

Executive Summary

Nagpur Working Plan, 2004 is the 7th working plan for the Nagpur division. Jwala Prasad's plan was under implementation in the division from 1990-2000, which was extended upto 2003-2004. Hence, Nagpur Working Plan, 2004 comes into force from 2004-05 and shall remain in force upto 2013-14. It is written for 1721.268 sq.km. of forest area of Nagpur district, which comprises –

- i. 878.529 sq. of RF 417 comptt.
- ii. 700.426 sq. of PF of 596 villages. 501 comptt.
- iii. 145.170 sq. of Zudapi Jungle 621 villages.
- iv. 2.935 sq. of non-forest land
(made available in 3 ranges as compensatory land)

Jwala Prasad's plan was for 2218.913 sq.km., from which forest area that has been finally transferred to wildlife wing and FDCM has been subtracted and remaining area (1721.268 sq.km.) is covered under this plan.

2. Two types of rock formations are distinguishable in the district. These are metamorphic rocks in Deolapar, Ramtek, Parseoni, Khapa, Kuhi and parts of Kondhali range and deccan trap zone in rest of the area. Soils found in the first category are generally deep and support good quality forests, both teak and mixed. Trap zone in Narkhed, Kondhali, Hingna, Umred ranges is categorized by shallow and refractory soils and hence this region contains poor quality forests. However, in the sheltered low lying areas of these regions like southern parts of South Umred range deep black cotton soils are formed from softer basaltic rocks. Such areas support good quality teak forests.

3. The 417 compartments in 48 blocks are numbered as 1-38, 60-96, 276-313 and 331-799. These include comptt. 715 of Seminary Hills, 716-789 New RF formed in 1977 and newly assigned comptt. Nos. 790-799 of Ambazari and Gorewada.

PF areas are serially divided into 486 comptt. and there a total of 501 comptt. (some of the comptts having parts A, B etc). To have a distinction from RF comptts., a new series starting from 1001 is proposed to be given to these comptts. Under this series, distinct patches under the same comptt. are proposed to be numbered as 1001/11 1001/2 etc.

The division has also recently acquired a total of 15974.03 ha of non-forest and zudapi jungle lands. Not much of information about most of these lands is available as yet but proposals to notify zudapi jungles under section 4 of Indian Forest Act, 1927 have been sent in 2003-04. Non-forest land admeasuring 2640.45 ha has already been notified under section 4 in 1990 but remaining non-forest land (293.48 ha) is yet to be notified.

4. The villages adjoining the forests are chiefly dependant on these forests for grazing, firewood and small timber. The admissible grazing incidence is summarized as follows:

Functional category of forests	Area	Grazing incidence (areas per cattle unit)	Carrying capacity (max. cattle units allowed)
Protection forests	3102.89	0.0	0.0
Grass birs	10748.92	0.0	0.0
Tree forests	42300.00	1.214	34843
Minor forests	78561.44	0.607	129426
Pasture forests	30131.5	0.404	75582
Total			239851 unit

Grazing incidence is to be decided annually after deducting areas, which are to be closed to grazing. Certain areas like grass birs and protection areas are closed to grazing permanently and others like current coupes for a fixed period of 3-7 years. The division contain 10748.92 ha of grass birs and 28051.75 ha of forests have been put in under pastures where rotational grazing has been prescribed. Besides, the remaining forest are of the division after deducting current coupes has also been constituted into grazing units. There are 125 grazing units that are prescribed to accommodate cattle of 995 villages (219828 cattle heads).

4. Past working :

Scientific working in the forests under Nagpur division started in 1895 when first working plan was sanctioned. Initial working was generally improvement fellings to get regular supply of straight and sound poles of valuable species. Second plan in 1912 incorporated coppice with standard system (which was actually introduced in these forests in the year 1906-07) in which minimum of 30 promising trees per acre were to be retained as standard. Also during the course of implementation of the 2nd plan, 1912-34, thinning as a silvicultural measure in a 10 year thinning cycle was introduced in some of the forests which were too dense.

Sagreiya's plan 1935-47 was the first plan after stock mapping of the forests. It introduced CWR system. Hence, Nagpur forests were one of the tree areas where CWR was practiced for the first time. While good quality forests were kept under improvement working circle (removal of unsound and malformed trees interfering with valuable species) and conversion working circle (with rotation of 72 years), quality IV forests suitable for the production of firewood and poles were allotted to CWR. B R Mishra's Plan, 1947-64 allotted good quality teak forests into Pench High Forests and General High Forest working circle and

continued to keep quality IV areas capable of producing firewood and poles into CWR working circle. These systems were also continued in the Thosare;s Plan, 1965-80.

