaluation to ascertain the causes of failure so as to avoid and overcome them in future. Deviation proposal shall be prepared by the DCF Mewasi for such plantations and sent to CCF Dhule/DCF.

16.6 SECTION 6 : METHOD OF TREATMENT

For its continuous healthy development, a tree crop requires food, light and adequate space to grow. The individual members of the forest crop have to complete amongst themselves for getting these essentials. The requirement of the individual members increase with age and their growth is seriously hampered if the forest crop is not tended properly.

'Tending' is defined as operations carried out for the benefit of a forest crop at any stage of its life between the seedling and mature stages; it essentially covers operations on the crop itself and on the competing vegetation and includes weeding, cleaning, thinning and pruning and does not include regeneration fellings and ground operations like soil working, drainage and controlled burning. The tending operations required for the management of the old plantations are explained below.

I. Cleaning : It is done in the sapling crop involving the removal or topping of inferior growth including individuals of favoured species, climbers etc. when they are interfering with the better grown individuals of the favoured species. It merges with thinning as saplings grow into poles. It is done to improve light conditions and to reduce root competition and transpirational water loss. It shall be done in the 7^{th} year of the formation of the crop. The following operations will be carried out :

i. All climbers shall be cut in the plantation area.

ii. Individuals of inferior species interfering or likely to interfere with the growth of planted

saplings shall be cut back.

iii.Malformed, diseased and damaged individuals of the planted saplings shall also be cut back.

iv. Coppice shoots arising from the stumps shall also be cut.

II. Thinning : It is defined as a felling made in immature stand for the purpose of improving the growth and form of the trees that remain, without permanently breaking the canopy. Few years after the plantations are raised; there starts an intense competition amongst the saplings for limited light, minerals and water. Therefore, to avoid the adverse affects on the growth of the future crop, thinning are required to gradually reduce the number of saplings, poles and trees per unit area, as the crop advances in age. It consists of series of successive felling operations before the crop matures and is carried out in a crop after it reaches the sapling stage and continued upto the beginning of the regeneration period. The interval between two successive fellings may be fixed but it depends upon the time required for canopy closure.

16.7.SECTION 7 : OTHER REGULATIONS

i. Fire Protection : Old plantations shall be fire-traced and rigidly fire-protected. The area shall be cleared-off of all the dry and cut remains of bushes, leaves etc. by end of February to avoid fire hazards to standing crop as well as to NR. Effective protection against fire for a period between Feb. 15 to June 15 is a must to ensure survival and establishment of NR of all species for developing it into the future growing stock. 'Joint Forest Management committess' shall be formed and a comprehensive fire fighting scheme shall be chalked out, the details of which are given in the 'Miscellaneous Regulations.'

ii. Closure to grazing : Plantations taken after removal of Subabul shall remain closed to grazing for a period of 10 years from the 1st year of its working.

iii. Protection Measures: The plantations will be strictly protected from illicit felling and encroachments including seasonal encroachment for the purpose of agriculture with the helf of JFMCs.

iv. Resolving conflict with Micro Plans made under JFM/FDA : If any conflict is noticed between the prescriptions given in this WC and the Micro Plan written under JFM, FDA etc. for the same area, then the said area shall be treated in accordance with the special objects of management pertaining to this W.C. and suitable amendments shall be made in the Micro Plan, if necessary.

v. Training Workshops : The DCF Mewasi with the help from the CCF (T.) should organize Workshops in the division to sensitize and train the field staff in implementing the prescriptions of this WP. The induction training of the field staff should be organized on priority by the CCF (T.) Dhule which will help in effective implementation of various WP prescriptions.

The plantations which are found to be failure as per the Evaluation Code shall be evaluated by the DFO Evaluation to ascertain the causes of failure so as to avoid overcome them in future. Deviation proposals shall be prepared by the DCF Mewasi for such plantations and sent to CCF Dhule /DCF Working Plan. Following Table shows Plantations carried out in last 15 years:

Table-49 **(Area in ha.)**

Range	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Taloda	--	--	--	25	25	--	--	--
Akkalkuwa	--	--	--	--	--	--	--	--
Khapar	--	--	--	75	75	--	25	25
Molgi	--	--	90	50	50	--	25	25
Kathi	--	--	--	25	--	--	--	--
Wadafali	--	--	36	75	50	--	--	--

Range	**2009-10**	**2010-11**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2016-17**
Taloda	--	--	85	115	70	210	160	154
Akkalkuwa	--	25	130	215	80.20	205	59	50
Khapar	--	50	25	210	20	45	--	30
Molgi	--	175	25	210	51.66	225	113.14	30
Kathi	--	25	150	278	76.40	271.60	120	100
Wadafali	--	--	50	210	25	200	48	--

[Source-DCF Mewasi]

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CHAPTER – IX : JOINT FOREST MANAGEMENT (OVERLAPPING) WORKING CIRCLE

17.1. SECTION-1: INTRODUCTION

The National Forest Policy 1988 enunciated the involvement of local people in protection of forest. In this contest, Ministry of Environment and Forest in Govt. of India issued guidelines vide his letter No/6-21/89 F, P. Dt. 1/6/90. The Govt. of Maharashtra issued a detailed G.R. on 16th March 1992 on the Joint Forest Management .

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Teak Plantation under JFM Scheem

17.2. SECTION-2: THE AREAS TO BE TAKEN FOR J.F.M.

The forest areas to be included in this Working Circle are degraded areas in the vicinity of villages. The areas proposed for Afforestation Working Circle are generally fit for this work. In addition to this, areas to be protected from illicit cutting, fire, grazing, cases also be entrusted to JFM Comitties.

17.3. SECTION -3: WORKING AREA.

The working area shall be forest area of one village as Unit, Number of such villages can be taken every year as decided by the Chief Conservator of Forests.

17.4 SECTION-4: SPECIAL OBJECTS OF MANAGEMENT.

i) Re-afforestation of the degraded forest areas by the participation of villagers.

ii) Protection of the forest, plantation etc. shall be done by the Forest Protection Committees.

iii) The usufructs (Forest Produce) derived by such afforestation shall be given to Forest Protection Committee/Local villagers as per norm.

17.5 SECTION-5: METHOD OF TREATMENT.

169. The Work Plan for the selected village shall be prepared by territorial D.C.F.

The Work Plan shall contain the area of Natural regeneration, scheme of increasing forest density, method of afforestation, choice of species, soil conservation works, demarcation, protection of plantation etc.

The Work Plan prepared by D.C.F. as above, shall be sanctioned by the committee for sanction under chairmanship of Conservator of Forests. D.C.F.(W.P.), Joint Director (S.F.D.), Dy. Director(S.F.D.) and two members of village committee shall be the members, and D.C.F. territorial shall be member secretary.

The functions of the forest protection committees are given in detail in the G.R.in **Appendix No.XXIV in Volume II.**

17.6 SECTION-6:Joint forest management (Overlapping) Working Circle: -

This is new working circle suggested to be included in proposed revised plan. Idea is to involve the local JFM committees in forest conservation and management.

In Mewasi Division there are 164 registered JFM committees. Range-wise no. of JFM committees are as under.**Table -50**

Sr. No.	Range	Number of JFM committees
1	Taloda	37
2	Akkalkuwa	31
3	Khapar	25
4	Molgi	28
5	Kathi	20
6	Wadafali	23
	Total	**164**

[Source-DCF Mewasi]

Treatment suggested include improvement of forest cover by protecting rooted stock, preservation by seed sowing and afforestation, soil and moisture conservation works like gullyplug, Nala-band, continuous contour trenches, cement structures etc. Entry point activities are proposed as in other JFM schemes.

Works will be carried as per approved micro plan, encompassing the sanctioned Working Plan.

17.7 SECTION-7: WORKS DONE ALREADY

The work of J.F.M. have been started in the year 1996-97 under the World Bank aided Maharashtra Forestry Project. As per the G.R.No.M.F.P./1096/C-371/F-II, Mantralaya, Mumbai dt. 8/1/1997. Principal Chief Conservator of Forests issued guidelines for the micro planning of these villages. The working plans have been prepared/are under preparation for these selected villages as per the above guidelines and the plantation works have been under progress though the plans have not been approved by the Committee as yet. The details of the villages and work done given below**:**

Table-51

Sr.No.	Year	No. of village JFM commitee	Range	Area of afforestation
1.	2007-08	2	Taloda	56.00
2	2009-10	6	Taloda	180.00
		9	Wadafali	355.00
		12	Akkalkuwa	435.00
		4	Khaper	125.00
		9	Molgi	575.00
		11	Kathi	550.00
3	2010-11	1	Taloda	30.00
		1	Kathi	30.00
		1	Vadfli	30.00
4	2011-12	1	Taloda	35.00
		1	Kathi	30.00
5	2012-13	--	--	--
6	2013-14	1	Akkalkuwa	25.00
7	2014-15	2	Taloda	60.00
		1	Akkalkuwa	30.00
		2	Kathi	50.00
		2	Molgi	60.00

[source-DCF mewasi]

The works of plantation. Soil and moisture conservation and other supplementary works have been completed in these villages.

17.8 SECTION-8: THE AREA PROPOSED FOR FURTHER WORKS:

The degraded areas in the vicinity of the villages have been proposed for the J.F.M. The areas included in the Afforestation Working Circle are generally for this work.

17.9 SECTION -9 : JOINT FOREST MANAGEMENT (JFM)

1. National Forest Policy 1988 envisages the importance of involvement of local people in the protection of forests. It also emphasizes the importance of traditional rights of forest dwellers. Priority for sharing of usufruct has been given to forest dwellers yet the deviation of forest land for the industrial use has been discouraged.

2. As a follow up action on this new forest policy, regarding J.F.M., the Government of India issued a set of guidelines in 1990 encouraging the Forest Departments, to involve local people in the management of forests. Over the past 9 years, most of the states have issued their own guidelines. The Government of Maharashtra has also issued its own guidelines and passed Government Resolution no SLF-1091/CASE NO 119/91/F-11 with the effect from 16th March 1992, and there by the JFM activity was adopted for improving the status of degraded forest area of the state and a new set of guidelines was again issued vide GR No. MSC/2000/C.No. 143/F-2, dated 25.4.03, to encompass still a larger area.

