PART -I

SUMMARY OF FACTS ON WHICH THE PROPOSALS ARE MADE

INTRODUCTION

The Central Chanda Forest Project Division was originally formed in the year 1969 with head quarter at Chandrapur, which was later on shifted to Ballarshah in the year 1981. An area of 21766.00 ha was assigned by the vide Government Resolution No. FDB/1469/78103-X dated 06/07/1972 for erstwhile Central Chanda Project Division of Forest Development Board. The Forest Development Corporation of Maharashtra Ltd was formed in the year 1974 and activities of the Forest Development Board were merged into Forest Development Corporation of Maharashtra Ltd. Thereafter an area of 26601.050 ha was earmarked for the Central Chanda Forest Project Division vide Government Resolution No. FDC-1074/64746-FV dated 27.06.1978. Out of that only 25379.864 ha area of forest was transferred to F.D.C.M. Ltd and remaining area of 1221.186 ha was not handed over for various reasons viz. encroachment, human habitation and reluctance of forest department for handing over the area. Similarly, an area of 3587.544 ha was transferred to F.D.C.M. Ltd vide Govt. Resolution No. FLD/1087/ 2462/case no.-342/F2 dated 06/09/1990. As per recommendation made by Tata Consultancy Services, an area of 2247.224 ha. was transferred to F.D.C.M. Ltd. Comprising of 12 Compartment. between 31.03.2008 and 28.08.2009. Vide Govt. of Maharashtra G. R. No. 2006/C.No.32/F-5 Dt. 11 October, 2007. As per the Government of Maharashtra Resolution No. FDC-2015. P.K.-125/ F-3 Dt. 12.06.2015, 321.725 ha. area of FDCM Ltd. Comprising of Compartment No. 93 and 95 B handed over to Forest Department for Rest House and biodiversity park. In lieu of that as area of 289.35 ha. of Compartment. No. 104 transferred to FDCM Ltd. Thus, the total area covered in this plan is 31102.257 ha. of Reserve Forest spread over 119 compartments in previous management plan.

The West Chanda Forest Project Division came into being in 1969-70 under the Forest Development Board and since 1974 it is functioning under the Forest Development Corporation of Maharashtra Limited. An area of 26200.80 ha was previously earmarked for the Division for its working vide Government Resolution No. 1074/64746/ F-5 dated 26.6.1978 Out of that only 20867.78 ha area of forest was transferred to F.D.C.M. Ltd. Vide Government Resolution No. FDC 1094/C.N.578/F-5 dated 23.9.1997 another 17675.690 ha forest area was allotted to this Division primarily for undertaking plantation activity Out of that only 16163.74 ha area of forest was transferred to F.D.C.M. Ltd. Subsequently, 550 ha area was handed over to the Forest Department for rehabilitation of villages under the Tadoba Andhari Tiger Reserve and another 1 ha area was given for construction of Forest Rest House. Vide Government of Maharashtra G.R. No. FDC.20/PNO.63/F-5/Mantralaya, Mumbai, Dt. 13 June 2014, an area of 12550.580 ha. has been transferred to Tadoba-Andhari Tiger Reserve as buffer zone area. Also vide Government of Maharashtra GR No. FDC-2015/chapter no. 202/ F-5 dated. 1st September 2015 an area of 325.360 ha has been handed over to Forest Department and an area of 292.350 ha has been taken over by West Chanda Forest Project Division. Thus, there are 75 compartments in West Chanda Forest Project Division having an area of 23896.930 ha in previous management plan.

Government resolution no WLP-0614/CR-153/F-1, dated 15th March 2021 Kanhargaon Wildlife sanctuary declared. 25191.146 ha area of Central Chanda Forest Project Division reserved for wildlife sanctuary. In lieu of that 1401.031 Ha

area added to the division as per GR no FDC-2023/F.N.81/F-5, Dt 4 August 2023. For administrative convenience by MD's order no niyo/navin Chandrapur nirman/pra.kra.123/20-21/3513 dated 25.01.2022 Central Chanda and West Chanda division merge and Chandrapur Forest Division formed dated 01.04.2022.

Forest area diverted for 132 KV DC Mul - SICOM Chandrapur Transmission line is 32.006 ha. Spread across two ranges viz. Mamla and Chichapalli. Currently Depot division has no separate management plan, so 226 ha. area included in the proposed management plan. This management plan deals with the scientific management of forest for a period of ten years from 2026-27 to 2035-36. The total area under this Management Plan is **31486.066 ha.**

OBJECTIVES OF THE MANAGEMENT PLAN:

The National Forest Policy of 1988 will be the guiding principle to decide the general objects of management and these objects are mentioned here under.

(i) To preserve forest cover on steep hill slopes, along the Nala banks and water courses and to prevent soil erosion.
(ii) To enrich the growing stock in the natural forests and to restock all the under-stocked and degraded forests, to achieve normality of growing stock in shortest possible time.
(iii) To increase the productivity of forests by using improved plantation technology and to maintain the same on sustained yield basis.
(iv) To meet the requirement of small timber, fuel wood, fodder and minor forest produce of the rural and tribal population on top priority.
(v) To increase the production of NTFP and to manage the same scientifically to utilize the potential to the maximum possible extent on sustained basis.
(vi) To conserve and protect wildlife.
(vii) To stop further degradation of the area & promote existing vegetative cover by proper soil conservation measures & intensive planting.

PERIOD OF THE PLAN: -

This plan is prepared for a period of ten years i.e. from 2026-27 to 2035-36.

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CHAPTER - 1

TRACT DEALT WITH

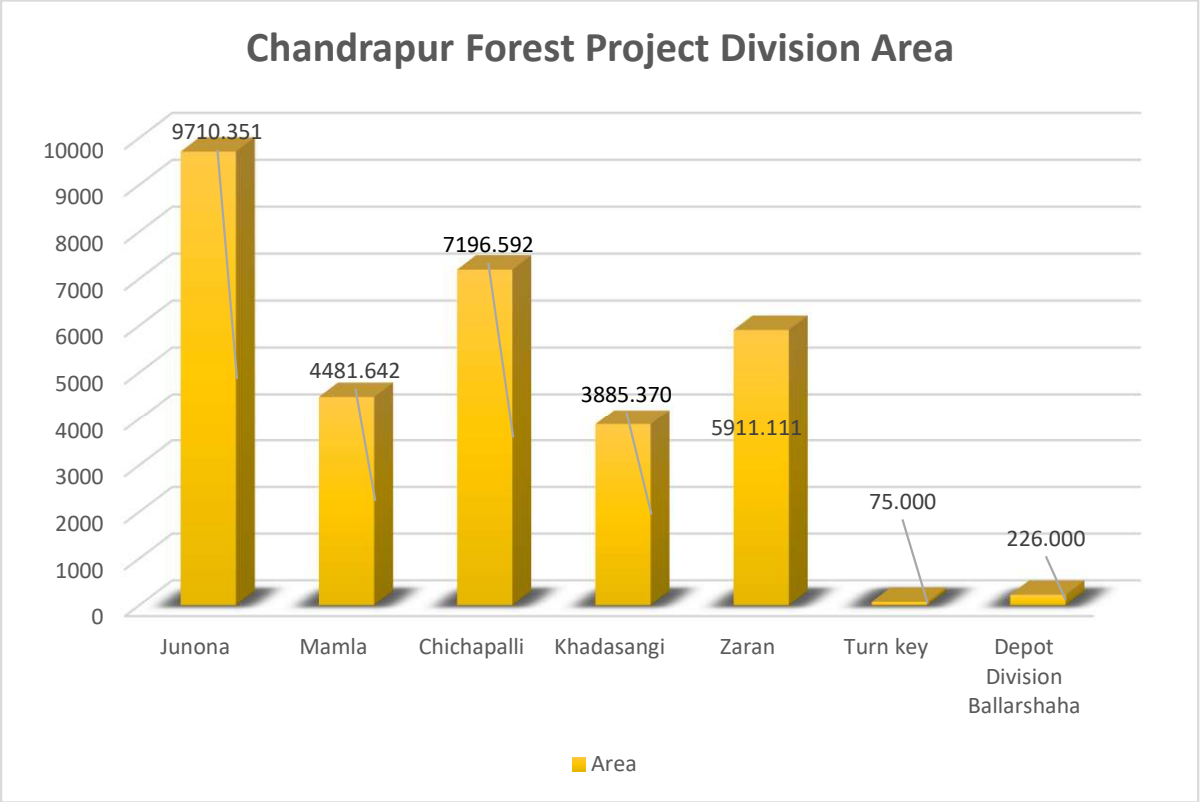
1.1: - NAME AND SITUATION:

The Chandrapur Forest Project Division was constituted of the following ranges.

