A BACKGROUND

A.1 MOU:

The CCF(Territorial) Nagpur engaged Amravati Forest Circle branch of SEVAK for carrying out evaluation work of FDA, Nagpur. SEVAK accepted the offer in the preliminary meeting held on 09-06-2017 in the office of CCF, Nagpur. The period of evaluation, methodology of evaluation and cost etc. was discussed. Thereafter, MOU was drawn between the FDA Nagpur and SEVAK for completing evaluation work for the activities carried out in 2011-12 to 2016-17.

.1.1 Evaluation Team: (ET)

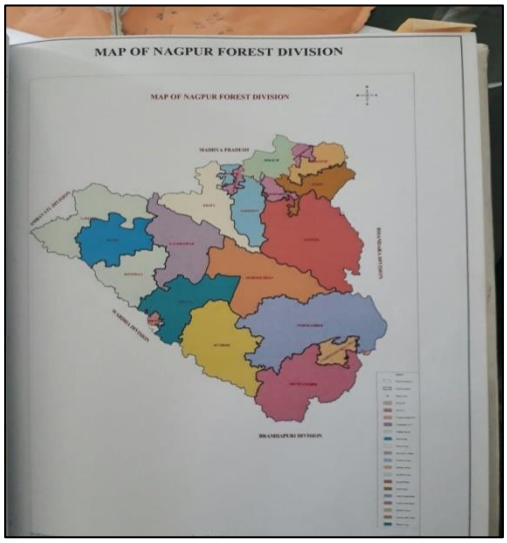
Composition of the evaluation team is given separately in Annexure I. A meeting with the implementing officials of Nagpur FDA was arranged in the office of Dy. CF, Nagpur for finalizing the sites of Evaluation, dates of evaluation and relevant information required from FDA etc. on 17-06-2017. The ET explained objectives, parameters, sampling method to the officials present in the meeting.

A.2. General Information of Nagpur Forest Division:

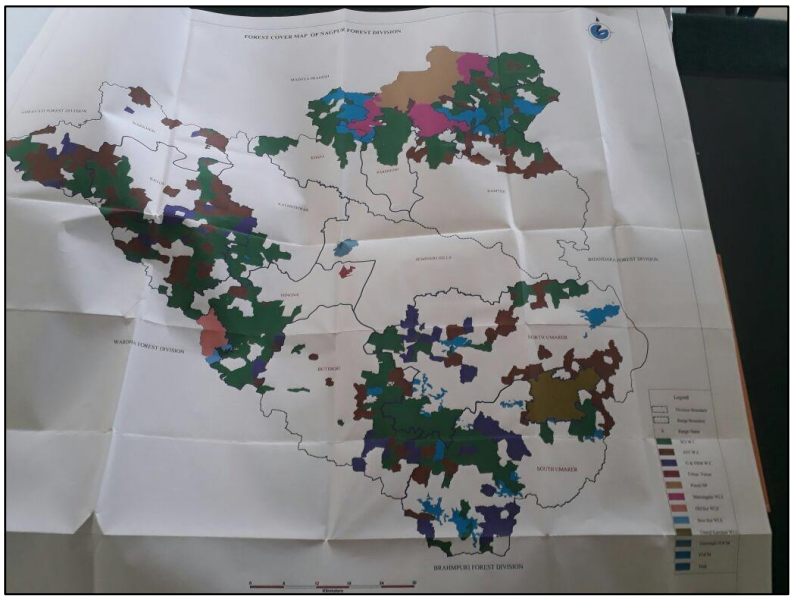
A.2.1 Location:

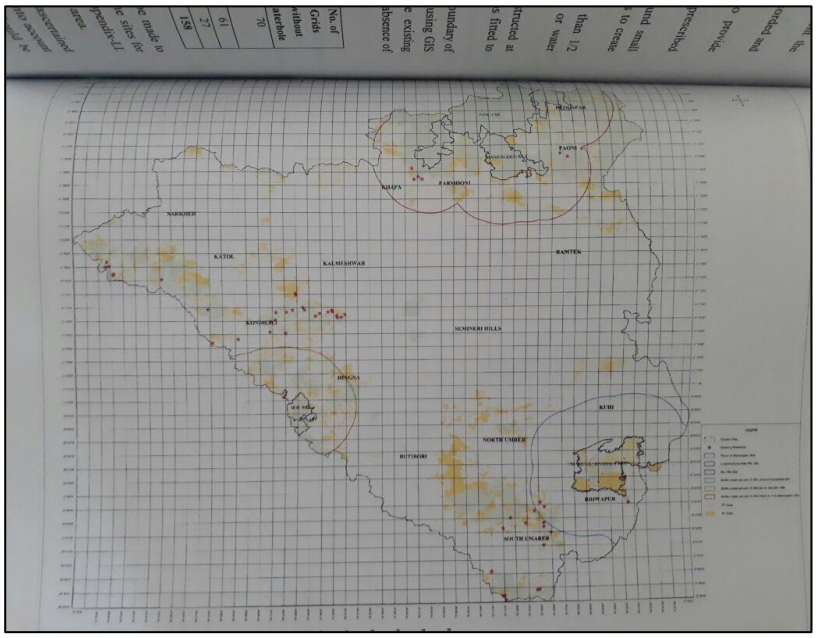
Nagpur Forest Division is confined to *Nagpur* District of *Maharashtra* State and administratively it is under *Nagpur* Forest Circle. Geographical coordinates are latitude 20°35' to 21°44'North and Longitude 78° 15' to 79° 40'East.

Map of Nagpur Division:



Nagpur Forest Track (Map)





A.2.2 Boundaries:

N – Chindwara and Seoni District of Madhya Pradesh
E – Bhandara District of Maharashtra
S – Chandrapur and Wardha Districts of Maharashtra
W – Amravati and Wardha Districts of Maharashtra

A.2.3 Area:

A.2.3.1 Forest Area:

The Forest area of *NAGPUR* Forest Division is1460.760 sq. km.

1)Reserved forest :685.668 Sq. Km.

2)Protected Forest:632.729 Sq. Km.

3)Zudpi Forest :141.311 Sq. Km.

4)Unclassed Forest:000.219 Sq. Km.

5)Area of FCA :000.833 Sq.km.

6) Total :1460.760 Sq. Km.

This area is managed by FDA.

Apart from this, Forest area managed by FDCM is 311.470Sq. Km.

And by Wild Life wing is 626.010 Sq. Km.

Nagpur is also known for its strategic location as the central point of the country viz. the city of Zero Mile.

The boundary of the Nagpur Forest Division is co-terminus with the boundaries of the Nagpur District.

A.2.4 Configuration of the ground:

A.2.4.1 Plateau:

The forests are widely spread and mainly situated on hilly slopes surrounded by cultivated plains. Most of the forest areas in the Division are plain and undulating, whereas West and North-East portions are hilly. Altitude in the Division varies from 274 meters to 652 meters above mean sea level. The highest point falls in the Narkhed Range along the boundary with Madhya Pradesh. Major hill ranges of the Division are the Satpura Range, the Ambhagarh Hills and the Pilkapar Hills.

The area of the Division is well drained and falls in the catchment of the Wardha and the Wainganga rivers. Jam,Kar and Vina rivers drain the western part before draining into the Wardha River.

A.2.5 Geology, rock and soil:

A.2.5.1 Geology:

Ancient crystalline rock mainly consisting of gneiss and granulate occupy North East portion and 25Km wide East West stretch in North

central part of the Division. The Deccan trap volcanic floe lies in western and southern parts of the Division. In addition, many sedimentary rock formations including some coal bearing beds are also found.

A.2.5.2 Rocks:

The Deccan Trap occupies almost half of the Division and gives rise to characteristic plateau-type hills separated by broad valleys in West and Southwest. Narrow and disconnected stretch of exposed fossil- ferrous, sandy and gritty lime stones constituting the well-known Lameta beds are found at about 40 km south-east of Nagpur and 10 km north west of Umrer. These are succeeded by Deccan trap volcanic flows. Towns of Kamptee and Umrer have coal bearing sandy-clayey rocks. Many important coal-fields of the central India are from these beds.
Nagpur District is well known for its mineral deposits. In addition to coal, clay and building stones, major minerals in the district include manganese, copper and tungsten ores.