3. Villagers themselves are required to voluntarily participate in the programme. Forest Protection Committee (FPC) are formed in each village. The members of the committee provide help in protection and development of forests and they will receive in turn, a share in the usufructs, obtained from the forest area assigned to them for that purpose. The JFM area will be managed according to micro-plans prepared jointly by Deputy Conservator of Forests and members of Forest Protection Committee. These micro-plans shall contain details of forest and village development. This has to be based on a sustainable management practice and must cater the aspirations of local communities and at the same time meet the silvicultural requirements of the forests in question.

4. Later, the government of India advised the state governments to take up the Joint Forest Management in well stocked forest areas on experimental basis and accordingly issued the guidelines, dated 25.4.03 cited above which has authorized the State Forest Department to apply JFM concept even in well stocked area.

17.10. Section -10 : Government Resoulation of J.F.M. Committees as mentioned below :

1) Guaidlin's of JFM Committee as per G.R.No.FDM-2011/Prk.100/F-2 Dated on 22.12.2011.
2) G.R.No.FDM-2011/Prk.100/F-2 Dated on 22.10.2012.
3) G.R.No.FDM-2011/Prk.100/F-2 Dated on 18.01.2013.
4) G.R.No.FDM-2012/Prk.4/F-2 Dated on 10.07.2012.
5) G.R.No.FDM-2011/Prk.100/F-2 Dated on 04.08.2015.

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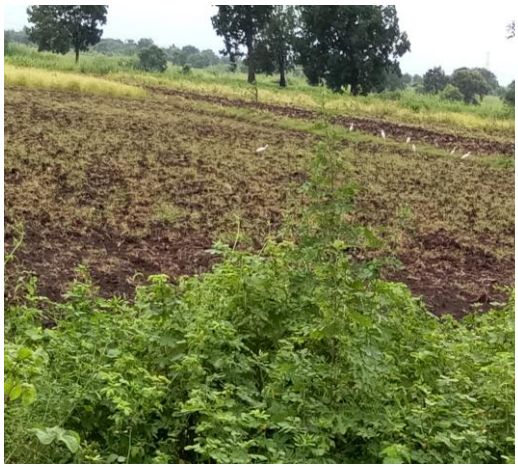
CHAPTER – X : MISCELLANEOUS AREA MANAGEMENT

18.0 SECTION-1 : GENERAL CONSTITUTION :-

18.1 This working circle constitutes the areas submerged under Sardar Sarovar Project and the total encroachment area included under FRA- 2006. This encroached area includes the Sanctioned Cases by District Committee and cases pending with it.

18.1 SECTION-2 : DISTRIBUTION OF AREA WORKING CIRCLE:-



Encroachment area for Agriculture

18.2 The total area included under this working circle is **33924.86**ha. which forms part of 23 compartments which is in submerged area 1348.30 ha. and other area 32576.56 ha. is Encroachment under FRA-2006.However, the status of the area remains as Reserved Forest.

The details are given in the **Table No.52** as below

Table- 52

Distribution of area of Miscellaneous Working circle in various ranges (Area in ha.)

Sr. No.	Range	Total Area	Misc. WC				% of Total Area
			Under FRA		Under Submergence	Total	
			Under IFR	Under CFR			
1	Taloda	17044.250	3905.99	1144.82	0.00	5050.79	29.63 %
2	Akkalkuwa	11795.220	4325.02	1584.47	0.00	5910.01	50.10 %
3	Khapar	9719.120	5283.87	1391.950	0.00	6675.82	68.68 %
4	Molgi	8659.600	3055.59	1938.92	0.00	4994.48	57.67 %
5	Kathi	10471.680	3076.98	1958.49	538.16	5573.63	53.22 %
6	Wadafali	12289.830	3954.03	955.96	810.40	5720.13	46.54 %
	Total	**69979.700**	**23601.48**	**8974.61**	**1348.56**	**33924.86**	**-**

The details of the miscellaneous area are given in **Appendix No.XVIII to XXI in Volume II.**

This Division has acquired 139380.45 ha. area under Private Forest (Acquisition) Act, 1975 on 30.8.1975 however Tahsildar Akkalkuwa has reported only 45913.68 ha. area actually taken over by forest Department. Total geographical area of Akkalkuwa, taluka itself is just 82880.00 ha i.e. less than the area acquired i.e. 139380.45 ha. under Private Forest (Acquisitions) Act 1975. The difference of the areas seen to have been due to error crept in during initial notification by which areas were brought under regulation of Sec.35 of Private Forest Acquisition Act . The DCF Mewasi should pursue this matter with the collector to get the enquiries completed & resolve the discripancies in area computation.

These areas acquired under Private Forest (Acquisition) Act 1975 are deemed to be reserved Forest but are not fully demarcated in the field and are encroached to same extent :-

This chapter includes the following areas :-

1. Reserved forest which was submerged under Sardar Sarovar Project.

The extent of the area is 1348.56 ha. The status of that area is still reserved forest.

These submerged areas were part of Manibeli, Dhankhadi, Simalkhadi, Sinduri, Jangthee, Gaman, Bamni, Danel, Mardva and Mukhadi villages and are included in the Kathi and Wadafali ranges.

2. **The Reserved Forest areas which are encroached under FRA 2006.**

This involved total area 23509.71 ha. out of which 8289.41 ha. land has been sanctioned by District Committee & 15220.32 ha. land is under scrutiny. This includes 8974.61 ha reserved forest which has been allotted uder Sec.3(1) of FRA-2006 as community Forest Right.

Thus DCF Mewasi must get all encroachment under FRA 2006 well sanctioned. The DCF must get all these areas surveyed and demarcated in the field. Since posession of all areas encroached is with the encroachers, Secondly area under CFR must be surveyed & demarcated for protection and management of forest in his juridiation.

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CHAPTER – XI :

NOTE OF FOREST PROTECTION INCLUDING SURVEY AND DEMARCATION, ENCROACHMENT, ILLICIT FELLING, FIRE, POACHING, ILLEGAL MINING, GRAZING ETC.)

19.1 SECTION-1: GENERAL CONSTITUTION OF FOREST PROTECTION.

1. This is an overlapping working circle covering the entire forest area of the tract dealt with.Thus the total forest area included in this working circle is **699.79 Sq.Km.**

2. The national Working Plan Code prescribed this Working Circle as a mandatory Working Circle in the Working Plan. The forests are burdened with heavy biotic interferences, hence addressing of these problems in a systematic manner necessitated the constitution of this Working Circle. Illicit felling, grazing, encroachments, poaching and fires are the major cause for the damage of the forests.

3. Under Maharashtra Forestry Project wireless facilities have been provided in the Division. 11 Wireless Base Stations and 1 repeater station have been established in the Division. The vehicles have been fitted with mobile wireless sets. Wireless handsets and PDA mobiles handsets have also been provided to the staff. As per **Appendix No.XXV in Volume II.**

Table No. 53
Range wise details of the base stations are given as under:-

Sr. No.	Range	Name of Base Station
1	Taloda	Taloda, Kothar
2	Akkalkuwa	Akkalkuwa, Kundeshwar, Aamlibari
3	Khapar	Khapar, Gavali
4	Molgi	Molgi
5	Kathi	Kathi
6	Wadafali	Wadafali, Pimpalkotha

4. There are Three check posts to prevent illegal transport of forest produce. The forest check post exists in Taloda, Akkalkuwa and Khapar Range.

19.2 SECTION-2 STATUS OF FOREST OFFENCE CASES:-

19.2.1 The Range Forest Officer, the Assistant Conservator of forests and the Deputy Conservator of Forests shall take review of forest offence cases at least once in every month. Shifting of boundary marks along the forest boundary shall be viewed seriously, and the encroachers shall be prosecuted in the court for omission or commission, causing obliteration of forest boundary. Complaints regarding all cases of forest encroachments shall be submitted before the Judicial Magistrates within stipulated time. Similar time bound action is recommended in all cases of timber theft. Failure of submitting complaints within the statutory time limit, shall be considered willful negligence of duty. All cases of violation of Forest (Conservation) Act, 1980 should be brought to the notice of the State Government.

19.3 SECTION-3 SPECIAL OBJECTS OF MANAGEMENT:-

(I) To enforce Indian Forest Act, 1927, Wildlife Protection Act, 1972 as amended till 2003, for the effective control of illicit felling, grazing, encroachments, and poaching and willful fire incidences.

(II) To develop a database to monitor various offence cases in systematic manner.

19.4 SECTION-4 SURVEY AND DEMARCATION:

The forests of Mewasi Forest Division were previously demarcated by loose boulder cairns, but during the last decade, permanent masonry pillars and in the last five years, concrete pillars are being used to demarcate forest revenue boundaries. There is an urgent need to demarcate the forest revenue boundaries, with permanent cement pillars. The entire area of this Division has been surveyed during previous two surveys, and maps have been prepared. There is no difficulty in physically demarcating the area. While demarcating the forest area, cairns are preferred over pillars, as these are cost effective and more lasting.

19.4.1 **SECTION-4.1 GENERAL CONSTITUTION:**

This is a overlapping working circle which include the work of demarcation of undemarcated forest in the field. 1/5th boundary demarcation, which lays down a calendar for demarcating, already demarcated forest area, but requiring an annual maintenance, shall be dealt under Miscellaneous Regulation. This chapter will deal only with the forest area, whose external boundaries has not been demarcated yet. Cairns will be preferred over cement pillars, for being cheaper in construction.

19.4.2 **SECTION-4.2 SPECIAL OBJECTS OF MANAGEMENT:-**

(1) To demarcate the forest boundaries permanently.

(2) To identify the extent of encroachment on the forest land.