Sr. No.	Name Of Range	No. Of Compt.	Area(In Ha.)
1	Junona	32	8309.320
2	Chichapalli	16	7202.740
3	Mamla	18	4499.500
4	Khadasangi	10	3885.370
5	Zaran	34	8726.648
6	Kanhargaon	40	9691.824
7	Tohogaon	26	6589.091
8	Dhaba	19	6094.694
	Total	**195**	**54999.187**

Present status of area of ranges in this forest project division

Sr. No.	Name Of Range	No. Of Compt.	Area (In Ha.)	Remark
1	Junona	36	9710.351	1) 1401.031 Ha area added to the division as per GR no FDC-2023/F.N.81/F-5, Dt 4 August 2023. (75.000 ha area In PMPR by mistake subtracted from this range is added here as correction.)
2	Mamla	18	4481.642	1)Typo Error in Earlier Plan(8.000ha). 2) Diversion of area for 132 KV DC Mul - SICOM Chandrapur Transmission line (25.858ha)
3	Chichapalli	16	7196.592	Diversion of area for 132 KV DC Mul - SICOM Chandrapur Transmission line (6.148ha)
4	Khadasangi	10	3885.370	No change
5	Zaran	26	5911.111	Government resolution no WLP-0614/CR-153/F-1, dated15th March 2021 Kanhargaon Wildlife sanctuary declared. 25191.146 ha area reserved for wildlife sanctuary
6	Turn Key	1	75.000	Area handover from forest department and area received from Junona range
7	Depot Division Ballarshaha	1	226.000	Currently Depot division has no separate management plan, so included in the proposed management plan
Total		**108**	**31486.066**	



Details of beats, their headquarters and area, list of rest houses, other forest buildings etc. are enlisted in '***Annexure VII, VIII* of volume II**

The Chandrapur Forest Project Division lies between the longitudes $79^0 09^1 10^{11}$ E to $79^0 39^1 34^{11}$ E and Latitude $19^0 36^1 60^{11}$ to $20^0 40^1 36^{11}$ N. Area of Division is scattered among three territorial forest divisions viz., Bramhapuri Forest Division, Central Chanda Forest Division and Chandapur Forest Division.

1.2: - CONFIGURATION OF THE GROUND-

The area in Chandrapur division is flat to undulating at some places. Altitude varies from 150 to 300 meter above MSL. The track drains into three major river systems viz., Godavari and their tributaries like Wardha, Wainganga, Penganga and Andhari.

1.3: - GEOLOGY, ROCK AND SOIL

1.3.1 GEOLOGY & ROCKS:- The geological formations of the tract are as follows:
RECENT TO SUB-RECENT – Alluvium/Laterite.

EOCENE TO CRETACEOUS – Deccan trap (Basalt), (Ferouginous gravelly soils) with Inter-Trappeans.

PERMO-CARBONIFEROUS – Sandstone/Shale, Kamathi and Barakar Formation (Lower Gondwana) Sandy soils/Sandstone/Shale/Talchir Formation. (Lower Gondwana) Black cotton soils.

PRE-CAMBRIAN – Shale/Sandstone/Limestone. (Vindhyan System) Loamy soils.

RECENT TO SUB-RECENT:- Deposits of laterite of Recent to Sub-Recent age occurs in the vicinity of Manickgarh fort towards South and South West.

EOCENE TO CRETACEOUS :– Almost the whole Southern part of the area is covered by Deccan Trap. It consists of layers of basaltic lavas, varying from amygdaoidal basalt to massive basalt. At places, the amygdules are filled with various minerals like quartz, amethyst, calcite, agate chacedony and jaspar. The rocks are generally dark grey and greenish grey in colour. The non vescular types are hard, tough, compact and medium to fine grained, breaking with conchiodal fracture. The vesicular types are comparatively soft and break more easily.

PERMO-CARBONIFEROUS:- The formations belonging to this division include Sandstones and shales of Lower Gondwana Systems and consists of Kamathi, Barakar and Talchir Formations. A small portion in north, between the villages Sangoda-Bergaon and Awarpur-Bakardi and also a considerable area towards NorthEast and East, which include areas surrounding Sasti, Manickgarh, Rajura Wirur and Chicholi belongs to Kamathi and Barakar Group of formations.

PRE-CAMBRIAN:- Almost three fourth of the tract which lies on the north belongs to tthis division. It is known as Vindhyan System and and mainly contains shale, sandstone and limestone.

1.3.2 SOILS:- The soils of the tract dealt with come under the Lower Maharashtra (Deccan) Plateau (Metamorphic) Soil type of Maharashtra under which western side is dominated with alluvial plain and the eastern portion has uneven hill ranges. The soils are developed from granite, gneisses, schists and alluvium.

SOILS OF SUMMITS AND SPURS:- Gently sloping summits and spurs consits of shallow, well drained, neutral to alkaline (pH 6.5 - 8.5), fine loamy to loamy, calcareous, Typic Ustorthents and Lithic Ustorthents with severe erosion and low water holding capacity.

SOILS OF UNDULATING LANDS:- Gently sloping undulating lands consist of shallow to modorately deep, well drained, neutral (pH 6.5 – 7.5), loamy, fine loamy and fine. Lithic and Typic ustorthents and Typic Ustropepts with low water and nutrient holding capacities and moderate to severe erosion.

Very gently sloping undulating lands consist of deep to very deep, moderately well drained, neutral (pH 6.5-7.5) clayey Vertic Ustopepts and Typic Chromustants with moderate erosion, high water and nutrient holding capacity.

SOILS OF HILLS AND RIDGES WITH PEDIMENTS:- Moderately sloping hills and ridges consist of shallow, well drained neutral (pH 6.5-7.5) loamy- skeletal, Lithic Ustorthents, Typic Ustorthents and Typic Ustorthents with severe erosion and moderate stoniness.

Gently sloping pediments surfaces consist of slightly deep, well drained loam Typic Ustropepts and Typic Usstrothents with severe erosion. At places deep, well drained, slightly acidic (pH 5.5-6.5), fine loamy, Typic Haplustolls and Typic Ustropepts with moderate erosion are observed.

Very gently sloping pediments surfaces consist of very deep, well drained, calcareous, neutral to alkaline (pH 6.5-8.5), clayey Typic chromusterts and Typic Ustropepts and Vertic Ustropepts with high water holding and high Chemical Exchange Capacity.

SOIL OF ALLUVIAL PLAINS:- Very gently sloping plains of alluvial origin consist of very deep, moderately well drained, neutral (pH 6.5-7.5), cracking, clayey, Typic Chromusterts, Vertic Ustropepts and Typic Ustropepts. These soils have high shrink swell potential, high water holding capacity, high exchangeable bases.