A.2.5.3 Soil:

The soil types in the Division are strongly influenced by the dominant under lying rock types-the ancient metamorphic rocks and the Deccan Trap. The metamorphic rocks are found in Ramtek, Deolapar, Parseoni, Khapa, Kuhi and North East of North Umred Ranges. The soil is mostly sandy loam, which is eminently suited for tree growth. The Deccan Trap is found in Narkhed, Kondhali, Hingna and South Umred Ranges.

The soils derived from the trap differ based on compactness of the source rock. Two types of Trap rocks are distinguished as compact, hard and homogenous type. Such rocks weather very slowly and process of soil formation is extremely slow. These soils can support poor quality tree growth. Other rocks are softer basalt exfoliating in concentric flakes. It decomposes rapidly yielding fine yellowish brown loamy soil capable of supporting valuable tree crop. Finer soil grains and decomposed organic matter are gradually washed away and deposited in the lower sheltered regions forming `Regur' patches or black cotton soil. Although this soil is chemically rich, it is not always suited to raise plantation unless the drainage is good

Sand and silt are the products of physical weathering and clay is the product of chemical weathering and it is clay which determines the quality of soil like high water holding capacity, acidity etc. The inter trappe and formation disintegrates into fertile loam capable of supporting good forest growth. Micaceous schists of Sakoli series

produce rich loam that supports valuable mixed forests of the Division. Laterite, after weathering, it retains much moisture in the wet seasons and dries quickly in dry period. Hence, it is generally poorly suited for Teak growth.

A.2.6 Climate:

A.2.6.1 Temperature:

The climate of *Nagpur* district in general is dry and hot, with distinct three seasons: summer, rainy season and winter. The summer starts from mid-February and continues till onset of monsoon in the middle of June. April and May are very hot and day temperature may soar up to 45°c. Rains start in the middle of June and continue up to end of September. Few showers are common in October and November. The winter starts from end of November and lasts till mid-February. Diurnal temperature range is maximum during March and minimum during August. Very hot summer adversely affects vegetation growth more so because of highly radiating exposed quartzite and basalt in the tract.

A.2.6.2 Rainfall and Humidity

The average annual rainfall in the Division is about 1100 mm. The bulk of the rainfall is received from the South-West monsoons, which usually break in the latter half of the June, and usually ends in the latter half of the September. Rainfall is usually higher on the ridges of Satpuda in Deolapar, Ramtek and Parsheoni Ranges and gradually decreases towards the West. The number of rainy days vary from 59 to 82 per annum. Winter rains are negligible. The relative humidity is the highest in the month of August, generally decreases till the month of April. Thereafter it, begins to increase again with the onset of the summer monsoon.

A.2.7 Frost, Drought and Wind

Although rare, the frost occurs occasionally in Khapa, Parseoni, Deolapar and Ramtek Ranges, along the Pench River and other low lying areas. Occurrence of frost causes injuries to the young forest crop especially that of Teak, Lendia and Garari. The damage is less as the tropical species have an adaptation to pass into dormant phase during winter.

Mature and established crop are seldom affected by the drought. However, natural regeneration and the young crops are affected due to

lack of soil moisture, i.e. physiological dryness and increased probability of occurrence of forest fires.

The winds are generally moderate but occasional storms occur in the pre-monsoon period.

A.2.7.1 Rivers:

The area of Division is well drained and falls in the catchment of the Wardha and the Wainganga rivers. Jam, Kar and Vina rivers drain the western part before draining into the Wardha river. Southern part of UmrerTahsil is drained by Nand river, which meets Vena and ultimately drains into the Wardha River. Pench and Kanhan drain the central part and Koiler joins them at Kamptee. There after Kanhan flows at boundary of Kamptee Tahsil and drains into the Wainganga River. Nag and Amb drain Umrer Tahsil. Nag joins Kanhan, while Amb drains directly into the Wainganga River. Bhivapur Tahsil is drained by Mau, which flows along the North and Eastern boundary of the Division and discharges into the Wainganga River. Sur after flowing along Ramtek Tahsil also drains into the Wainganga River.

A.2.8 Distribution of Forest Area:

A.2.8.1 Land Distribution:

Forest land distribution given in paragraph A.2.3.1may be seen.

The *Nagpur* Forest Division consists of 14territorial Ranges, namely.