19.4.3 **SECTION-4.3 TIME BOUND PROGRAMME:**

The areas which are to be demarcated, will be divided into a calendar of five years. Obviously these will include only those compartment numbers / Gut numbers, which are interfacing revenue land. In all 277 compartments have been identified. Cairns / pillars will be erected at suitable interval. The Government of Maharashtra issued an notification vide its notification No. S-30/10/ 2000-CR-456/F-6, dated 21/4/2001 authorizing RFOs, under Section 72/(1) (b) of Indian Forest Act, 1927, to survey and demarcate any pieces of land. This will help in early demarcation of the forest land in question. The disputed boundaries may be got demarcated through TILR. According to Section 123 Part-VC of Bombay Forest Manual-II, the Conservator of Forests has been authorized to choose the type of boundaries pillars situated for the area. Cairns are always preferable over pillars, as these are cost effective. In absence of stones in the local area, the cement pillars will be raised, as envisaged by Principal Chief Conservator ‘s order.In order to prevent theft of these pillars, it is essential that these pillars are declared as Revenue pillars under Section No. 140 of Maharashtra Land Revenue Code, 1966, so that the provision of Section 142, applies to it. Deputy Conservator of Forests, Mewasi may sent the proposal accordingly, to the Government, for its

consideration. GPS reading pertaining to latitude and longitude will be taken, of each pillars that has been erected. The RCC pillars will be as per the proposed expenditure for class-I and class-II pillars, for which model expenditure has been provided by the office of the Principal Chief Conservator of Forests, Maharashtra State. The model estimate and the cross sectional diagrams have been provided as **Appendix No.XXVI in Volume II.** It is proposed to provide a class-I pillars at every 200 meters and at every change in direction and class-II pillars at every 50 meters distance between class-I pillars.

19.4.4 **SECTION-4.4 COMPARTMENTS:** The compartments which have not been demarcated are included here and all such compartments will be demarcated and cairns / pillars will be erected.

19.4.5 **SECTION-4.5 INTER STATE BOUNDARY: -**

The North of the division has Gujarat State boundary. The Northern and Southern Boundaries of the tract dealt with, Rajpipala District of Gujrat lies on the western boundary and Nandurbar Forest Division. The inter state boundary and inter district boundary shall be given a special attention. After a proper and though survey by DILR, the inter state / inter district boundary should be demarcated only by big pillars (1 meter) at 100 meter intervals on straight lines and at every change of direction of the line. The width of the clear area of the outer boundary of the Government forest will be 12 meters. Nothing will be cut growing outside the true forest boundary line. The clearing will consists of cutting down all undergrowth that impedes the view, preventing one forest boundary mark being seen from its neighboring one. Trees on the boundary lines will not be cut so long as these do not obscure the view of the boundary marks one from the other. If funds are available, inter state boundary should be completed in one year. There should be a continuous supervision by Range Forest Officers of Khapar, Molgi, Kathi and Wadafali during the demarcation of inter state boundary. Year wise programme have been given in **Appendix No.XXVII in Volume II.**

19.4.6 **SECTION 4.6: OTHER IMPORTANT REGULATIONS:**

1. Area register shall be updated every year according to the changes brought about during the year.

2. The pillars should be given serial number in progressive manner and its location should also be given on the map of 1:15000. The forest guard of the beat will be responsible for the maintenance and protection of the boundary marks in the forests of his beat. He will himself colours wash them annually after rains and will make a special report of having performed this work. The Beat Guard shall visit 100 percent pillars and give a report about its condition to the Round Officer.

3. The Round Officer will be responsible for the maintenance and protection of the boundary marks in the forests of his round and he will ensure that these are maintained properly, repaired and colour washed by the beat guard, as provided in Article 6, Chapter-II of Bombay Forest Manual-I. The round officer will check all the boundary marks in a year. He will make a mention in his diaries. The Round Officer will annually submit a certificate to the RFO in this regards and the RFO will submit a demarcation certificate to DCF (Territorial) after inspecting.

19.4.7 **Section 4.7: Compartment Boundaries :-** The internal forest boundaries relating to two adjacent compartments shall be demarcated through cairns, except at places, where the natural features are the boundaries. The forest boundary marks will be of the following specifications.

a. **Shape** :- A truncated cone.

b. **Description :-** The cairns will be built of loose stones upon an excavated foundation of 30 cms deep, so the lowest tier of stones will be held in position and not pushed out by the weight of the super structure, especially when the ground becomes wet and slippery. The inter space between the large stones comprising the cairn will be filled in with small stones and the outer stones will be weighed with stone chips. A slab stone or a central stake of teak or khair projecting 50 cms above, will be fixed firmly on top of the cairn in the centre.

c. **Damage to pillars: -** In case of damage to pillars, the concerned forest guard should verify, whether it is damaged naturally or by some offenders. In case of an offence is relating to shifting of boundary pillars, the offence should be registered under Section-63 of Indian Forest Act, 1927. This section deals with altering, moving, destroying or effacing any boundary mark of any forest to which provisions of the Act apply and it is punishable with imprisonment for a term which may extend up to two years, or fine, or with both. This offence is non compoundable under Section-68 of Indian Forest Act, 1927.

d. Repair of damaged pillars :- Range Forest Officer should prepare the estimate for the repair of damaged pillars, with proper material evidence like photographs, panchnama and Geotaging Lat. And Long submit it to his controlling ACF. ACF after due verification should submit to DCF with proper recommendations. DCF, Mewasi should provide funds for the repair of these damaged pillars. The rate of repair of these pillars of each class, I & II shall be fixed by the Wage Board Committee of the Circle headed by CCF (Territorial), Dhule.

DCF, Mewasi will also supply the copy of concerned maps and area register to DCF, Working Plans, Dhule every year in the month of June for upgradation.

19.5 SECTION 5 : FOREST ENCROACHMENT:-

1. In recent past, tendency for encroaching upon the forest land for the purpose of cultivation has increased manyfold. The actual encroached areas are in fact higher than the recorded one.

2. The cause of forest encroachment shall be examined thoroughly and in a comprehensive manner. All the necessary support may be provided to the field staff and encroachment should be evicted as early as possible. The boundary management and standard administrative guidelines will help in controling encroachment.

3. The State/Central Government may be requested to finalize and complete the land grant in all identified cases of encroachments fit to be regularized, in accordance with the Government Resolution, issued before 1980. Renewed

and concentrated efforts on the part of Division staff, for eviction of the encroachment, should be on the priority basis.

4. Small isolated patches of the forestland are often neglected and become vulnerable to encroachment. Special care shall be taken to ensure protection of such patches from encroachment.

5. The civil powers of eviction as envisaged in Section 52,53 and 54 (a) of Maharashtra Land Revenue Code, 1966 have been entrusted with ACF and DCF by the Government Resolution and it should be caused in genuine cases. The procedures laid down in Land Revenue Code, 1966 should be followed before the execution of eviction.

6. Habitual encroacher shall be prosecuted as per the provisions of Indian Forest Act, 1927.

7. All external boundaries shall be demarcated with concrete pillars.

8. All sensitive and important boundaries and wherever disputes are there, should be surveyed with DILR and concrete pillars be laid immediately.

9. All prevailing encroachments should be listed with their names, age, residence, profession, whether belonging to SC, ST, OBC / NT, extent of forest land under encroachment, Gut No. and with location of encroachment in village / block. A database to that regard should be maintained.

10. A detailed report of each case be prepared for each illigible encroacher, and be submitted to ACF to obtain summary eviction orders, in a time bound programme.

11. After the completion of due procedure under Maharashtra Land Revenue Code,1966, and after giving a reasonable opportunity of being heard to the encroacher, the ACF should pass and order of a summary eviction where it is lawfully established.

12. The concerned RFO shall execute the eviction order.

13. Use of Cr. P.C. Provisions like Section 106 and 110 should be used to obtain a good conduct certificate of offenders before Tahsildar and SDO respectively

to smoothen the eviction operations and as well as to prevent the tendency of future encroachments, on forest land.

14. Dy CF, Mewasi may send a proposal for seeking the Collector's power under Section 242 of Maharashtra Land Revenue Code, 1966, while evicting the encroachment.

15. The process of regularization of encroachments made earlier to 1978 will be initiated as early as possible and proposals under Section-2 of Forest [Conservation] Act, 1980 should be submitted to the Central Government, through proper channel.

19.6 SECTION 6 : ILLICIT FELLING.

Illicit felling of trees in the forest land is growing at an alarming rate. Illicit felling is observed in forest areas, adjacent to Madhya Pradesh. Mostly teak trees have been felled and are carried away across the border after converting them to a square logs or planks at site itself. Faster communication, including vehicle facilities, adequate self defence capabilities, frequent arms training and establishment of forest stations at strategic places are recommended to control illicit felling and wildlife related offences. Establishment of intelligence network for this purpose is strongly recommended. Check nakas exist at village Taloda, Gavali, and Aamlibali it is proposed to erect more nakas at SRP units with police power, headed by a police inspector having a police power, who can deal with law and order problem independently is required at these centres. The division has mobile units.

2. Every beat should be inspected periodically through the gazette officer.

3. The offence related to illicit cutting should immediately be enquired into and all habitual offenders should be prosecuted if there are evidences to proceed Cases involving thelf of forest produce over Rs. 10000 should necessary be prosecuted. The delay in filing complaint in the court should be viewed seriously.

4. The provision of IPC, 1860 should be used to control illicit cutting.

5. There should be a strong network of wireless in the Division to curb illicit cutting.

6. The beats should be reorganized so that the average size of the beat does not exceed 500 ha. in a patch.

7. Paths use by the illicit transporters should be identified and dug out, if it is not recognized. The patrolling squads should be effectively deployed. The prosecution should be the objective and not the compounding.

8. Informers should be awarded as provided in Section-226 of Bombay Forest Manual Volume-I.

9. The young guard should be posted in sensitive beats and in interior areas.

10. History sheets of all the offenders along with their photo and bio data shall be maintained at Round Level, Range and Division Level. The type of offences committed should also be enlisted.

11. Provisions of Section 395 of I.P.C., 1860 should be used by registering the complaint in the police station for the offences wherein five or more than five offenders are involved. The DCF, Mewasi will coordinate with Superintendent of Police, Mewasi to see that the stringent provisions of IPC, 1960 are used in F.I.R.

12. The provisions of the Government Resolution dated 8th May, 2003 shall be implemented. Any difficulty in its impelementation should be brought to the notice of APCCF (Protection), M.S. Nagpur.

13. The night patrolling in the forest area shall be a routine work.

14. Every stump in the forest shall be numbered with digit nail set both on the top of the stump, as well as on the base. A GPS reading should be recorded of illicit cut stump of girth class 30-45 cm and above and be marked on latest image on Google-earth of that area. Since both are on WSG-84-datum, it will match.