SOILS OF VALLEYS:- The gently sloping valleys consist of very deep, moderately well drained, fine loamy, calcareous, neutral to alkaline (pH 6.5-8.5), Fluventic Ustochrepts and Vertic Ustorchrepts with moderate erosion.

SOIL CONSTRAINTS:-

Coarse textured soil with low water and nutrient holding capacity. Ridges and hill areas are prone to erosion.

Indiscriminate felling of trees and improper agricultural practices by the resident tribals cause deterioration in the ecosystem.

The geology of the area confines to major classification of Deccan trap, alluvial laterite, trappean including lamenta beds. This belongs to Gondwana and vindhya system. Rocks of granite, quartz, gneiss etc. is present. The soil is of alluvial and lateritic origin, which is sandy with stretches of yellow brown and grayish loam. At places it is overtopped with black cotton soil of varying thickness. The entire area of the division falls in the Godavari basin.

Areas north east of village Kanhargaon and north of Village Aksapur of Kanhargaon Range are comprised of sedimentary rocks of purna group. This group is represented by quartzite and limestones of conglomerate formation. Soil derived from this type of rock formation is clay loam and supports medium site quality (III to IVa) forests. Rest of the area of the Kanhargaon Range is comprised of the Kamthi series of rocks belonging to the lower Gondwana system. Kamthi series is represented by the ferruginous sand stones and clays, both white and yellow. Soil derived is fairly deep, fertile and sandy loam and support high quality mixed forest. The soil however being sandy loam, soft and friable, is easily susceptible to erosion wherever the area is subjected to heavy grazing, illicit felling and annual fires. In some patches of this tract top layer of soil has been eroded due to sheet and gully erosion, rendering the site comparatively less fertile supporting only low quality (IIIb) forest.

In Kanhargaon, Tohogaon and Dhaba Ranges, the tract to the west of it is covered by the kamthi stage rocks represented by the sandstones and clay. The remaining forest area to the east of Dhaba is occupied by the igneous rocks such as gabbro and pyroxenite and gneisses of pre-cambrium age. The soil to the west of Dhaba is sandy loam, deep and fertile supporting high quality mixed forest and that to the north east of Dhaba is clayey grayish and supports medium quality teak forests (II to IVa.). Narrow band of lime stone formation belonging to Vindhyan series exists, extending between Dongargaon in the south east to Karanji in the center. Soil is clayey loam of moderate depth and fertility and supports forests of medium (III) quality.

1.4: - CLIMATIC PARAMETERS

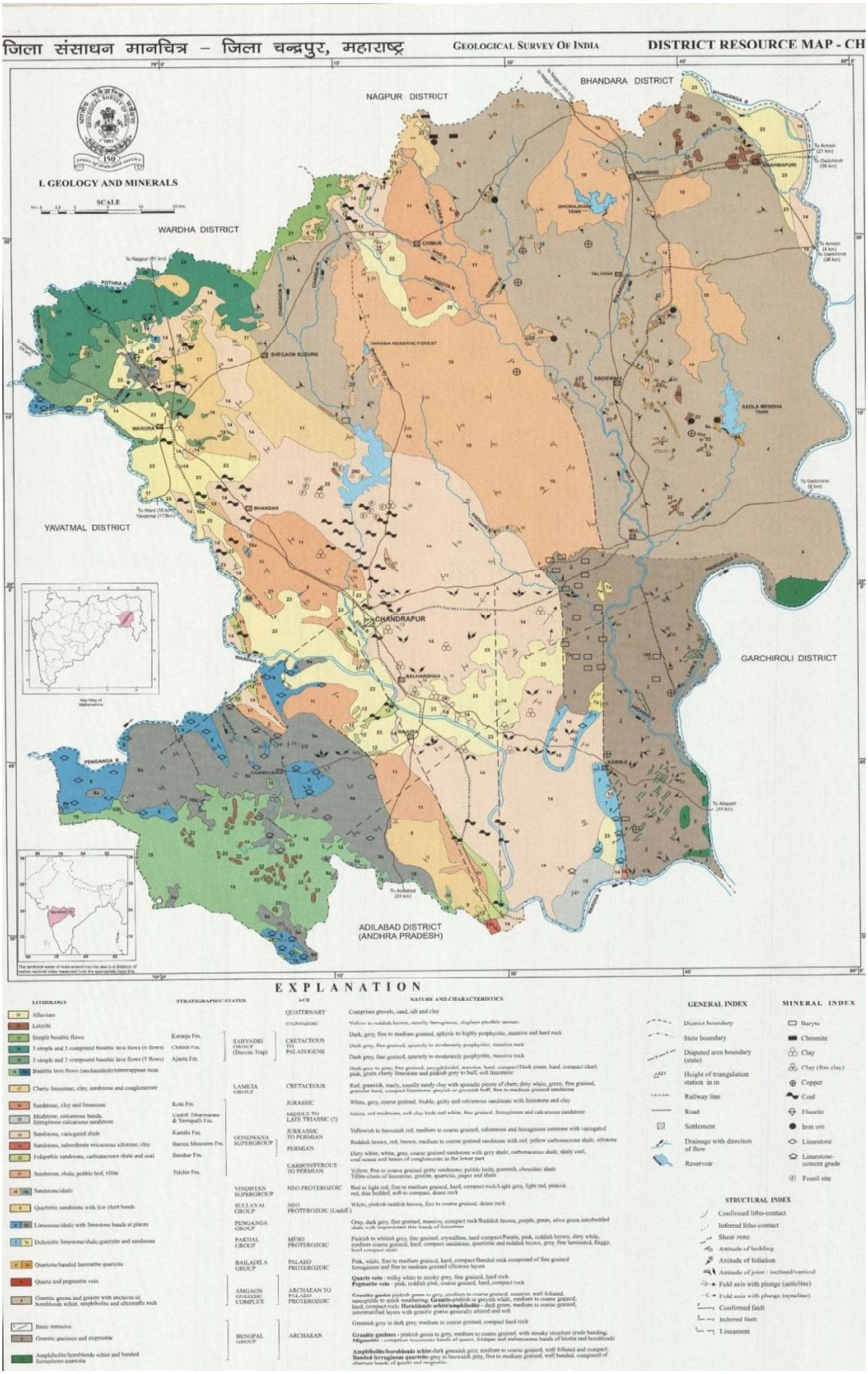
Climate of this area remains hot and dry for major period of the year. It is characterized by a hot summer, almost well distributed rainfall during the southwest monsoon season and general dryness except in the rainy season. Summer starts from mid of February and continues up to onset of monsoon in mid of June. With the beginning of summer there is definite rise in day and night temperatures. The temperature remains very high till the break of monsoon. Generally, May is the hottest month of the season. Hot winds blow from early April and continuous till the onset of monsoon. The maximum temperature reaches up to 48°C. Occasionally cyclonic rains are received during March and April months.

WINTER SEASON:

It starts from November and ends in the middle of February. The winter is moderately cool and pleasant. The mean maximum temperature in cold season is 33°C. and the mean minimum temperature is about 14^0 C. Lowest temperature recorded is 11°C. Frost is unknown in this tract

RAINFALL:

The southwest monsoon is the chief source of rains in this tract. The rainy season starts from middle of June and extends up to the end of September and sometimes up to early October. With the onset of monsoon, the temperature decreases appreciably and the weather becomes pleasant. The monsoon months are sultry. The average rainfall in this tract is 1251 mm. The highest intensity of rainfall is in the month of July. However, cyclonic rains are received during the remaining part of the year. In the recent past there has been erratic rain during the monsoon almost every alternate year. Erratic rains affect the natural regeneration and plantations.