1) Narkhed
2) Katol
3) Kondhali
4) Hingna
5) Butibori
6) Seminarry Hills
7) Kalmeshwar
8) Khapa
9) Paoni
10) Deolapar
11) Parseoni
12) Ramtek
13) North Umred
14) South Umred

A.2.9 Forests:

A.2.9.1 Southern Tropical Dry Deciduous Forests:

Most of the important forests fall under the "Southern Tropical Dry Deciduous Forests" of Champion and Seth's classification. For management purpose the following local types can be distinguished: -

1. Dry Teak Forests- 5A/Ci
2. Very Dry Teak forests-5A/C i a
3. Dry Teak Forests- 5A/Ci b
4. Southern Dry Mixed Deciduous Forests- 5A/C3
5. Bosewellia Forests- 5/E2
6. Hardwikia Forests- 5/E4
7. Butea Forests -5/E5
8. Dry Deciduous Scrub Forests-5/DS1
9. Dry Savannah Forests-5/DS2
10. Dry tropical Riverian Forests-5/I -SI

A.2.9.1.1 Dry "Teak" bearing forests:

Three distinct types of Teak Forests can be recognized:

1.Good quality teak forest in the Metamorphic zone

2.Good quality teak forest in the Trap zone

3.Poor quality teak forest in the Trap zone

A.2.9.1.2 Good quality Teak Forest in the Metamorphic zone

These forests are found in Parseoni, Paoni, Ramtek and Deolapar Ranges where the soil is sandy loam, deep and well drained. It forms about 20-60%of the stocking and the site quality of the crop varies from IV a to II.

A.2.9.1.3 Good quality Teak Forest in the Trap zone

These type of forests is mainly found in the southern part of South Umred Range. Teak is predominant, forming about 40 to 82% of the stocking and the site quality of the crop varies from IV a to IV b

A.2.9.1.4 Poor quality Teak Forest in the Trap zone

These type of forests is mainly found in Kondhali, Hingna and part of Umrer Range Teak is predominant, forming about 50 to 70% of the stocking and the site quality of the crop is IV b

A.2.9.1.5 Mixed forest with scattered Teak in the Metamorphic zone

The forests are composed of mainly miscellaneous species and teak occurs scattered. These type of forests is mainly found in Khapa, Parseoni, Deolapar and Ramtek Ranges.

A.2.9.1.5 Mixed forest in the Trap zone

These forests are mainly confined to poorly drained clayey soil. The over-wood consists of ain, lendia, dhavda, tendu, moha, mowai, rohan, bhirra, salai and bel etc. The site quality of the crop is IV b.

A.2.9.1.6 Dry Deciduous Scrub Forests-5/DS1

It consists of low broken soil cover of shrubby growth 3m. to 6m. high including some tree species. The grass occurs throughout these forests.

A.2.10 Natural Regeneration:

A.2.10.1 Status of Natural Regeneration:

Overall Status of Natural Regeneration in Nagpur Forest Division is as under. In the Metamorphic Zone coppice regeneration of Teak*, Lendia, Garari, Bhirra, Aola, Dhaman, Khair, Palas, Ghot and Barranga,* etc. is satisfactory while that of Ain, Dhavda, Tendu and Tinsa is not adequate. The seedling regeneration of teak in the better-quality areas of metamorphic zone, occurs in patches while in the trap zone it is quite inadequate. Teak regeneration is found satisfactory in good quality areas of metamorphic zone.

Seedling regeneration of Lendia, Ain, Bhirra and Gongal is satisfactory in the metamorphic zone. In trap zone seedling regeneration of teak and other species is absent and the coppice regeneration is also inadequate to restock the area.

A.2.11 Injuries to forest crop:

A.2.11.1 Injuries by human beings:

Human being causes maximum damage to the forests. Most common ones are discussed as below: -

A.2.11.1.1 Illicit cutting:

Illicit cutting of trees for fuel and timber is the main source of injury to the crop. The record shows illicit cutting of Teak and other miscellaneous species for timber, firewood and poles is observed in forests particularly in areas adjoining the inhabited pockets of the Division. The demand for firewood has also increased due to population growth.

A.2.11.1.2 Cutting and lopping of Tendu trees:

Cutting and lopping of *Tendu* trees is another serious problem that exists in this Division.