15. Every beat guard shall maintain a register of illicit felled stumps in a proforma prescribed by CCF(T), Dhule. Every stump shall be registered by a serial

number, followed by the year of felling, for example, if tree number is 198/05. It means 198 is the stump number and 05 is the year of illicit felling.

16. High stump will be dressed to the ground as provided in chapters. However, before dressing a panchnama in that regard will be carried out.

17. The support of JFM committees should be taken in appending the offender.

18. The RFO shall collect the beat Khairiyat report from each forest guard and Round Officer monthly and shall submit Range Khairiyat report to the DCF, Mewasi every month.

19.7 SECTION 7: FIRE PROTECTION.

1. Fire adversely affects natural regeneration, forest growth, ground flora, soil organisms and site productivity. Effective fire control as prescribed in the plan is essential for the forest development. The forest officials and local people should be sensitized about the need of effective fire control. All fire incidences must be meticulously recorded and investigated to assess the damage caused.

2. Fires are of common occurrence. Due to highly combustible undergrowth consisting of dense grasses and dry lantana, tiny spark can trigger off a conflagration in a short time. Lantana, when dry, is extremely combustible. It throws up a huge flame, which scorches the leaves and bole of the adjacent trees completely. The splinters of lantana go high up and are blown across wide area, which make fire-fighting very difficult. The high speed of hot winds during summer, combined with the hilly configuration accelerates the spread of fire easily when it occurs and engulfs vast areas, before it can be brought under control only by burning a counter fire Owing to lantana undergrowth, the fires rise to a height of 4-6m. The height of the flame, thick lantana undergrowth, steep slopes and distance of the village, are the main impediments in putting off the fire. The fire spreads rapidly before the arrival of the staff. It would be dangerous to put off fire manually in such high rise flames. Special fire-fighting instruments will be required and it should be maintained by the Forest Department.

19.7.1 SECTION- 7.1 CLASSIFICATION OF FIRE CONTROL.

Class- [Complete Fire Protection] : The class-I fire control areas include all felling coupes (six years) of Improvement Working Circle, thinning coupes (six years), plantations coupes (five years), forest depots (permanent), forest nurseries (permanent) and any other special habitat areas (permanent) and any other areas of special importance as decided as such by CCF (Territorial), Dhule.

Class-II [General Fire Protection] : The Class-II fire control areas include the remaining areas of Improvement Working Circle, as well as any other area, which deserves the legal protection in the opinion of CCF (Territorial), Dhule.

Class-III [General Vigilance] : The remaining forest areas (that is the area not included in above classes) are identified as Class-III fires control areas. Special measures for fire protection are not undertaken, but deliberate setting of fire and burning of the forest is prohibited.

19.7.2 SECTION- 7.2 FIRE CONTROL MEASURES :

1. A fire protection scheme for the entire division shall be prepared before November each year, identifying the watch points (including watch towers), strategic locations and strength of fire watchers at each location, deployment of vehicles, use of wireless sets, supervisory forest staff and defining of a coordination protocol.

2. Each location is proposed to have 5 to 10 persons including regular staff and fire watchers. The staff shall be trained in the application of modern fire fighting tools. The fire prevention shall be trained as high priority item. The scheme shall be implemented sincerely during the fire season.

3. Area deliberately burnt for silvicultural reasons under the sanction of Chief Conservator of Forests (Territorial), Dhule shall be excluded from fire protection scheme. Fire in such areas need not be reported unless spreads beyond such area.

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CHAPTER – XII :
MISCELLANEOUS REGULATIONS

20.1 SECTION 1: DEMARCATION AND MARKING TECHNIQUE

The demarcation of annual coupes will be done one year advance.

20.1.1 Demarcation of Coupes: The demarcation of annual coupes will be done by clearing the strip of three meters wide around the coupe. Poles of two meters height will be erected in the centre of the strip. The poles will be erected in such a way that one pillar is visible from the next pillar. These pillars will bear the coupe number, name of the felling series and working circle on the side away from the area of the coupe.

The trees above 45 cms girth standing at suitable interval will be given two coal tar bands and a geru band in between after scrapping the loose dead bark. The lower coal tar band will be at breast height and upper coal tar band will be 15 cms above it. The marked trees will be given the serial number just below the lower coal tar band and in the side facing away from the coupe area. The trees bearing the coupe demarcation bands will not be felled. The record of such trees will be maintained in the marking register as per following detail formet.

Sr. No.	Species	G. B. H.	Remarks
1.	2.	3.	4.

20.1.2 Demarcation of Sections: If required, each coupe will be divided into four sections by clearing the bush wood on a strip of 1.5 mts. The trees above 45 cms girth at a suitable interval on this section line will be given two coal tar bands 15 cms apart. The lower band will be at gbh. Section numbers will be given on these trees just below the lower coal tar band on the side facing away from the section area.

20.1.3 Demarcation of Protection Areas: The protection areas in the coupe will be demarcated by giving two geru bands on selected trees above 45 cms girth. The lower band will be at breast height. In addition to this, a geru cross(X)

will be given in between two geru bands in the direction facing away from protection area. The trees will be given the serial number just below the geru band in the direction of cross. If the number of PAs is more than one in a coupe, then all the trees standing on the periphery of each PA will be numbered in Arabic. For example, trees on periphery of PA number one will bear the number I/1, I/2 etc where as trees on PA number two will bear the number II/1, II/2 etc.

20.1.4 Demarcation of Other Areas in Coupe: All the other areas in the coupe will be demarcated by giving one geru band at gbh and one coal tar band 5 cms above it. The coupe demarcation shall be certified by the RFO as detail below.

"I, ----------, RFO, ---------- certify that I have personally inspected the demarcation of coupe No. ---------- in compartment No. ---------- of ---------- F.S.of ----------W.C. on dated ---------- and found that coupe has been demarcated as prescribed in the Working Plan. The area of the coupe is ---------- hectares."

Date : Signature of the RFO

20.1.5 Marking Technique: The trees marked for felling will be given a geru band at breast height. The marked trees will bear a marking hammer mark at breast height and at the base of the tree on a blaze of 10 cms x 10 cms size. All the timber trees will be marked by digit numbers. The other trees marked will be given serial number by coal tar only. The digit and coal tar numbers will constitute separate series. A proper record will be maintained for all the trees marked for felling. The abstract will be prepared for all the marked trees as timber trees, poles and fuel wood trees. If a tree is capable of yielding 30 percent timber, it will be classed as timber tree. Trees yielding 10-30 percent timber will be grouped as carpentry trees .The trees capable of yielding less than 10 percent timber will be classified as fuel wood. Trees having girth less than 60 cms at gbh will be treated as poles.

20.2 SECTION 2:

20.2.1 **Irregular harvesting**: Irregular harvesting of timber, fire wood and other minor forest produce is prohibited except in the following cases.

1. Removal of dead fallen fire wood trees and timber trees uprooted by wind or storm from all parts of forest, except the coupes due for working in the current year , will be done. Every year in the month of October, each beat guard will report the availability of dead fallen fire wood trees compartment wise to the concerned RFO. The same will be reported to DCF by the RFO. DCF will compile this information and fix the number of trees to be removed by mid-November. After permission of DCF, harvesting of such trees will be done and material will be collected at one place. This material will be first offered to the Gram Panchayat or Forest protection committees. If no such demand comes from Gram Panchayat or JFM committees, the material will be brought to the sale depot and sold in open action. A proper record of the material extracted from each compartment and the number of beneficiaries will be maintained and entered in the compartment history forms.The remnants of illicit cut material can be removed from the forest by an order by Dy.CF (Mewasi Forest Division). A similar provision will apply for fallen timber trees.

2. The felling of trees on fire lines may be carried out if necessary without making reference to Chief Conservator of Forests (Territorial), Dhule provided the fire line is an existing one.

3. The felling of trees under electric and telephone lines will be carried out by DCF, Mewasi in a manner as permitted under Forest Conservation Act 1980 and the guidelines issued by Govt. of India from time to time.

4. Felling of trees on forest land required by other departments such as Irrigation, PWD etc. will be under taken after the proposal for the use of such forest land for non-forestry purpose has been approved by the Govt. of India under the provisions of Section-2 Forest (Conservation) Act, 1980.

5. Forest produce required for departmental works and free grants may be removed on the orders of Deputy Conservator of Forests, Mewasi under the provisions contained in A.256 of Bombay Forest Manual Vol. I and A-147 of

Bombay Forest Manual Vol.III respectively up to the limit of his powers. The fellings under these provisions, however, must be on a silvicultural lines and as far as possible will be confined to coupes of the year or to the coupe to be worked next year. Nevertheless, felling of fruit trees will be excluded and fellings in a radius of 40 m. from the perennial water-holes, nalas and springs will be prohibited.

6. Irregular harvesting of scattered bamboo clumps outside the area falling in Bamboo (overlapping) Working Circle shall be permitted, provided the culm removed in such Irregular harvesting is more than three years old and age of clump is exceeding eight years.

7. Trees dangerous to human existence /buildings/structures shall be permitted to fell by DCF, Mewasi Forest Division and it shall also include its debranching.

8. High stumps of illicit cut trees from any part of the forest can be removed by the permission of DCF after a due panchnama has been drawn.

9. Removal of minor forest produce from the forest shall be permitted as per rules and the collection of grasses from any part of the forest shall constitute no deviation.

10. Any thing done in exercise of rights and concessions shall not constitute a deviation and shall be a part of Irregular harvesting.

11. Trees of semal, Moyen and maharukh will permitted to be removed from the worked coupe on demand. The harvestable girth will depend on market demand. In no case it should be less tha 90 cms, girth at breast height. The removal will not constitute a deviation.

12. Felling of trees for research purpose/stem/stump analysis shall be permitted after a due permission has been obtained from DCF, Mewasi Forest Division.

13. Clearing of bushes and grasses in exercise of any scheme/plan duly sanctioned shall not constitute deviation and shall be done after a due sanction has been granted by DCF, Mewasi Forest Division.