The PF in the division were brought under regular and scientific working in the year 1970 when working scheme prepared by Shri S S Parasnis was approved. Sizable area of PF (21615.38 ha) was kept under Pasture working circle under this scheme. The current plan for the year 1990-2003, which is under revision has combined RF and PF under one plan.

6. Brief Review of the plan under Revision, that is, Jwala Prasad's Plan for 1990 to 2003-04.

i. ***Selection-cum-Improvement Working Circle***

It was introduced for the first time in one FS. Hence, it is premature to judge system's suitability particularly because-

- marking rules are seen to have not been adhered to scrupulously,
- CBO were not done due to paucity of funds,
- Artificial regeneration failed because of wrong choice of species and biotic pressures.

ii. ***Shelterwood system:*** It was found to be unsuitable due to-

- complex nature of prescriptions which resulted in large scale deviations,
- teak being light demander was not found to be suitable for the system,
- subsidiary operations could not be done due to lack of funds,
- forests lacked sufficient natural regeneration of valuable species, that is, teak, due to biotic pressures.

iii. ***Coppice with Reserve working circle:*** It was found that trees have lost their coppicing vigor. To compensate this, planting 4 years prior to main felling was prescribed but it has not been done.

iv. ***Re-afforestation and Soil Conservation working circle***

The performance of the plantations has not been encouraging because of wrong choice of species, problems of protection and grazing pressure.

v. ***Pasture and Grass Bir working circles.***

Grazing pressure on all forests including Pastures and Grass birs is very high.

7. Following criteria have been developed for the future management:

- i. Plan is to be based on primacy of environmental concerns and biodiversity conservation.
- ii. Achieving the Selection forests, in the ultimate analysis, has to be the objective of management (in the good quality forests) and other systems are basically intermediary ones.

- iii. Poor quality forests are incapable of producing commercial timber and, on the other hand, they are progressively getting degraded due to unregulated grazing and other biotic factors.

This has resulted in large-scale failures of plantation schemes in the past. Such forests are therefore generally proposed for rotational grazing regulations and conservative exploitation to meet the firewood and small timber requirements of the local people.

- iv. JFM arrangements are proposed to be put in place extensively.
- v. The working plan prescribed implementation of Wildlife (Protection) 1972 in letter and spirit and efforts to have certain inputs of wildlife conservation in managed forests as wildlife management has become synonymous with biodiversity conservation.

8. Accordingly following working circles have been proposed.

<i>Area specific</i>	<i>Overlapping</i>
1. SCI	1. Bamboo
2. IMP	2. NWFP
3. Old Teak Plantation	3. Wildlife
4. Rootstock Management & Afforestation	
5. Protection and Catchment Area Management	
7. Grass and Fodder Resource Management	

9. Selection and Improvement working circle

- i. The areas allotted to this working circle are
- Good quality forests containing mature crop. All site quality III and major portion of quality IV.
 - Those previously under SCI, shelterwood and CWR.
 - Compartments having B.A. more than 10.
- ii. Silvicultural system is the felling of trees that have attained harvestable girth.

A. Species	Site Quality	Harvestable girth
Teak	II	135
	III	120
	IV	105
Group 2	Ain, Bija, Haldu, Karam	135
Group 3	Tiwas, Dhawra, Sivan etc.	105
Group 4	Garari, Lendia, Khair	60

B. No fellings of those species which are less than 1% in their stocking. e.g.
Kulu, Shisham, Semal.

iii. Number of felling series are 24 and average size of the coupe is 115 ha.

iv. Average Regeneration status is as follows:

Per ha seedlings of size	Number
0.3m – 1m	154
1m- 3m	222.91
> 3m	103.91
Total	481.7

v. General treatment type –

- A – Protection areas,
- B – Understocked areas,
- C – Pole crop,
- D – Well stock areas,
- E – Blank area,

have been proposed and D type areas are prescribed to be further classified as D-1 and D-2 in identified felling series. D-1 areas will be the patches (20 ha at one place) of deep, well drained soil capable of supporting good teak growth and hence are fit for creating gaps in the canopy for plantation of teak. The system proposed is 'Conversion to Uniform with Supplemental Artificial Regeneration of Genetically Superior Stock'.