A.2.11.1.3 **Illicit felling of Bamboo**

Illicit felling of bamboo has also increased due to increase in population of Burad. Thus, bamboo clumps, have become malformed and deteriorated leading to poor culms growth and slow clump formation.

A.2.11.1.4 Encroachments:

The hunger for land is a main cause of forest encroachments. Regularization of encroachments in the forest areas in the past has served as a motivation for encroachments upon forest areas in anticipation of regularization in future.

Boundaries of the Protected Forests have not been well demarcated; the problem of encroachments has become a problematic issue for the Department. Thus prevention, detection and eviction of encroachment in the forest in time cannot be ensured.

A.2.11.1.4 Forest Fires:

Occurrence of annual fires is frequent in this Division due to deciduous nature of forests. Considerable damage is caused due to scorching heat which kills the sapling, seedling, ground flora and micro -fauna. The areas which have less grazing, leaving behind grasses and other combustible material, are more vulnerable to forest fires.

A.2.11.1.5 Grazing:

Due to increase in cattle population the pressure on the forest has increased to an alarming proportion. In the drier type of the forests, continuous and unlimited grazing is ultimately fatal to the vegetation. On clayey soils trampling by cattle renders soil hard and reduces soil aeration, thus making conditions unfavorable for germination of seeds and survival of seedling of tree species.

A.2.11.1.6 Damage by wild animals

The damage is caused by wild boar to bamboo plantation while the Chital and Nilgai cause damage by nibbling the young seedlings.

A.2.11.2 Injuries by non-human beings:

Besides this, some negligible damages are also caused by other agencies. They are as follows: -

A.2.11.2.2 Damage by Insects:

Teak skeletonizers and defoliators, namely *Hapalia machaeralis* and *Hybleapurea* are common in the forests and growth of *Teak* is retarded to some extent in the years of severe attack.

A.2.11.2.3 Damage by Fungus:

Fungal attack is common. Polyporous gilvus attacks the sap wood of D.sisoo, D. latifolia, A.arabica, A.catchue, Pterocarpus marsupium and Albezzia lebbeck. *Ganoderma lucidum attacks D.sisoo, Azadiracta indica and Acrocarpus fraxinifolus.*

A.2.11.2.4 Damage by Drought, Storms and Winds:

Scanty or irregular rains cause drought like conditions which damage seedlings, saplings and young trees. The winds are generally moderate. Occasional storms in the pre-monsoon period are also experienced which sometimes results in uprooting of isolated trees. Hailstorms in the month of May cause damage to Tendu leaves which make them unfit for bidi making.

A.2.12 Utilization of Forest Produce:

A.2.12.1 Agricultural customs and wants of people:

A.2.12.1.1 Population and area:

The area and population of Nagpur district as per latest (2011 census) figures available are as follows: -

Sr. No	Taluka	Area in Sq.KM.	Population Male	Population Female	Population Total
1	Narkhed	711.92	75,970	72,010	1,47,980
2	Katol	909.02	84,093	79,748	1,63,841
3	Kalmeshwar	503.73	62,948	59,507	1,22,455
4	Savner	655.14	1,18,867	1,10,746	2,29,613
5	Parsheoni	935.41	83,685	69,535	1,53,220
6	Ramtek	1141.56	80,473	77,438	1,57,911
7	Mauda	608.22	72,449	67,567	1,40,016
8	Kamptee	392.19	1,23,636	1,13,718	2,37,354
9	Nagpur rural	645.6	1,57,377	1,45,286	3,02,663
10	Nagpur City	217.17	12,22,610	1,78,811	24,05,421
11	Hingna	782.094	12,8795	1,13,839	2,42,634

The density of population of the district is 470 persons per Sq. Km, which is more than the State average (365persons/Sq. Km) as well the national average. (325 persons/Sq. km) The rural population mainly consists of agriculturist and agriculture labourers such as Mahars, Gonds, Kunbis and Tellis.