14. Any silvicultural thinning due earlier but not done when due, shall not constitute a deviation when done later and shall be a part of an Irregular harvesting

20.3 SECTION-3 DEVIATION FROM WORKING PLAN:

The National Working Plan Code-2014 recognizes two type of deviations and two different authorities have been recognized for its approval.

A) **Deviations which do not change the basis of management permanently.**

1. The non working of a coupe in the prescribed year or working of a coupe in the year not prescribed by the plan.

2. Changes in the areas of the coupe due to disforestation or execution of any special scheme.

This deviation shall be approved by the APCCF of the State Forest Department.

B) **Deviations changing the basis of management permanently.**

1. Changes in the silvicultural systems.

2. Formation for new felling series.

3. Clear felling of natural forest.

4. Large scale felling due to natural calamities.

The deviation will require an approval from Government of India.The sanctions to all the deviations will be obtained well in advance. Application for sanction to such deviations will be submitted timely so that the permission is received before deviations occur.

20.3.1 **Procedure for Obtaining Sanction of Deviation:**

1. For deviations of type ‘A’ above, the territorial DCF should submit the proposal of deviation to Chief Conservator of Forests, (Working Plan) West Pune through Deputy Conservator of Forests, Working Plan, Dhule. The Chief Conservator of Forests, (Working Plan) West , Pune will give the necessary sanction for deviation.

2. For seeking approval for deviations of type ‘B’ above, the territorial DCF will submit the deviation proposal to Chief Conservator of Forests (Territorial) through Deputy Conservator of Forests, Working Plan, Dhule. The Conservator of Forests, W.P. Dhule will scrutinize the proposal and send to Chief Conservator of Forests (Territorial), Dhule with his opinion. The Chief Conservator of Forests (Territorial) will submit the proposal to Principal Chief

Conservator of Forest, through Chief Conservator of Forests, (Working Plan) West, Pune. The proposal will then be submitted to PCCFS, M.S., Nagpur, Government for its approval.

20.4 SECTION 4 MAINTENANCE OF BOUNDARIES:

20.4.1 The external boundary of the forest will be maintained by clearing the brush wood and shrubs in a strip of 12 meters width. The trees on the boundary will not be felled so long as they do not obstruct the view of boundary marks. The demarcation of the boundary will be done by erecting the cement concrete pillars or cairns as per the condition of the site and instructions issued by PCCFS, M.S., Nagpur. The location of the pillars or cairns will be fixed in such a way that one pillar or cairn is visible from the other on the boundary line. The specifications of cement concrete pillars for boundary demarcation will be as per the size and design approved by PCCF, M.S., Nagpur. The detail of the $1/5^{th}$ boundary demarcation scheme is given in the **Appendix No.XXVII in Volume II.**

20.4.2 The internal compartment boundaries will be maintained by clearing the under growth in a strip of 3 meters width except where it runs along permanent features like road or water body. Tin plates of 15cm x 10 cm.size and bearing the compartment number will .be affixed on the trees at height of 3 meters. These tin plates will be fixed at an interval of 250 meters and at all the corners of the compartment. The tin plates will be painted white and the compartment number will be written on it with red paint.

20.4.3 The field staff will be responsible for maintenance and protection of all the boundary marks. Each beat guard will check all the boundary pillars in his beat at least thrice in a year and maintain the record of his inspection in a booklet. Similarly round officer will also check all the boundary pillars every year, which are due for maintenance and repair as per the $1/5^{th}$ boundary demarcation scheme. He will keep a record of it with him and will submit the report to RFO regarding his verification. If any person alters, moves, destroysor defaces any boundary mark, he will be booked under section 63 (C) of IFA 1927.

20.5 SECTION 5: ROADS AND BUILDINGS:

The detail of forest roads and buildings is given in **Appendix No.XXVIII in Volume II.**

20.6 SECTION-6: OBSERVATIONS IN EVALUATION REPORTS OF PLANTATION ACTIVITIES.

20.6.1 The evaluation of all the plantation activities are carried out by Divisional Forest Officer, Evaluation, Aurangabad and his subordinate officers and staff, and.while going through the evaluation reports of few plantations carried out during last decade, certain observations are found to be important and worth mentioning here, so that the necessary steps may be taken up by the territorial staff of Mewasi Forest Division while implementing the working plan prescriptions. These observations are :-

(1) It is necessary to prepare site specific estimate of plantation activities before taking up the activity.

(2) It is necessary to seek the cooperation of villagers so as to contain the menace of cattle grazing .

(3) Treatment map should be prepared by Range Forest Officer (territorial).

(4) Special efforts and steps needed to be taken to protect the plantations.

(5) Though a number of species have been chosen for plantation like khair, sisoo, chinch, shivan, subabul, Awala, babul, kashid, prosopis etc but in the long run only plants of subabul, gliricidea, prosopis, babul etc. have survived with good growth. But in Ranges, where the soil quality is good, important species like teak, khair,sisoo, shivan should be preferred. In the areas with inferior soil Neem, Chinch,babul should be preferred for plantation instead of subabhul.

It is suggested that Deputy Conservator of Forests, Mewasi Forest Division and his senior subordinate officers should take up plantations of indigenous species. Valuable species like teak, khair, sisoo, moha, need to be planted on large scale as forest areas are by and large suitable for these species. Other important species like neem, palas, shivan, chinch, babul should also be prefered. While planting, species corresponding to the particular soil should only be planted. The nursery stock should be raised in consultation with DCF/ACF by RFO (territorial).

20.7 SECTION: 7 FIELD TOURING BY SENIOR OFFICERS OF THE DIVISION

It has been observed that during last few decades serious damage has been caused to the rich forests of the Division particularly in the ranges adjacent to Madhya Pradesh of. In order to prevent the incidences of illicit cutting and fire, senior officers of the division viz. D.C.F. and ACFs should tour extensively and regularly tour the remote and in remote and vulnerable forest areas. It has been observed that senior officers of the division do not make halts in the vulnerable ranges/places with the result there appears to be no fear in the minds of bad elements and habitual offenders living in the vicinity of the forest area.

It is recommended that DCF and ACFs should halt at least 5 to 6 days each month in remote and vulnerable forest areas at convenient places and cover at least 50 to 75 km of surrounding forest areas from the place of halt. They are also supposed to interact with villagers and try to convince them that forests are very important natural resources that are needed for human survival, and its conservation and development would help in bringing about economic upliftment of the people and villages as a whole. It is necessary that forest officers / staff of the Division should demonstrate by their actions what they meant by conserving and developing the natural forest resources for the people. Illicit felling and clandestine removal of the forest produce would be controlled by regular patrolling by the forest staff. The mobile squad unit should also be strengthened in the Division. The local people who provide important information regarding illicit felling and which results in successful prosecution of offenders, should be rewarded as per the provisions of BFM-II. The Forest Rest house in the remote areas should be got repaired on priority.

20.8 SECTION : 8 GRAZING CONTROL :

20.8.1 A functional classification of the forest is given in section 2 of chapter 1, of Part II as enunciated in the grazing policy formulated by the Govt. of Maharashtra vide its Resolution No. MFP- 1365/13221-Y Dated 6/12/1968. The grazing rules are framed by the Govt. of Maharashtra vide its resolution No. MFP/1371/237035-z Dated 3/11/1973. The grazing will be controlled as per the prescribed grazing incidence for each class of forests.

20.8.2 Keeping in view of the above provisions, the grazing in the various Working Circles of the plan will be regulated as under.

(a) **Protection Working Circle** : As per functional classification , majority of the forest falling in this Working Circle are classified as "minor forest" with small percentage of the area classified as tree forest . The areas under this Working Circle are completely protected from grazing .

(b) **Improvement Working Circle** : This Working Circle comprises of tree forests and the maximum grazing incidence prescribed in it, is one cattle unit per 1.2 ha. All main felling coupes will remain closed to grazing for a period of 5 years from the year of felling .

(c) **Afforestation Working Circle :** The forest of this Working Circle is mainly classified as "minor forest." The grazing incidence for these lands should not be more than one cattle unit per 0.8 ha. The main coupes will remain closed for a period of 5 years from the year of planting

(d) **Old Plantations Management Working Circle :** It is classified as"minor forests" for which the grazing incidence prescribed is one cattle unit per 0.8 ha. The coupe will be closed for grazing for five year from the year of planting.

20.9 SECTION: 9 SURVEY AND MAPS

20.9.1 Eight sets of fresh maps on 1:15,000 mile scale have been prepared as follows by using G.I.S. technique or Original Toposheets :

Management maps: 6 sets (4 cut and mounted + 2 uncut and mounted)

Stock maps : 2 sets (1 cut and mounted + 1 uncut and mounted)

The distribution of these maps will be as follows ;

20.9.2 **Deputy Conservator of Forests , Working Plan Dhule Division :**

One rough uncut and mounted set showing the existing compartment boundaries and stocking details will be prepared based on which the master sets of stock maps and management maps showing the compartments , coupes, felling series , Working Circles and other management details will be prepared

1. Management maps 1 master set (uncut and mounted)

2 Stock maps 1 master set (uncut and mounted)

20.9.3 **Deputy Conservator of Forests "Mewasi Forest Division" ;**

1. Management maps 3 sets (uncut and mounted)

2 Stock maps 1 set (uncut and mounted)

20.9.4 **Chief Conservator of Forests (T) Dhule Circle;**

1. Management maps 1 set (cut and mounted)

20.9.5 **Chief Conservator of Forests (west) Pune**

1. Management maps 1 set (cut and mounted)

20.9.6 Any alteration in the forest areas due to disforestation (as per the Gazette Notifications) or due to addition of compensatory Afforestation land, will be shown on the maps. In addition to that, reference map on 1:100,000 scale showing Working Circles, range boundaries, roads and other details, will also be prepared. The entire process of preparation of map will be on G.I.S. platform using different maps and digital copy of 1:50,000 topo-sheets.

20.10 SECTION-10: FIRE PROTECTION :

20.10.1 The forests of Mewasi Forest Division are valuable and need careful fire protection over the entire area. Due to fire, a considerable damage is caused to standing trees, fallen wood and besides causing a long range effects on the soil fertility, young crops and regeneration. The special and determined efforts are needed to enforce a proper fire discipline which has undoubtedly slackened in recent years resulting in a fire in a large forest area. For the purpose of fire protection, the areas are classified as follow –

20.10.2 **Forests completely protected :-**

This class will include –

(i) All plantations.