जिला संसाधन मानचित्र – जिला चन्द्रपुर, महाराष्ट्र
GEOLOGICAL SURVEY OF INDIA
DISTRICT RESOURCE MAP - CH
I. GEOLOGY AND MINERALS
SCALE
NAGPUR DISTRICT
BHANDARA DISTRICT
WARDHA DISTRICT
YAVATMAL DISTRICT
GARCHIROLI DISTRICT
ADILABAD DISTRICT
(ANDHRA PRADESH)
CHANDRAPUR
WARORA
BHANDAK
SHEGAON BUZURG
TARORA RESERVE FOREST
CHIMUR
NAGBHIR
BRAHMAPURI
SINDEWAHI
ASOLA MENDHA TANK
GHORAJHARI TANK
BALHARSHAH
RAJURA
PENGANGA R.
WARDHA R.
WAINGANGA R.
EXPLANATION
LITHOLOGY
STRATIGRAPHIC STATUS
AGE
NATURE AND CHARACTERISTICS
Alluvium
Laterite
Simple basaltic flows
3 simple and 3 compound basaltic lava flows (6 flows)
3 simple and 2 compound basaltic lava flows (5 flows)
Basaltic lava flows (unclassified)/Intertrappean beds
Cherty limestone, clay, sandstone and conglomerate
Sandstone, clay and limestone
Mudstone, calcareous bands, ferruginous-calcareous sandstone
Sandstone, variegated shale
Sandstone, subordinate micaceous siltstone, clay
Felspathic sandstone, carbonaceous shale and coal
Sandstone, shale, pebble bed, tillite
Sandstone/shale
Quartzitic sandstone with flow chert bands
Limestone/shale with limestone bands at places
Dolomite limestone/shale,quartzite and sandstone
Quartzite/banded hematite quartzite
Quartz and pegmatite vein
Granitic gneiss and gneiss with enclaves of hornblende schist, amphibolite and ultramafic rock
Basic intrusive
Granitic gneisses and migmatite
Amphibolite/hornblende schist and banded ferruginous quartzite
Kamthi Fm.
Ajanta Fm.
Kota Fm.
Umrer, Chhatarmara & Yerrapalli Fm.
Barren Measures Fm.
Barakar Fm.
Talchir Fm.
SAHYADRI GROUP (Deccan Trap)
LAMETA GROUP
GONDWANA SUPERGROUP
VINDHYAN SUPERGROUP
SULLAVAI GROUP
PENGANGA GROUP
PAKHAL GROUP
BAILADILA GROUP
AMGAON GNEISSIC COMPLEX
BENGPAL GROUP
QUATERNARY
CAINOZOIC
CRETACEOUS TO PALAEOGENE
CRETACEOUS
JURASSIC
MIDDLE TO LATE TRIASSIC (?)
JURRASSIC TO PERMIAN
PERMIAN
CARBONIFEROUS TO PERMIAN
NEO PROTEROZOIC
NEO PROTTEROZOIC (Undiff.)
MESO PROTEROZOIC
PALAEO PROTEROZOIC
ARCHAEAN TO PALAEO PROTEROZOIC
ARCHAEAN
Comprises gravels, sand, silt and clay
Yellow to reddish brown, usually ferruginous, displays pisolitic texture
Dark, grey, fine to medium grained, aphyric to highly porphyritic, massive and hard rock
Dark grey, fine grained, sparsely to moderately porphyritic, massive rock
Dark grey, fine grained, sparsely to moderately porphyritic, massive rock
Dark grey to grey, fine grained, unoxidised, massive, hard, compact/Dark green, hard, compact chert, pink, green cherty limestone and pinkish grey to buff, soft limestone
Red, greenish, marly, usually sandy clay with sporadic pieces of chert; dirty white, green, fine grained, granular hard, compact limestone; greyish or greenish buff, fine to medium grained sandstone
White, grey, coarse grained, friable, gritty and calcareous sandstone with limestone and clay
Green, red mudstone, soft clay beds and white, fine grained, ferruginous and calcareous sandstone
Yellowish to brownish red, medium to coarse grained, calcareous and ferruginous sandstone with variegated
Reddish brown, red, brown, medium to coarse grained sandstone with red, yellow carbonaceous shale, siltstone
Dirty white, white, grey, coarse grained sandstone with grey shale, carbonaceous shale, shaly coal, coal seams and lenses of conglomerate in the lower part
Yellow, fine to coarse grained gritty sandstone, pebble beds; greenish, chocolate shale
Tillite-clasts of limestone, granite, quartzite, jasper and shale
Red to light red, fine to medium grained, hard, compact rock/Light grey, light red, pinkish red, thin bedded, soft to compact, dense rock
White, pinkish reddish brown, fine to coarse grained, dense rock
Grey, dark grey, fine grained, massive, compact rock/Reddish brown, purple, green, olive green interbedded shale with impersistent thin bands of limestone
Pinkish to whitish grey, fine grained, crystalline, hard compact/Purple, pink, reddish brown, dirty white, medium coarse grained, hard, compact sandstone, quartzite and reddish brown, grey, fine laminated, flaggy, hard compact shale
Pink, white, fine to medium grained, hard, compact/Banded rock composed of fine grained ferruginous and fine to medium grained siliceous layers
Quartz vein - milky white to smoky grey, fine grained, hard rock.
Pegmatite vein - pink, reddish pink, coarse grained, hard, compact rock
Granitic gneiss pinkish green to grey, medium to coarse grained, massive, well foliated, susceptible to quick weathering; Granite-pinkish to greyish white, medium to coarse grained, hard, compact rock; Hornblende schist/amphibolite - dark green, medium to coarse grained, intercalated layers with granitic gneiss generally altered and soft
Greenish grey to dark grey, medium to coarse grained, compact hard rock
Granitic gneisses - pinkish green to grey, medium to coarse grained, with streaky structure crude banding; Migmatite - comprises leucocratic bands of quartz, feldspar and melanocratic bands of biotite and hornblende
Amphibolite/hornblende schist-dark greenish grey, medium to coarse grained, well foliated and compact; Banded ferruginous quartzite-grey to brownish grey, fine to medium grained, well banded, composed of alternate bands of quartz and magnetite
GENERAL INDEX
District boundary
State boundary
Disputed area boundary (state)
Height of triangulation station in m
Railway line
Road
Settlement
Drainage with direction of flow
Reservoir
MINERAL INDEX
Baryte
Chromite
Clay
Clay (fire clay)
Copper
Coal
Fluorite
Iron ore
Limestone
Limestone-cement grade
Fossil site
STRUCTURAL INDEX
Confirmed litho-contact
Inferred litho-contact
Shear zone
Attitude of bedding
Attitude of foliation
Attitude of joint : inclined/vertical
Fold axis with plunge (anticline)
Fold axis with plunge (syncline)
Confirmed fault
Inferred fault
Lineament