A.2.12.1.2 Agricultural Crops:

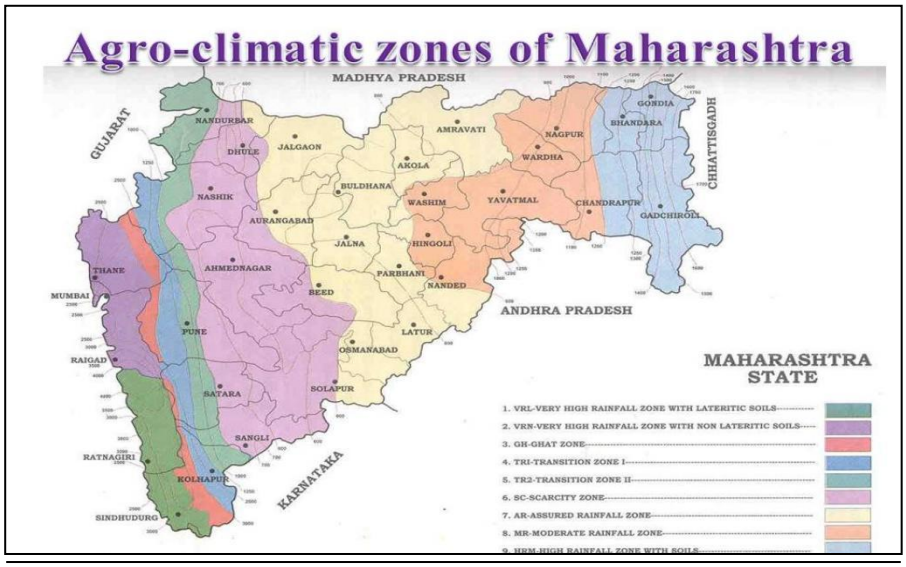
The Most important field crops are Rice and Cotton. Also, Wheat, Jowar, Tur, Ground nut, Gram and Linseed, Til, Chillies and Oranges are also grown.

A.2.12.1.3 Demand of Forest Produce:

The village population depends upon the forest produce for timber (for house building and agricultural implements), fuel, grasses, and grazing. The demand is heavy in Ramtek, Saoner,Narkhed, Kondhali, Katol and Umred talukas.

A.2.13 Agro-Climatic Zones of Maharashtra:

There are 9 Agro-climatic zones in Maharashtra State. The area of Nagpur FDA fall in zone 7 i.e. Assured(moderate) Rainfall Zone.



A.2.14 Markets and Marketable Products:

The marketable forest produce is timber, bamboo, fuel wood, grass and NTFPs. Bidi making is an important small scale industry in the District. Kamptee and Nagpur are the main centers. There are 522 saw mills in the Nagpur District which depend upon the forest areas for regular supply of Timber. Furniture, Veneer and Ply board industries are other forest based enterprises. Nagpur forests are rich in mineral deposits. Manganese, coal and dolomite are prominent.

A.2.14.1 Timber:

The demand for teak timber is keen and it is saleable in all sizes. Other species which are in demand for timber are *Saja, Tiwas, Dhawda, Babul, Bija, Tendu, Kalam, Shisham, Siwan* and *Dhaman.* The size of miscellaneous species mostly in demand and saleable throughout the Division are poles from 30-60 cm. girth over bark but teak of any size can be readily sold.

A.2.14.2 Fuel wood:

Fuel wood is in great demand in almost all important towns in the Division. *Garrari, Dhavda, Salai, Mowai,* and *Saja* are preferred fuel to most other species. Wood from all tree species is saleable as fuel.

A.2.14.3 Grass:

There is heavy demand for grass and grazing. Fodder grass for stall feeding the cattle and thatching grass for cattle sheds, huts and houses of the villages.

A.2.14.4 Other NTFPs:

Tendu leaves, Char fruits, Mahua flowers and fruits, Gum, Honey and Sitaphal are other Non-Timber Forest Produce which are obtained in small quantities.

A.2.15 Selection of Villages for Field Investigation:

The ET collected information of treated areas and plantation activities done during the period 2011-12 to 2016-17 from the office of the Dy. Conservator of Forests Nagpur. (Refer Annexure III)The plantation activities carried out during the period is as under –

SR.NO	Programme and Model	Area Ha
1	CAMP A-Bamboo(625/h)	210.00
2	NMPB- Medicinal plants(1100/h)	233.18
3	NAP-A.R,(1100/h),Modified SPD	105.00
4	J.F.M. (OTSP)A.R.(2500/h)	10.00
5	J.F.M.(District)A.R.(1100/h)	155.00
6	JFM(State)A.R.(1100/h)	25.00
TOTAL		**738.18**

Plantation programme is implemented in 36 villages by JFMCs

ET selected villages by random sampling method, covering 12 Ranges, 5 Treatment models and 5 planting years for investigation. 13 plantation sites were selected in 13 villages which is approximately 33.73 % of the treated area, i.e.249 Ha.