(ii) All forests of protection and improvement working circle.

(iii) All regenerated coupes of all working circles, till, the young crop has attained an age of 10 years.

(iv) All Government timber depots.

(v) Any other areas of special importance ordered by the Chief Conservator of Forests, Dhule Circle, Dhule.

All areas in this class will be isolated by means of fire lines and cut guidelines, and it will be patrolled by fire watchers.

Any fire occurring in them will be considered as a calamity and must be reported to the Deputy Conservator of Forests, Mewasi Forest Division immediately on wireless and in writing giving the details of area burnt and the various types of losses occurred to the forest crop.

20.10.3 **Forest generally protected**

(a) This class includes –

(1) The remaining areas of other Working Circle.

(2) Such other areas as Chief Conservator of Forests, Dhule Circle may for special reasons direct.

(b) All areas in this class will be isolated from the surrounding area, by means of an external fire lines.

(c) Fire watchers may be engaged for patrolling in this area if sanctioned by the Chief Conservator of Forests, Dhule Circle.

20.10.4 **Forests protected by law only :-**

(a) All other forests not included in the above two classes, are included in this class.

(b) In forests of this class, a deliberate burning is prohibited; no special measures of protection will be undertaken. The following lines will be maintained as fire

lines and will be kept clear of all growth and kept clean of combustible material during the fire season.

(i) All external reserve forest boundary lines to a width of 12 meters.

(ii) 6 meter wide lines around all plantations up to 10 years from the year of planting.

(iii) 3 meter wide coupe line which forms the boundary between class I areas and class II and III areas for a period of 10 years from the year of main felling.

(iv) 6 meter wide line on both sides of all roads and cart tracks passing through the forests.

(v) 40 meter wide line on all sides of the timber and fire wood depots.

20.10.5 **To reduce the possibility of forest fires following should be observed :-**

(i) The cutting and cleaning of fires lines should be completed by the end of December and burning should be completed by the end of December

(ii) Dry leaves and other dry material on fire lines must be collected from time to time and deposited along the edge of the fire lines and burnt before the beginning of fire season. Burning of such dry material on the fire lines, after the commencement of hot weather is strictly prohibited.

(iii) Except with the express order of Deputy Conservator of Forests, Mewasi, no fire lines shall be burnt after end of February. If such a permission is granted, the burning should be done in the presence of R. F. O. at his risk and cost.

20.10.6 **Legal provisions available :-**

20.10.6.1 **Provisions contained in the I. F. A. 1927 –**

The various legal provisions to protect the forest from fire are contained in the following sections of Indian Forest Act. 1927. The following acts are prohibited under these sections in reserve forest areas, or in areas notified under section 4 of the I. F. A. 1927 : -

(i) **Section 26(i) b** – to set fire to a reserve forests.

(ii) **Section 26(i) c -** kindling, keeping and carrying any fire except at such seasons as the forest officer may notify in this behalf.

(iii) **Section 26(f) f -** burning of any tree.

(iv) **Section 26(i) g -** burning of lime or charcoal..

(v) **Section 26(3) -** The State Government may suspend the exercise of all rights of pasture or to forest produce in the reserve forest/protected forest or a portion thereof whenever the fire is caused will fully or by gross negligence for such period as it thinks fit.

20.10.6.2 **(b) In case of village forest the following is the provision :-**

Section 28(3) - All the above provisions apply in case of a village forest also.

20.10.6.3 **(c) In protected forests the following provisions exists:-**

Any person who commits any of the following offences under section 33(i) (a), (b) (d) and (e) namely, burns any lime or charcoal contrary to prohibition under section 30, sets fires to such forests or kindles a fire without taking all reasonable precautions to prevent its spreading on any tree reserved under section 30, and leaves burning any fire kindled by him in the vicinity of any such tree or closed portion under section 30, shall be punishable with an imprisonment for a term which may extend upto one year or with fine, which may extend upto two thousand rupees or both.

20.10.6.4 **(B) Provisions contained in the Maharashtra Forests (Protection of Forests from fire) Rules 1982 :-**

The Government to Maharashtra vide Notification No. 1074/252 359/F-6, dated 11.10.1982 under sections 32(6) and 76 (i) (d) of the I. F. A. 1927, has made the rule for the protection of protected forests from fire called "The Maharashtra Forest (protection of forests from fire), Rule 1982". The various provisions made under rules 3 to 7 are given as under :-

Rule 3 :- A ban is placed on kindling fire within a distance of one kilometer from the boundary of the forest.

Rule 4 :- Under this rule any person desirous of clearing, by fire, any standing forest or grass land beyond a distance of one kilometer from the boundary of the forest, shall observe the following rules .

(i) He shall clear a fire belt of at least 10 meter wide on either side of the area, which he proposes to burn and which is nearest to the boundary of the forest, in such a manner, that no fire can spread across such belt.

(ii) He should keep a watcher to see that the fire does not spread in the forest area.

Rule 5 :- Under this rule any person desirous of burning "Rab" or clearing land by burning the growth on it, near the forest boundary, should inform the nearest forest officer at least one week in advance of his intention to so do. A clean belt of at least 10 m. width should be left in between the boundary of the forest and the place where the rab is to be burnt, so that the fire does not spread in the forest and while burning the rab he should make such arrangements so that the fire does not spread in the forest area.

Rule 6 :- Under this rule, any person authorized to collect forest produce collect inflammable forest produce, such as grass, firewood, leaves, bamboos on land adjoining the forest land, he shall stack it in an open space at such a reasonable distance from the forest as Deputy Conservator of Forests, Mewasi may by general or special orders prescribe, and shall isolate the stacks in such a manner that if these catch fire, it should not spread to the surrounding areas to endanger the forests.

Rule 7 :- Under this rule, all camping places along the boundary of and within the limits of the forest area will be cleared and will be set apart by Deputy Conservator of Forests, Mewasi for the use of visitors. A list of all such camping places will be published annually and except on such camping grounds no fires shall be lighted within or along the boundary of the forest. All persons using these camping grounds shall light any fire they make for cooking or other purposes in such a way, as not to endanger the forest or any buildings, sheds or other property on the camping grounds and before leaving they shall collect, in the centre of the camping ground, all inflammable material which is to be left behind and shall carefully extinguish all fires.

Rules 8 :- Rules 3 to 7 will be relaxed during the rainy season from 15th of June to 31st of October.

20.10.6.5 **Provisions contained in the Bombay Forest Manual Vol.- II part - IV :-**

Rule 152 :- As per this rule, offence related to forest fire, cases should not be compounded.

Rule 153 :- It deals with the duties of Magistrate, dealing with forest fire offence cases.

Rule 157 :- It provides for continuous protection of the valuable forests from fires.

Rule 158 :- Under the provisions contained in this rule, if the forest fire is of serious nature and due to repeated neglect by villagers, then as an exception, a communal punishment can be given with the sanction of the Government.

Rule 159 :- It deals with the duties of the village patel regarding protection of forests from fire.

Rule 160 :- It deals with power of the forest officer to sanction rewards in cases of effective fire protection.

Rule 162 :- It deals with the powers of the Commissioner to sanction rewards to the villagers for effective fire protection.

20.10.6.6 **Provisions for fire protection contained in the Wildlife (Protection) Act.1972 :-**

Section 17 (i) (e) – Under this section, setting fire to any vegetation for hunting purposes is prohibited.

Section 27 (2) and (e) - Every person so long as he resides in the sanctuary is bound to extinguish any fire in such sanctuary of which he has knowledge or information and he will also help the forest officer in extinguishing the

Section 30 - Setting fire to a sanctuary, or kindling any fire or to leave any fire burning, in a sanctuary by any person so as to endanger such sanctuary, is prohibited.

Section 32 - Use of explosive in a sanctuary by any person so as to cause injury or to endanger any wildlife in sanctuary.

Section 35 (8) - Provision of section 27(2) (d) and (e), 30 and 32 apply in case of National Parks also.

20.10.6.7 **Provisions contained under "The Maharashtra Minor Forest Produce (Regulation of Trade), 1969 :-**

In the Agent's Agreement Form made under the provisions of the above Act and as per terms and condition No. 6 (xix), (xxi), (xx), (xxi), (xxii) and 8, the Agents appointed by the Government for collection of tendu leaves are responsible for any damage caused to the forest by their negligence and they have to observe all rules, regulations and orders for the time being in force and made under the provision of Indian Forest Act. 1927. If any damage is done to the forest (which includes fire damage), it shall be assessed by Deputy Conservator of Forests, Mewasi and his decision shall, subject to an appeal to Chief Conservator of Forests, Dhule be final, conclusive and binding on the Agent.

20.10.6.8 **Provisions contained in "The Maharashtra Felling of trees (Regulation) Act, 1964 :-**

As per section 2 (e) of the above Act, burning trees on private lands is include in the definition of "Felling of trees" and such act on the part of any person without obtaining felling permission from the competent authority under section 3, is punishable under section 4 of the above Act. The punishment to be done by the competent officer, may extend upto Rs. 1000/- besides the tree so felled is also liable to be forfeited to the Government. The government has designed Range forest Officer as Tree Officer under the amended Act.

20.10.6.9 **Protection of bamboo areas from fire after flowering**

(a) The rules and regulations to be followed for protection of bamboo areas from fire by the contractors are given in the draft agreement vide Revenue and Forest Deptt. No.V.M./D/1283/77 831/F1, dated 21.7.1983 and contained in the condition NOs. 41 (1) , 41 (2) and 41(3).

(b) All men assisting in extinguish fires in Government forests shall be paid according to the amount of assistance rendered.

(c) Responsibility -: The Range Forest Officer will be held personally responsible for the efficiency of fire protection in his range.

(d) Where the forests of two ranges which are to be fire protected adjoin, the responsibility for efficient protection and clearing of common fire line will rest with one of the Range Forest Officer to be selected by Deputy Conservator of Forests (Mewasi). In cases of common boundary between two divisions of the same circle, the above responsibility will be fixed by the Chief Conservator of Forest (Territorial) on one of the Range Forest Officer and in cases of the common boundary between two divisions of the two different circles, the concerned conservators after matual consultation, will fix the responsibility on one of the Range Forest Officer.