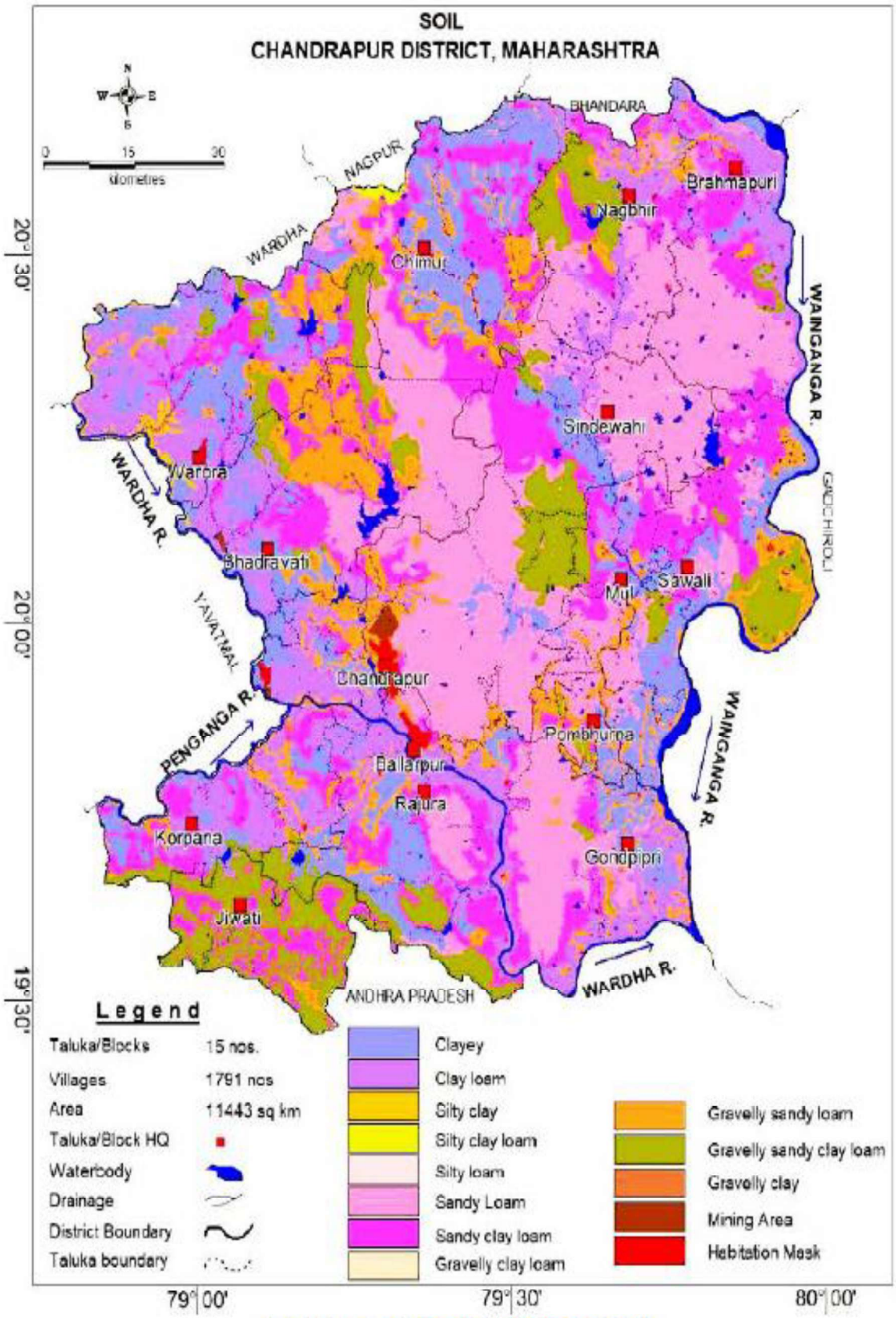


Figure 1. 6 : Soil, Chandrapur District

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CHAPTER - 2

EXTENT AND CONDITION OF FOREST AND TREE COVER

2.2.1 AREA OF FOREST UNDER DIFFERENT LEGAL STATUS:

The Forests of the Kanhargaon, Dhaba, Tohogaon and Zaran range were declared as reserved forests in 1879. The forests dealt with under this Management Plan were notified as reserve forest under the section 34, Indian Forest Act of 1878 under the Central Provinces Gazette Notification No. 917 (i) dated 24 February, 1879 publication in C.P. Gazette of 1st March 1879, Part-I (a) 170 and No. 3796 dated the 29 August, 1895.

The forests of Junona, Mamla, Chichapalli and Khadasangi range dealt with under this remained under the Zamindari rights till the year 1951. The Zamindari system was abolished in the year 1951 under the provisions of Madhya Pradesh Abolition of Proprietary Rights Act, 1951.

After passing of M.P. Abolition of Proprietary Rights Act, the forests were vested in the Government and were taken over by the Revenue Department. On September 6, 1952 the same were transferred to the Forest Department for management. In the year 1955, a portion of the forests in surveyed villages were declared as Protected Forests under section 29 of the Indian Forest Act, 1927, vide Notification No. 3056-1216-XI, dated June 4, 1955. Remaining portion of the forests in surveyed and un-surveyed villages were declared as Protected Forests in the year 1959, vide Notification No. FLD/4659-3313-E, dated April 23, 1959. Further under section 4 of IFA 1927 the Government decided to constitute these forests as Reserved Forests and accordingly, proposals were formulated vide Gazette Notification No. FLD/1258-II, 3314-E, dated May 30,1959. The proposed area was declared as Reserved Forests vide Gazette Notification No. FLD/3685/9316/CR-42/F-3, dated May 5, 1992 under section 20 of IFA, 1927.

2.2.2 AREA OF DIFFERENT FOREST TYPES:

According to the classification of forest types by Sir H.G. Champion and S.K. Seth, the Forest dealt within this Management Plan belongs to sub group **"5A" Southern Tropical dry deciduous forest** by Forest survey of India. These forests are distinguished in following sub-types

Group 5 A	Southern Tropical dry deciduous forest
5A/C1b	Southern Tropical dry deciduous Teak Forest
5A/C3	Southern Tropical dry mix deciduous forest
5/E9	Dry bamboo brakes

Southern Tropical dry deciduous Teak Forest: - This type is tropical dry deciduous forest with teak usually forming the major proportion of the crop on shallow porous or stiff clayey soils. This forest consists species like *Tectona grandis, Anogeissus latifolia, Diospros menlanoxylon, Butea monosperma, Chloroxylon switenia*.

Southern Tropical Dry Deciduous Forest: - The Forest of the Division is mixed forest of site quality varying from II to IV with crop density from 0.2 to 0.6. The middle canopy is dense. Natural regeneration of all miscellaneous trees and also

teak is moderate. The soil is sandy loam to clay loam with moderate fertility supporting medium quality forests.

Dry bamboo brakes:- This forest type occurs mainly on dry hill sides but also on alluvial soil with rainfall of 900 mm or more. The soil is also dry, shallow and stony. Only one species, *Dendrocalamus strictus* occurs and form relatively low but dense brakes, sporadic occurrence of dry deciduous species is also observed as associates *Chloroxylon swietenia, Dalbergia paniculata, Cassia fistula, Anogeissus latifotia*

2.2.2.1 Floristic Composition of forest

A. Top Canopy: - *Tectona grandis* (Teak), *Pterocarpus marsupium* (Bija), *Anogeissus latifolia* (Dhawda), *Terminalia tomentosa* (Ain), *Lannea coromandelica* (Mowai), *Madhuca longifolia* (Mahua), *Bombax ceiba* (Semal), *Terminalia arjuna* (Arjun), *Diospyros melanoxylon* (Tendu), *Lagerstroemia parviflora* (Sinna), *Mitragyna parviflora* (Kalam), *Chloroxylon swietenia* (Bhera), *Dalbergia panniculata* (Dhoban), *Boswellia serrata* (Salai), *Haldina cordifolia* (Haldoo), *Schrebera swietenoides* (Mokha), *Xylia xylocarpa* (Surya), *Terminalia belerica* (Behda), *Albizzia odoratissima* (Chichwa), *Buchanania lanzan* (Charodi), *Alangiuam salviforam* (Ankol), *Phyllanthus emblica* (Aonla), *Aegle marmelos* (Bel), *Semercarpus anacardium,* (Biba), *Grewia tiliifolia* (Daman), *Ehretia laevis,* (Datrangi), *Terminalia chebula,* (Hirda), *Garuga pinnata,* (Kakad), *Bridelia retusa,* (Kateyen), *Manilkara hexandra,* (Khirni), *Careya arborea,* (Kumbhi), *Schleichera oleosa,* (Kusum), *Lagerstroemia parviflora* (Lendia), *Madhuca longifolia* (Moha), *Strychnos potatorum,* (Nirmali), *Holoptelea integrifolia,* (Papra), *Soymida febrifuga* (Rohan), *Abizzia procera* (Siras White).