10. Improvement working circle

- i. Forests are of generally good quality and fit in the criteria of SCI but they contain young crop.
Average basal area is 7.
- ii. Improvement fellings (hygienic operations) to provide adequate growing space to valuable species. Dense patches are proposed to be worked on the basis of selection criteria.
- iii. Number of felling series are 14 and average size of the coupe is 100 ha.
- iv. Regeneration status in terms of per ha seedlings/saplings is as follows:

Per ha seedlings of size	Number
0.3m – 1m	133.61
1m- 3m	225.66
> 3m	94.34
Total	453.61

v. General treatment type –

- A – Protection areas,
- B – Understocked areas,
- C – Pole crop,
- D – Well stock areas,
- E – Blank area,

have been proposed and D type areas are prescribed to be further classified as D-1 and D-2 in identified felling series. D-1 areas will be the patches (20 ha at one place) of deep, well drained soil capable of supporting good teak growth and hence are fit for creating gaps in the canopy for plantation of teak. The system proposed is 'Conversion to Uniform with Supplemental Artificial Regeneration of Genetically Superior Stock'.

11. Old Teak Plantation working circle

- i. 159 old plantations of teak with an area of 4934.24 ha in 8 ranges have been listed.
- ii. Treatment prescribed is-
 - A. 10th year mechanical thinning in which one of the three diagonally located poles shall be removed. (in plantations raised in 1993 and afterwards)
 - B. Silvicultural thinnings in 15th, 25th, 35th, 45th year etc.
- iii. As plantations (prior to 1993) have not been thinned in the past, first thinning will be of B grade only.
- iv. For the silvicultural thinning, the criteria will be to compare the actual basal area and stocking of the plantation with that given in the yield and stand table.
- v. Actual mapping of all plantations during the currency of this plan with the help of GPS has been proposed.

12. Rootstock Management and Afforestation working circle

- i. 13465.29 ha of understocked areas are prescribed under afforestation programme and they are proposed to be covered in 20 years. Rootstock management will be given priority over plantations.
- ii. Average basal area of the forests under this working circle is 4 or less.
- iii. 9 felling series with an average coupe size of 75 ha have been formed.

- iv. Ecological index for Nagpur division indicates planting of 900 seedlings per ha.
- v. Choice of species will be for the locally valuable ones and those which are fit for the particular soil type.
- vi. Rootstock Management
 - Well distributed 400 established seedlings/saplings per ha will be identified.
 - Healthy and promising coppice shoots (one per stump) will also be s\retained.
 - Mulching, weeding and soil working of the above seedlings and coppice shoots is proposed.
- vii. Two stage planting technique – poorer areas consisting of refractory soils have been proposed. It is –

A. Restorative Phase from 1st to 4th year

Year 1 : SMC and Protection measures.

Year 2 : Seed sowing and planting average, Khus

B. Planting place

Year 4 : PPO/Pyo

Year 5 : Planting

The 2nd and 6th year cleaning are prescribed to be undertaken in the 5th and 11th year of coupe working.

13. Protection and Catchment Area Management Working Circle

- i. Compartment with more than half of their area as steep slopes and streams. Compartments forming catchments of medium and major dams.
- ii. Generally good quality forests with average basal area 11.84.
- iii. Regeneration status

Per ha seedlings of size	Number
0.3m – 1m	214.66
1m- 3m	278.38
> 3m	156.22
Total	644.62

- iv. The areas not in the steep slopes, that is, those forming catchments are proposed to be worked on conservative harvesting basis, which is removal of 2 trees of harvestable size per ha.

However, this harvesting will be done in indirect catchment only so as not to lead to increase in soil erosion. Therefore, coupes are laid only in indirect catchment.

- v. Catchment areas are proposed to be given special attention for soil and moisture conservation work and under plantation programme.

Plantation of species suitable for soil and water conservation has been prescribed.

- vi. Water body may be included under eco-tourism programme as well.

14. Grass and Fodder Resource Management working circle

- i. Working circle includes 12 treatment series of Grass birs with an area of 10210.73 ha which are to be permanently closed. (37 Grass birs)
16 pasture series with an average coupe size of 480 ha and total area of 30131.5.
- ii. Average basal area is 3.6.
- iii. Rotational grazing in a 4 years cycle has been proposed in pasture series.
- iv. Grass improvement works in grass birs by way of removal of woody growth and weeds as well as seed sowing of improved grasses has been proposed.
- v. The tree crop is proposed to be worked under coppice selection system, in which 1 out of 3 stems available silviculturally (those above 45 cm. GBH, 30 cm in case of Garari) and malformed and over-mature trees shall be removed and in which regeneration in mostly of coppice origin.