(e) The Deputy Conservator of Forests, Mewasi will be held personally responsible for carrying out efficiently all protective and prohibitive measures in the areas, under his control in his division. If so directed, he may also carry out necessary fire measures in the areas adjoining to Mewasi Forest Division.

(f) The Deputy Conservator of Forests, Mewasi must satisfy himself that the exterior fire lines and other fire lines as mentioned in the foregoing paras have been properly cleared and burnt thoroughly before the end of February. He must by his continuous inspections, enquire about the implementation of the various prohibitory orders and assure its regulation.

(g) Sufficient protective staff is available to implement these orders. The Deputy Conservator of Forest, Mewasi must visit the areas which is burnt every year. The areas prone to fire must be protected at all cost.

(h) It is also proposed that during the fire season starting from February to May, D. C. F., Mewasi and A. C. F. must stay at least twenty days in their jurisdiction to prevent fire. Vehicle of A. C. F. can provide a quick mobility.

(i) Every year a monitoring of fire will be done by doing the visual interpretation of IRS LISS-II data of Mid May. The figures obtained from reports may then be compared with the field report.

20.11.THE SCHEDULED TRIBES AND OTHER TRADITIONAL FOREST LLERS (RECOGNITION OF FOREST RIGHTS) ACT, 2006 :-

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 was passed by the Parliament of India and the assent to this Act was received from the President of India on 29th December, 2006. The said Act was notified in the Gazette of India on 2nd Jannuary, 2007. For implementation of the said Act, the Central Government notified the Rules for Recognition of Forest Rights on 1st January, 2008. These Rules were further amended by the Central Government vide notification dated 6th September, 2012.

1.1 Sailent Provisions of the Forest Rights Act, 2006 :

(I) Section 3 (I) : The following rights which secure individual or community tenure or both , shall be the forest rights under the Act. They are :

(a) Right to hold and live in the forest land under the individual or common occupation for habitation or for self-cultivation for livelihood by a member or members of a forest dwelling Scheduled Tribe or other traditional forest dwellers .

(b) Community rights such as nistar, by whatever name called, including those used in erstwhile Princely States, Zamindari or such intermediary regimes.

(c) Right of ownership, access to collect, use, and dispose of minor forest produce which has been traditionally collected within or outside village boundaries.

(d) Other community rights of uses or entitlements such as fish and other products of water bodies, grazing and traditional seasonal resource access of nomadic or pastoralist communites.

(e) Rights including community tenures of habitat and habitation for primitive tribal groups and pre-agricultural communities.

(f) Rights in or over disputed lands under any nomenclature in any State where claims are disputed.

(g) Rights for conversion of Pattas or leases or grants issued by any local authority or any State Government on forest lands to titles.

(h) Rights of settlement and conversion of all forest villages, old habitation, un-serveyed villages and other villages in forests, whether recorded, notified or not into revenue villages.

(i) Rights to protect, regenerate or conserve or manage any community forest resource which they have been traditionally protecting and conserving for sustainable use.

(j) Rights which are recognized under any State law or laws of any Autonomous District Council or Autonomous Regional Council or which are accepted as rights of tribal under any traditional or customary law of the concerned tribes of any State.

(k) Rights of access to biodiversity and community right to intellectual property and traditional knowledge related to biodiversity and cultural diversity.

(I) Any other traditional right customarily enjoyed by the forest dwelling Scheduled Tribes or other traditional forest dwellers, aas the case may be, which are not mentioned in clauses (a) to (k) but excluding the traditional right of hunting or trapping or extracting a part of the body of any species of wild animal.

(II) Rights to in situ rehabilitation including alternative land in cases where the Scheduled Tribes and other traditional forest dwellers have been illegally evicted or displaced from forest land of any description without receiving their legal entitlement to rehabilitation prior to the 13th day of December, 2005.

(II) Section 3(2) : Notwithstanding anything contained in the Forest (Conservation) Act, 1980, the Central Gvernment shall provide for diversion of forest land for the following facilities managed by the Government which involve felling of trees not exceeding 75 trees per hectare, namely:-

(a) Schools.

(b) Dispensary or hospital.

(c) Anganwadis.

(d) Fair price shops.

(e) Electric and telecommunication lines.

(f) Tanks and other minor water bodies.

(g) Drinking water supply and water pipelines.

(h) Water or rain water harvesting structures.

(i) Minor irrigation canals.

(j) Non-conventional source of energy.

(k) Skill up gradation or vocational training centers.

(l) Roads.

(m) Community Centers.

Provided that such diversion of forest land shall be allowed only if, the forest land to be diverted is less than one hectare in each case; and the clearance of such developmental projects shall be subject to the condition that the same is recommended by the Gram Sabha.

(III) **Section 5 :** The holders of any forest right, Gram Sabha and village level institutions in areas where there are holders of any forest rights under this Act are empowered to (a) protect the wildlife, forest and biodiversity; (b) ensure that adjoining catchment area, water sources and other ecological sensitive areas are adequately protected; (c) ensure that the habitat of forest dwelling Scheduled Tribes and other traditional forest dwellers is preserved from any form of destructive practives affecting their cultural and natural heritage; (d) ensure that the decisions taken in the Gram Sabha to regulate access to community forest resources and stop any activity which adversely affects the wild animals, forest and the biodiversity are complied with.

(IV) **Section 6(1) :** The Gram Sabha shall be the authority to initiate the process for determining the nature and extent of individual or community forest rights or both that may be given to the forest dwelling Scheduled Tribes and other traditional forest dwellers within the local limits of its jurisdiction under this Act by receiving claims, consolidating and verifying them and preparing a map delineating the area of each recommended claim in such manner as may be prescribed

for exercise of such rights and the Gram Sabha shall, the, pass a resolution to that effect and thereafter forward a copy of the same to the Sub-Divisional Level Committee.

(V) **Section 6 (3) :** The State Government shall constitute a Sub-Divisional Level Committee to examine the resolution passed by the Gram Sabha and prepare the record of forest rights and forward it through the Sub-Divisional Officer to the District Leverl Committee for a final decision.

(VI) **Section 6 (5) :** The State Government shall constitute a District Level Committee to consider and finally approve the record of forest rights prepared by the Sub-Divisional Level Committee.

(VII) **Section 6 (6) :** The decision of the District Level Committee on the record of forest rights shall be final and binding.

(VIII) **Section 11 :** The Ministry of the Central Government dealing with Tribal Affairs or any officer or authority authorized by the Central Government in this behalf shall be the nodal agency for the implementation of the provisions of this Act.

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CHAPTER – XIII :
CONTROL FORMS AND RECORDS

21.1 SECTION 1: CONTROL AND RECORDS:

21.1 The following records shall be maintained in the division office:

i) Control Form

ii) Compartment History

iii) Plantation and Nursery Registers.

iv) Divisional Note Book.

21.2 SECTION-2: CONTROL FORMS:

Three permanent sets of Control Forms will be prepared in the office of Conservator of Forest, Working Plan, Dhule and one set each shall be distributed amongst Conservator of Forest, Working Plan Division, the Territorial Chief Conservator of Forest and Dy. Conservator of Forest, Mewasi.

21.2.1 FORMATS OF CONTROL FORMS

Following two types of formats of control forms will be constituted**:-**

1. **Coupe Control Form**- for controlling all silvicultural operations, such as felling, subsidiary cultural operations, cleanings, thinning, burning, etc., prescribed into the Working Plan be carried out in a given coupe during the period of the working plan.

2. **Felling Control form**- For controlling and maintaining a record of all trees marked for felling and trees retained as seed bearers or as a safeguard for the future yield.

The prescribed proforma of the control forms mentioned above are given in **Appendix No XVII** in the Volume II of this plan.

The DCF, Mewasi will annually make entries in his copy of the control forms and send them together with the deviation statement in triplicate to the Conservator of Forest (Working Plan), Dhule through Chief Conservator of

Forest (Territorial), Dhule. After the entries have been checked and approved, the Conservator of Forest (Working Plan), Dhule will first get his copy completed and then send DCF's copy to Chief Conservator of Forest (Dhule). The latter will then complete his copy and finally return the DCF's set for deposit in the latter's office till next year. Conservator of Forest (Working Plan), Dhule will send three copies of deviation statement to PCCF (P&M) for sanction through APCCF (Working Plan), Pune. After sanction, one copy each will be sent to Chief Conservator of Forest (Territorial), Dhule and to DCF, Mewasi for their record and Conservator of Forest (Working Plan), Dhule will retain third copy as his set of control forms.

2. The control forms should be submitted by DCF (Mewasi) to territorial Chief Conservator of Forest (Dhule) on or before December 1, and the later should send them to Conservator of Forest (Working Plan), Dhule concerned on or before 1st January each year.

i) COUPE CONTROL FORM

The format of coupe control form is as given in **Appendix No XXVIX** in the Volume II of this plan.

II) FELLING CONTROL FORM

The format of felling control is as given in **Appendix XXX** in the Volume II of this plan.

21.3 SECTION 3: COMPARTMENT HISTORY:

21.3.1 The following forms (in two sets, one each for range and for the division) are used for writing compartment history of each compartment or sub-compartment:

CH Form-1 Compartment description to be filled by WPO Dhule.

CH Form-2 Compartment enumeration to be filled by WPO Dhule.

CH Form-3 Trees Marked for Felling to be filled by DCF, Mewasi.

CH Form-4 Compartment Out-turn to be filled by DCF, Mewasi.

CH Form-5 Compartment History to be filled by DCF, Mewasi.

Compartment Description: The format CH Form-1 is given in **Appendix No.XXXI in Volume II** of this plan. The description will be signed and dated by DCF (WP), Dhule.

Compartment Enumeration: The format is as given in **Appendix No. XXXII** in the Volume II of this plan.

Trees marked For Felling: This form is to be filled by DCF, Mewasi from time, to time, as the marking proceeds. take place. The format is given in **Appendix No.XXXIII in Volume II** of this plan.

Compartment Outturn: This format is given as an **Appendix No. XXXIV** in Volume II of this plan.

Compartment History: This format is given as an **Appendix No. XXXV** in Volume II of this plan.