B. Second Story: - *Cleistanthus collinus* (Garadi), *Zizyphus xylopyrus* (Ghot), *Emblica officinalis* (Awla), *Acacia catechu* (Khair), *Bauhinia purpurea* (Apta), *Grewiafiuifolion* (Dhaman), *Dolichandrone falcata* (Medsing), *Acacia leucophloea* (Hiwar), *Holarrhena antidysentrica* (Kuda), *Buchanania lanzan* (Char), *Semicarpus anacardium* (Biba), *Butea manosperma* (Palas), *Wrigtia tinctoria* (Dudhi), *Ixora arborea* (Lokhandi), *Dalbergia latifolia* (Shisam), *Cassia fistula* (Amaltas), *Morinda tinctoria* (Anl), *Strychnos nuxvomica* (Kuchala), *Ougenia oojeinense Roxb. nuxvomica* (Tiwas), *Litsea glutinosa* (Maida- Lakari), *Mallotus philippensis* (Kamela), *Ficus hispida* (Kala Umbhar), *Zizyphus mauritiana* (Bor), *Cordia dichotoma* (Bhokar), *Gardenia resinifera* (Dikamali), *Wrightia tinctoria Roxb* (Dudhi), *Randia religiosa* (Fetra), *Gardenia latifolia* (Ghogar), *Balanites aegyptica* (Hingan), *Flacourtia indica (*Kakai), *Miliusa velutina* (Karai), *Lipidagithis cristata* (kala fetra), *Boswellia serrata* (Salai), *Kydia calycina* (Warang), *Cochlospermum religiosum* (Gongal), *Gmelina arborea* (Shivan), *Annona squamosa* (Sitaphal).

C. Shrubs, Herbs, Climbers, and Grasses: -

Shrubs &Herbs: - *Cassia tora* (Tarota), *Gymnosporia montana* (Bharti), *Helectrus isora* (Muradseng), *Woodfordia Fruiticasa* (Jilbili), *Gardenia lucida* (Dikanaji), *Achyranthus aspera* (Aghada), *Xanthium strumarium* (Gokhru), *Cassia auriculata* (Tarwad), *Dichrostachys chinerea* (Yelati), *Lantana camera* (Raimunia), Sida spp, *Dodonia viscosa* (Kharata), *Tephrosia purpurea* (Diwali), *Hyptis*

suaveolens, (Bhutganja), *Desmodium palchellum Benth* (Chipti), *Grewia hirsute* (Gurmukhi), *Lionotis neptifolia* (Deepmal), *Lantana camera* (Ghaneri), *Ipomoea reniformus* (Gophan), *Dodonea viscosa* (Kharata), *Sorghum ooniroversum* (Ranjondhala), *Helicteres isora* (Moraphal), *Sesbanania aegyptiaceae* (Shewari), *Vernonia cineria* (Sahadevi), *Cyporus rotundus* (Nagarmotha), *Euphorbia hirta* (Nagarjuni Dudhi), *Tridex procumbens* (Kambermodi), *Ocimum canum* (Rantulsi), *Aerva lanata* (Gorakhganja), *Vernonia anthelmintica* (Ranjira), *Flemingia semialata,* (Ban rahas), *Indigofera tinctoria,* (Neel).

Climbers: - *Butea superba* (Palasvel), *Acacia pennata* (Chilati), *Calycopteris floribunda* (Kukutranji), *Zuzyphus oenoplea* (Ironi), *Ichnocarpus frutesens* (Dudhivel), *Abrus precatorius* (Gunj), *Mucana pruriens* (Kachkuri), *Celastrus paniculata* (Malkagni), *Hemidesmmus indicus* (Khobarvel), *Cocculus villosus* (Wasanvel), *Ipomoea quamoclit* (Ganeshwel), *Ventilago madraspatanam* (Lalvel), *Combretum ovalifolium* (Piwarvel), *Cissampelos pareira* (Piwarvel), *Gymnema sylvestris* (Gudmar), *Diplocyclos palmatus* (Shivlingi).

Grasses: - The species *Dendrocalamus strictus* is found all over in these forests except heavilly eroded area and exposed rock. *Dendrocalamus strictus* (Bans), *Eragrotis tenella* (Bhurbhusi), *Themeda triandra* (Ghonal), *Saccharum spontaneum* (Padal), *Aristida adecensionis* (Kulsi), *Dicanthum annulatum* (Marvel), *Iseilema laxum* (Mushan), *Imperata cylidricals*, *Apluda mutica* (Pochati), *Bambusa arundinaceae (*wildi), (Bamboo katang), *Eragrostis interagrostis* (Godhel)

2.2.2.2 Regeneration

Adequate regeneration of surya, teak, ain, dhawada, haldu, kalam, chichawa and tendu is noticed. Regeneration of surya and teak is abundant. The young regeneration considerably suffers due to frequent ground fires. However, established teak seedlings are usually less affected from fire. Regeneration of teak is in groups. The groups are widely separated and hence overall status is far from satisfactory. In mature crop the natural regeneration is seen scanty while in younger aged crop it is adequate. In areas of frequent fires, the regeneration has received a setback.

2.2.3 CHANGE IN THE CATEGORY OF FOREST COVER

Data obtained from India state of forest report by forest survey of India report 2001 and 2023 says that Chandrapur district had roughly 4031.00 sq. km of forest cover in 2001, accounting for 35.23 percent of the total area. In 2023, the forest-covered size was estimated to be around 4073.32 sq. km or 35.60 percent of the entire district area. During the 22 years (2001–2023), 42.32 sq. km (0.37%) has been increased. This is a positive trend and a favorable signal for the physical environment, particularly biodiversity. During the study years of 2001 and 2023, the forest was divided into four categories: very dense, moderately dense, open forest and scrub.

In 2001 dense forest and open forests covered 2755.00 sq and 1192.00 sq km of area, respectively. The high percentages of core forest areas suggest that natural resources are not under anthropogenic stress. It was revealed that in 2023, there were regions of highly dense, moderately dense and open forest covering 1318.87 sq. km, 1521.60 sq. km, and 1189.18 sq. km, respectively forest. It has been

noticed that the dense forest area has increased over time due to continual protection measure on the forest of time during the survey report (2001–2023). The area of reasonably dense woodland has grown by 85.47 sq. km.