The material removed as above is intended to meet the local requirements of firewood and small timber.

15. Bamboo (overlapping)

Previous plans show bamboo in 80 compartments but major bamboo area having gone to wildlife (Pench tiger reserve) & FDCM, bamboo working is not very significant now in Nagpur division. It occurs occasionally scattered in 10527.25 ha in 39 compartments of three ranges viz Deolapar, Ramtek and Parseoni and in some of old bamboo plantations throughout the division. Hence, such areas are kept under this working circle.

16 cutting series, each having 3 coupes – A, B and C.

16. NWFP

- Official NWFP collection figures which are mostly for gum (Dhawada) are not very encouraging.
- Kullu gum collection (illegal) needs to be strictly controlled and stopped completely.
- NWFP species like Dhawada (even if their % is high) need reservation against felling.
- Identification of non-traditional NWFP species needs attention.
- Regeneration NWFP trees through their inclusion in plantation programme and manipulating NR (root suckers).

- There is a need to improve tapping technique for gum. FRI method of gum tapping has been proposed and only 50% of mature trees are prescribed to be tapped.
- Proposed to link it with JFM programme to increase stocking of NWFP trees, methods of collection as well as exploration of non-traditional NWFPs.
- NWFPs other than tendu, and those reserved for TDC, need to be identified and a mechanism to control their production and disposal need to be developed.

Creation of database in this regard has been proposed.

17. Wildlife (overlapping)

- i. Wildlife is in effect synonymous with bio-diversity conservation. Wildlife (Protection) Act 1972 provide elaborate provisions for wildlife conservation outside the PAs also that is in managed forests.
- ii. Forests of Nagpur division occupy an important place in wildlife management on following counts.
 - Organizing special and effective anti-poaching measures in Central India.
 - Providing corridor to PTR as well as Bor WLS.
 - Developing eco-tourism in Vidarbha area.
- iii. Implementation of standing order 001 from PCCF (WL) in letter and spirit is suggested, which mandates.
 - preparing inventory of water holes and special vigilance there
 - Sensitizing and strengthening anti-poaching machinery
 - timely and effective dealing of compensation cases of injury due to wildlife.
- iv. Identification of ecologically sensitive sites which are important from wildlife management point of view.
- v. Development of eco-tourism in 45 sites and 20 circuits identified.
- vi. Development of following facilities at Gorewada.
 - Zoo
 - Nature Interpretation Center
 - Forest Park
- vii. Special conservation of alternative home of GIB in Nagpur-Mauda-Umred-Butibori-Nagpur as designated PPA-Pilot Project Area, with the NGO intervention.

18. Miscellaneous regulations

1. Fixation of outer boundaries
 - Priority areas
 - Erstwhile Forest villages,
 - Zudapi jungle and non-forest land made available as compensatory land,

- Protected forests.
2. Management of miscellaneous area (Zudapi jungle and Non-forest land). Besides the demarcation and fixation of boundaries of these lands, attempts will be made to collect scientific information during the currency of this plan so that regular management of these lands is started as early as possible. For the areas of Ambazari and Gorewada, prescriptions have however been given under P&CAM&CAM as well as wildlife overlapping working circle.
 3. The RF and PF have been digitized fully and the geo-media cell in the officer of the Conservator of Forests, Working Plans Circle, Nagpur is now the custodian of this information. PF has been digitized using village maps. Hence, these maps should be very handy for management as well as for fixing the boundary. However, some validation prior to routine use of these maps is recommended.
 4. JFM arrangements are recommended to be given due place of prominence while deciding the agency of harvesting / working. GFRM, RSM&A and NWFP working circles are specially recommended for this purpose. Areas under other working circles, and activities prescribed therein, may be assigned to JFMCs on case to case basis. However, due to the high skill and periodical monitoring, working in old teak plantations has been prescribed to be through departmental agency only.

It is recommended that different categories of forests (areas under different working circles) may be assigned to a JFMC; the needs of the village/s identified and quantified on the basis of nistar partak and wazib-ul-arz; and such needs/dependences are met from the forests assigned. These aspects will be covered in the micro-plan developed and formulated for each village.

19. Reorganization constituting two divisions - North and South Nagpur, which is long overdue, has been reiterated in this plan also. The division in its present form is unwieldy and hence is recommended to be split into two during this plan period.