21.3.2 The compartment histories of Mewasi Forest Division already exists with full entries present entries made by DCF (Mewasi) will be sent to CF (WP), Dhule for scrutinization and editing if necessary.

21.3.3 The DCF, Mewasi is responsible for recording current events and when occur and will make his entries on the separate sheet of the form and not on that prepared by DCF(WP), Dhule. At the next revision of the plan, DCF (WP), Dhule will scrutinize those entries and will edit them if necessary.

21.3.4 The principal information, which DCF, Mewasi shall record, is as follow:Felling, subsidiary silvicultural operations, slash disposal with costs, plantations raised,, control burning with costs, fire incidences and damage caused, damage by other factors like drought, storm, snow, Insect, fungi, grazing, etc., remedial measures taken along with their costs, good seed or seedling years of important species. The entries should be brief and concise and whole or part of tje compartment was involved should be made clear in Compartment History.

21.3.5 Plantations Register and Nursery Register: The Plantation Registers will be maintained for all the areas regenerated artificially in the Form Nos. 1 to 9, as given in **Appendix No XXXVI**. of Volume II. Plantation Registers must show dates of the rainy days, no. of rainy days and the survival count. The Nursery

Registers will be maintained in Form No. 1 to 10 as given in **Appendix XXXVII** of Volume II.

21.3.6 Divisional Note Book: The matters of the divisional importance will be recorded in the Divisional Note Book under standard heading for records with ready reference. The standard format of the 'Divisional Note Book' given in **Appendix XXXVIII**.

21.3.7 MAPS:

The compartments have been laid down on topo-sheet of scale 1:50,000, and accordingly the maps of scale 1:15,000 has been generated. It may require correction at some later stage, and it may be carried out at the time of subsequent revision. Since all maps are on GIS platform, the revision of maps will be an easy process.

3.7.1 **Maps:** Maps are an essential ingredient of forest management. All maps have been updated; revised and new maps have been prepared.

3.7.2 **Divisional maps:6 sets of divisional maps on 1:15,000** scales have been prepared by GIS Cell, Dhule for distribution to Divisional and Range officers as follows:

3.7.3 **Management Maps:** 4 sets (2 cut and mounted +2 uncut and mounted)

3.7.4 **Stock Maps:** 2 sets (1 cut and mounted + 1 uncut and mounted)

3.7.5 These maps are proposed to be distributed, as follows:

Working Plan Office will retain 2 sets of uncut and mounted maps, as given under, as the Master sets.

Management Maps : 1 master set (uncut and mounted)

Stock Maps : 1 master set (uncut and mounted)

(a) The **Stock Maps** will show the compartment boundaries, density, site quality, age classes, regeneration status and other stocking details, including nature and composition of crop etc.

(b) The **Management Maps** show the boundary pillars with their numbers, the coupes, compartments, felling series, working circle, ranges and other management details. The management maps and stock maps have been prepared on 1:15000 scales.

(c) **Working Plan map** has been prepared on a scale of 1; 15000, showing all silvicultural units, administrative and physiographic features.

(d) Mewasi **Forest Division** will be provided, the following, set of maps showing the management details.

Management Maps : 3 sets (2 cut and mounted +1 uncut and mounted)

Stock Maps : 1 set (1 cut and mounted)

(e) Division office will retain 1 (one) set (cut and mounted) of Management maps for office purpose, and provide 1 (one) set (cut and mounted) of Management maps to the concerned Forest Range Office.

(f) **Chief Conservator of Forests (Territorial), Dhule and the Deputy Conservator of Forests (Working Plan), Dhule.**

(g) **DCF (Working Plan) Division** will retain one set of Management Map on 1:15,000 scale, showing management details viz. compartments, working circles, felling series, range boundaries and other administrative details.

3.7.6 **Reference maps:** the reference map on 1:2, 50,000 scales, will be provided along with Working Plan, showing range boundaries, compartments, working circles, felling series, roads and other prominent reference features. This map will be annexed with the Working Plan.

3.7.7 **Grazing maps:** Two sets of grazing maps showing grazing units has been prepared on 1:2, 50,000 scale. Working Plam Division shall retain a set, while other set shall be provided to Mewasi Forest Division.

3.7.8 **Regarding F.R.A. :** As the area and location of claims settlement under Forest Right Act are yet to be decided and hence it is not possible at this stege to pin point the area and show it on the map and, therefore, it is stated that while preaparing the treatment map of the coupe, the F.R.A. area will be separated and shall be included in category A (type A) and no prescription whatsoever shall aply to this forest land except demarcation.

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CHAPTER – XIV :
EXECUTIVE SUMMARY OF WORKING PLAN OF MEWASI FOREST DIVISION

22.1 (1) AREA DEALT WITH:

This Working Plan deals with the entire reserved forests, protected forests of Mewasi Forest Division of Dhule Forest circle. The total forest area of the division is **69979.700** ha. The area is spread over in Two talukas, namely, Taloda and Akkalkuwwa of Nandurdar district.

The divisional headquarter situated at Taloda is divided into Six territorial ranges namely Taloda, Akkalkuwa, Khapar, Molgi, Kathi and Wadafali.

The area covered under this plan includes Taloda, Akkalkuwa, Khapar, Molgi, Kathi and Wadafali ranges of the then Mewasi Forest Division. The working plan the then Mewasi Forest Division [S.H.Patil plan, 2001-02 to 2010-11], was comparising of Akkalkuwa (East), Akkalkuwa (West), Manibeli, Kathi, Molgi, Taloda ranges. The new range wise forest area presently under the charge of Mewasi Forest Division (in sq kms) is as follows :

Table No.54 **(Area in ha.)**

Sr. No.	Division	Taluka	Range	Reserved Forest	Protected Forest	Unclassed Forest	Total Forest area
1.	Mewasi	Taloda	Taloda	170.40	0.040	0.00	170.44
			Akkalkuwa	127.73	0.00	0.00	127.73
			Khapar	68.17	0.00	0.00	68.17
			Molgi	114.48	0.00	0.00	114.48
			Kathi	107.43	0.00	0.00	107.43
			Wadafali	111.54	0.00	0.00	111.54
Total Area of Division				**699.75**	**0.04**	**0.00**	**699.79**

I) Southern tropical Dry.

Sr.No.	Deciduous forests type	Local subtype
1	Group 5 ACI – Dry teak Bearing Forests. Subgroup 5 ACI B – Dry	Teak coppice forests.
2	5AC3 – Dry Deciduous mixed forest	I. Superior mixed MISCELLANEOUS forest II. Inferior mixed MISCELLANEOUS forest

II) Edaphic Subtype

B. Dry deciduous 5 -E-2 Salai type.

22.1.2 (2) PREVIOUS PLANS

(a) Shri.S.H.Patil, Working Plan (2001-02 To 2010-11) –

The Working Plan of the Mewasi Forest Division. The working plan consisted of following Working Circles:-

(i) **Protection Working Circle:–** The hilly compartments containing more than 25-degree slope were brought under this working circle.

(ii) **Improvement Working Circle:-** The hilly compartments which were not included in the Protection Working Circle, were brought under this working circle.

(iii) **Afforestation Working Circle:-** An area of 14372.55 ha was included in this working circle and an intensive afforestation works were prescribed. A rotation of 30 years was fixed.

(iv) **Miscelineous Woriking Circle:-** This working circle constitutes the areas submerged under Sardar Sarovar Project.

(v) **Bamboo (overlapping) Working Circle-** Extraction of bamboo on a 3 year rotation was proposed, coupled with bamboo under-planting in suitable patches.

(VI) **Widlife (Overlapping) Working Circle :-** In order to preserve and improve the variety of fauna and to provide suitable condition for the well being of Wildlife of the area a wildlife (overlapping) working circle is proposals. The area spread over the entire make provision of salt lacks near water sheds.

(vii) **Non-Timber Forest Produce (Over lapping) Working Circle :-** This is an overlapping working circle and will include entire forest area of the Division and have fairly good potential of Tendu leaves.

No changes suggested in prescription and method of treatment suggested in the last plan.

However, it is suggested to carry out detail stock mapping of NTFP and medicinal species found in the Satpuda ranges of Division.

22.1.3 (3) WORKING CIRCLES, PROPOSED IN PRESENT WORKING PLAN:

In accordance with the general objects of management the following Working Circle are proposed to be constituted:-

(i) Protection working circle.
(ii) Improvement Working Circle.
(iii) Afforestation Working Circle.
(iv) Non Timber Forest Produce (Overlapping) Working Circle.
(v) Bamboo (Overlapping) Working Circle.
(vi) Plantation Mangaement (Overlapping) Working Circle.
(vii) Bio Diversity, Wildlife, (Overlapping) Working Circle.
(viii) Joint Forest Management (Overlapping) Working Circle.
(ix) Miscellenious Area Management.

5) Chart showing Old and Proposed working Circle from where the area has been allotted:

Sr. No.	Old and Proposed working Circle from where the area in ha. has been allotted								
	Protection Working Circle		Improvement Working Circle		Afforestion Working Circle		Miss. Working Circle		Remarks
	Old Area	Proposed Area	Old Area	Proposed Area	Old Area	Proposed Area	Old Area	Proposed Area	
1	20722.15	15833.36	11754.59	17164.36	23864.09	3057.12	1364.14	33924.86	All Encroachment Area under FRA 2006 is included in Miscellaneous Working Circle
Total	20722.15	15833.36	11754.59	17164.36	23864.09	3057.12	1364.14	33924.86	

NTFP (overlapping) and Biodiversity (overlapping) cover the whole area under plan. Bamboo (overlapping) Working Circle extends to all ranges, except **23.500 ha.** (about 36%) of area of this plan.

(1) Comprehensive notes on Bio-diversity Conservation/Wildlife Management & Eco-tourism (overlapping) Working and Forest Protection including, Survey and Demarcation, Prevention and Removal Encroachment, Illicit Felling, Fire Protection, Poaching, Illegal Mining, Grazing and JFM etc. are also provided in Working Plan.

22.1.4 (4) PERIOD OF PLAN

The Plan is proposed for 10 years, from the year 2016-17 to 2026-2027 or from the date of sanction of the Plan.

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