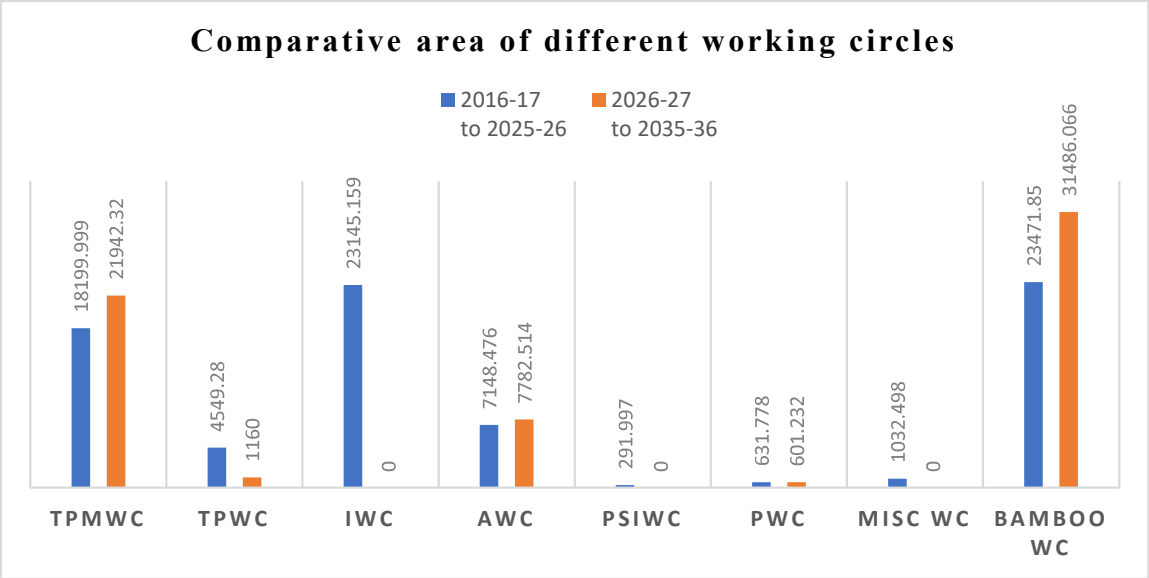
Chandrapur district	Geographical area (km^2)	Very dense forest (km^2)	Moderate dense forest (km^2)	Open forest (km^2)	Scrub (km^2)	Total (km^2)	Percentage compare with total geographical area
2001	11443.00	2755.00		1192.00	84.00	4031.00	35.23%
2023	11443.00	1318.87	1521.60	1189.18	43.67	4073.32	35.60%
Difference		85.47		-2.82	-40.33	42.32	0.37%
Percentage		3.10%		-0.24%	-48.01%	1.05%	

2.2.4 AREA OF DIFFERENT WORKING CIRCLES

Sr. No.	Working Circles	Present Area (Ha)	New Area (Ha)	Remark
1	Teak Plantation Management Working Circle (TPMWC)	18199.999	21942.320	Successful teak plantations and Natural strips are included in this working circle. Hence increase in area.
2	Teak Plantations and Reboisement W.C.(TPRWC)	4549.280	1160.000	Area found fit under CCG parameter is included in this WC
3	Improvement Working Circle (IWC)	23145.159	0.000	Area merged with adjacent TPMWC, AWC AND CWC
4	Afforestation Working Circle (AWC)	7148.476	7782.514	
5	Planting stock improvement W.C. (PSIWC)	291.997	0.000	Area merged with TPMWC
6	Protection Working Circle (PWC)	631.778	601.232	
7	Misc. Working Circle	1032.498	0.000	Area merged with PWC
	Total area	54999.187	31486.066	
8	Bamboo **(Overlapping)** Working Circle	23471.850	31486.066	
9	Wildlife Management **(Overlapping)** Working Circle	54999.187	31486.066	
10	Non-wood Forest Produce **(Overlapping)** Working Circle	54999.187	31486.066	Renamed Non timber forest produce/Mixed Short Rotation Crop (overlapping) working circle

11	Soil & Water Management **(Overlapping)**Working Circle	54999.187	31486.066	

Comparative study of proposed and previous working circles is shown below,



2.2.5 AREA OF THE TREE OUTSIDE FORESTS

There is good amount of tree cover outside forest area in Chandrapur Forest Project Division on adjacent agricultural lands and village common land. However, it has not been documented and analyzed till date. The data of tree outside forest will be taken from DFO Chandrapur. Special focus on roadside plantation, Agriculture lands, Village land tree need to be given with the help of Agriculture and revenue dept. The expertise of Forest Survey of India (FSI) Regional office at Nagpur and Social Forestry Division may be taken for this exercise. It is important to use this data for finding out carbon sequestration potential outside forest.

2.2.6 DETAILS OF AREA OF FORESTS DIVERTED UNDER FCA

Details of forest area diverted under FCA are given as below

Sr. No.	Range	Area Diverted under FCA
1	Mamla	Diversion of area for 132 KV DC Mul - SICOM Chandrapur Transmission line (25.858ha
2	Chichapalli	Diversion of area for 132 KV DC Mul - SICOM Chandrapur Transmission line (6.148ha)

2.2.7 DETAILS OF FOREST LAND WHERE RIGHTS ARE GIVEN UNDER THE FRA

No rights recognized under FRA during last management plan.

2.2.8 DETAILS OF FOREST LAND UNDER ENCROACHMENT.

No fresh forest encroachments have been observed in this plan period. Routine exercise of encroachment removal program and counseling is done by field staff.

2.2.9 DETAILS OF ANY FACTORS AFFECTING THE EXISTENCE OF FORESTS

A) Anthropogenic Factors

Protection of the forest is one of the most difficult tasks at present in this project division due to the following adverse factors.

I. Fire: - Forest fires are common between the periods starting from late February to May end till the arrivals of monsoon. Repeated fires have resulted in poor establishment of natural regeneration and destruction of organic matter. The damage is serious when the freshly felled material is lying in the coupe. The young regeneration suffers a lot and species like teak gets killed in the form of die back. Severe fire causes scorching leading to unsound & hollow stems which further render them liable to fungus & insect attack. Fire indirectly causes soil erosion by destroying vegetative soil cover. Fires are set by people with an interest to collect mahua flowers, fruits, good flush of tendu leaves & grass. General observations are that the fire is frequent due to hot & dry season. Reasons of forest fire may be due to any one or more of the reasons listed below.

(a) Setting of fire by tendu leaves collectors.
(b) Setting of fire by mahua flowers collectors.
(c) Local grazer sets fire to obtain new grass shoots.
(d) Due to carelessness by smokers/encroachers or cultivators

II. Grazing: - This is another damaging element destroying young regeneration, plantations & soil texture by trampling. Illicit grazing can be noticed& this causes seedlings to send multiple shoots near base. Maximum depletion occurs when the forests are close to a large habitation. Tribal people keep large herd of unproductive cattle which are taken regularly to the forest for grazing.

III. Illicit cutting: -Forest area in the project Division is surrounded on all sides by the populated villages. However, the illicit cutting is moderate in the bordering forest areas basically to meet the local demand of small size timber/pole for construction of huts, agricultural implements and firewood.

IV. Poaching &hunting: -Hunting & Poaching affects the biodiversity of Forest area.

V. Encroachment: -No new encroachment is seen in the forest area of this division. The rights under FRA are either settled or pending at various levels. Most of the area of the Division is affected by Left Wing Extremism and it renders the task of preventing forest land from encroachment difficult.

B) Natural Factors

I. Wild Animals: -Though the tract is rich in wildlife, the incidents of poaching & injury to wildlife are sporadic. However, damage due to browsing & trampling of young regeneration & seedlings of plantation by herbivores is common. The wild boar damages bamboo seedling & eat bamboo rhizomes. This has greatly affected survival percentage in bamboo plantations.

II. Insects: - The attack of teak skeletonizer (*eutectona machaeralis*) and teak defoliator (*Hyblaeapuera*) are common in teak patches & occur almost every year. It has been pointed out by Champion in his book "The problems of pure teak plantation" that the estimated loss of increment because of defoliation is about 10% in these forests. The leaves which suffer attack during early part of the season are soon replaced by the new leaves and the trees remains in foliage for a longer time.

III. Drought: - Drought is not of common occurrence. The severe heat of summer adversely affects vigor of saplings resulting in repeated dye-back.

IV. Plant Parasites: - The common plant parasites & epiphytes are Vanda (Vanda tesellata) and Amarbel(Cusute species). The loranthus occurs on Moha, Tendu, Ain & Jamun trees. Damage due to these parasites is negligible.

V. Climbers: - There are many types of climbers occurring all over the forest. The woody varieties such as Eroni, Kukudranji, Chilar, Palasbel are commonly noticed. They are harmful for tree growth. They cause considerable damage by twisting the forest trees and deforming the poles. Common amongst them are Mahul (Bauhinia vahlii), Palasbel (Butea superba), Nagbel (Cryptolepis buchanani), Gorari (Millertia auriculata), Chilati (Acacia pinanta), Banda (Clematis triloba), Malkangni (Celastrus Paniclulata), Rhet bel (Combretum ovalifolium), Kharbel (Ventilago madraspatane), Kumbera (Vitex aurulata) and gorbel (Pueraria tuberose).

VI. Weed: - Perennial types of weeds and woody shrubs commonly found are muradseng (Helecteres isora), Neel (Indigofera indica), Jilbill (Wood fordia floribunda), gursukri (arewiadisfera). Annual herbaceous weeds are Tarota (cassia tora) and Menduly (Xanthumstromarium) The Grasses commonly found are Bhurbhushi (Eragrostis tenella), Kusal (Heteropogan contortus). Damage through these agencies is negligible.

VII. Wind: -Damage due to stormy winds in the form of uprooting of trees in shallow soil, breaking the poles & branches is noticed, Isolated trees get uprooted while large scale uprooting occurs in some pockets. Teak is a shallow rooted species & is unable to withstand sustained wind pressure.

VIII. Soil Erosion: - Soil is seen to be washed away through gully & rill erosion particularly along the banks of nallas & main streams. The soil is uniformly washed off through sheet erosion in the areas, where vegetative cover is inadequate.

2.2.10 DEMARCATION OF BOUNDARIES

Natural features such as river and nallas form compartment boundaries and wherever necessary artificial boundaries have been demarcated with the help of cairns.1/5th of area boundary demarcation will be carried out each year. 2mtr. wide strip will be cleared from one pillar to another. New B class pillars will be erected wherever necessary. Old A & B class pillars will also be repaired as required. The schedule of boundary demarcation is fixed and works will be carried out accordingly. The schedule of 1/5th boundary demarcation works for this plan is given in the ***Appendix No. XVI*** in volume II.

Also, the broad demarcation of boundaries of this division is as follows

East –mul city and areas of Central Chanda Forest Department.
West –areas of Chandrapur Forest Department.
North – area of Bramhapuri forest division.
South–areas of Central Chanda Forest Department.

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CHAPTER 3

MAINTENANCE, CONSERVATION AND ENHANCEMENT OF FOREST BIODIVERSITY

2.3.1 ADJOINING PROTECTED AREAS:

The area Chandrapur division act as corridor between Kanhargaon Sanctuary to Tadoba-Andhari Tiger Reserve (TATR) and connects Tipeshwar WLS of Maharashtra and Pakhal Tiger Reserve of Telangana State.

The Tadoba Andhari tiger reserve chandrapur notified under Wildlife Protection Act, 1972 is adjacent to Mamla, Chichapalli and Khadasangi range of this division. The Kanhargaon wildlife santuary notified under Wildlife Protection Act, 1972 is situated in the side of Zaran, Tohogaon, Dhaba and Kanargaon range. The eco sensitive zone of Tadoba Andhari tiger reserve is adjacent to the compartment no 409 to 420, 394 to 396 Mamla range, 421 to 425, 429 and 429 of Chichapalli range & 39 to 41, 20, 21, 25 and 26 of khadasangi range.

2.3.2 SPECIES DIVERSITY:

As per FSI report for Maharashtra the Shannon-Wiener Index of Tree, Shrub and Herb species in Type 5 Groups Forest of Maharashtra is as follows.

Sr. No	Forest Type Group	Shannon-Wiener Index		
		Tree	Shrub	Herb
1.	Group 5- Tropical Dry Deciduous Forests	3.03	2.83	2.76

A separate, in-depth inventory study about different type of plant species is needed to be carried out with Research wing of Maharashtra Forest Department in coordination with local botanical researches. The diversity needs to be documented, preserved and published for benefit of all stakeholders. However, a strict protection regime is to be maintained by field staff for cause of biodiversity conservation. The mechanism of protection huts at sensitive location, check nakas and other ancillary measure are useful for conservation purpose. In addition, there is Research plot at Junona range maintained by forest department for studying the growth characteristics of local vegetation and changes with time.

2.3.3 DETAILS OF ANY SPECIES-SPECIFIC CONSERVATION PROGRAM:

Any species-specific conservation program was not carried out in this forest project division.

2.3.4 DETAILS OF SPECIES PRONE FOR OVER EXPLOITATION:

Some species are more vulnerable to over exploitation than others especially those who have a narrow ecological niche, and those produce a smaller number of their individuals. Such species are enlisted in this management plan according to IUCN red data book as well as CITES appendices.

2.3.5 DETAILS OF UNIQUE/SPECIAL HABITATS AND HIGH CONSERVATION VALUE AREAS:

Working circle wise High Conservation Value (HCV) areas are encompassed as per FSC certification manual. Table given below is guiding document in deciding the area allotment for particular HCV.

Distribution of Area of Chandrapur Division in various HCVs based on prescriptions in Management Plan

Sr. No.	Name of Working Circle		WC 5
1	Name of Ranges	Junona (9710.351)	HCV 1 HCV 2 HCV 3 HCV 4
2		Mamla(4481.642)	
3		Chichapalli(7196.592)	
4		Khadasangi(3885.370)	
5		Zaran(5911.111)	
6		turn key range(75)	
7		Depot Division Ballarshah(226.000)	

TABLE NO. 1		TABLE NO. 2	
WC 5	Protection Working Circle	HCV 1	Species Diversity
		HCV 2	Landscape level ecosystems
		HCV 3	Ecosystems & Habitats
		HCV 4	Critical ecosystems services

2.3.6 DETAILS OF DIVERSE ECOSYSTEMS SUCH AS GRASSLANDS, WETLANDS, MANGROVES, DESERTS ETC:

The availability of water in Chandrapur Division is abundant due to presence of tributaries of four rivers crisscrossing the forested areas. This has resulted in creation of wetlands at many places. The wetlands, vital parts of the hydrological cycle, are lifelines of society on account of their wide-ranging ecosystem goods and services such as water supply and purification; waste assimilation; buffering extreme events as floods, droughts, storms and cyclones; groundwater recharge; erosion control; microclimate regulation; and aesthetic enhancement of landscapes and these wetlands also support significant recreational, social and cultural activities, and are part of our rich cultural heritage. The ecosystems harbour a range of floral and faunal diversity, including several rare, endangered and endemic species, and support complex food chains. Wetlands can help mitigate and adapt to changing climate through their ability to act as carbon sinks, regulate water regimes, prevent erosion and provide habitat to biodiversity under stress. The wetlands in Chandrapur Division must be studied in depth with regards to their nature, properties, floral and faunal biodiversity, ecosystem services and conservation.

The existing grassland shall be surveyed as well as demarcated for grassland management. Evergreen native and palatable grass species may be planted to augment the grass availability in these areas. Unpalatable grass species

has to be eradicated on yearly basis to allow upcoming of palatable grass species for wildlife.

2.3.7 DETAILS OF THREATS AND CHALLENGES TO VULNERABLE FLORA AND FAUNA:

Habitat fragmentation, illegal trade is serious threats that affect the population of flora and fauna. Apart from that the changing climatic balance, increasing load of pollution, excessive & unsustainable exploitation of all biotic resources poses a serious threat to vulnerable flora and fauna. An analysis of various threats will help in formulating mitigation strategies. It also includes influence of invasive alien species like Cassia torra, Ageratum conyzoides etc.

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