Sr. No.	Tahsil	Range	Village	Area Treated in ha, Programme & Model	
1	Ramtek	Deolapar	Lodha	20	NMPB(1100/h)
2	Kalmeshwar	Kalmeshwar	Waroda	9	NMPB(1100/h)
3	Ramtek	Pauni	Bhondewada	25	NMPB(1100/h)
4	Nagpur	Butibori	Dhudha	20	NMPB(1100/h)
5	Umred	Umred North	Bhivgad	10	NAP(modified SPD)
6	Parsheoni	Parsheoni	Tekadi	25	NAP-AR
7	Katol	Kondhali	Ahmednagar	10	NAP(modified SPD)
8	Savner	Khapa	Raiwadi	25	NAP(bamboo)
9	Bhivapur	Umred South	Chorvihira	30	CAMPA(bamboo)
10	Katol	Katol	MohogaonBanjadi	30	CAMPA(bamboo)
11	Narkhed	Narkhed	Rampuri	25	JFM(State-AR)
12	Ramtek	Ramtek	Patgowari (OTSP)	10	JFM(OTSP)-2500/h
13	Ramtek	Ramtek	Panchala.Kh.	10	JFM-AR
TOTAL				**249**	

The ET randomly selected area equivalent to 3% of the sampled plantation area for recording plant survival, status of health and average height etc. Also, inspected remaining treated area of the plantation to asses' impact of treatment. Discussed with members JFMCs/FPCs and other villagers to assess' people's participation, EPA, choice of species etc. Role of villagers in micro planning, training, capacity building was also assessed. Plantation journals, cash books, measurement books were scrutinized. Micro Plans were also verified. Discussions were held with the frontline staff to ascertain their difficulties. After considering all these aspects, ET has prepared the evaluation report.

A.3 Programmes Implemented by Nagpur FDA:

A.3.1 Programme details:

The FDA Nagpur implemented four programmes, namely

1)National Afforestation Programme (NAP) 105.00 ha

2) National Medicinal Plant Board (NMPB) 233.18 ha

3)Compensatory Afforestation Management Agency Programme (CAMPA) 210.00 ha

4) Joint Forest Management Programme 190.00 ha

The various components sanctioned in these programmmes are as under.

NAP:

1) Constitution of JFMC
2) Micro-planning (2% of plantation cost)
3) Awareness generation (1% of plantation cost)
4) Planting (as per model)
5) Fencing (5% of plantation cost)
6) Soil and moisture conservation (15% of plantation cost)
7) Entry Point Activity (Rs.4000 per ha.)
8) Training and capacity building (Rs.10 lakh per FDA)
9) Value Addition & Marketing of Forest produce (Rs.20 Lakh per FDA)
10) Monitoring and Evaluation (2% of Plantation cost)
11) Overheads (10% of Plantation cost)
12) Treatment of problem lands (25% of plantation cost)
13) Use of Improved Technology (25% of plantation cost)

NMPB (planting 50 medicinal plants/h & in situ conservation)

1) Advance works
2) Creation (50 medicinal plants /h)
3) Maintenance
4) Survey & Demarcation
5) Training of Forest staff
6) Intensive Survey of RET plant species
7) Inventory of Associates
8) Name & Board display
9) Soil Analysis
10) Partial fencing and gates
11) Research & Documentation.
12) Communication Net-working & Publicity

CAMPA (only bamboo plants@625/h planted)

1) Advance Works
2) Creation Works

3) Maintenance Works

4) All benefits available to JFMC as per GoM Circulars/Resolutions, namely Bio-gas, LPG, Providing hybrid mulch cows, Eco-tourism etc.

JFM (AR 2500/hon one site and 1100plants/h on remaining sites)

1) Advance Works

2) Creation Works

3) Maintenance Works

4) All benefits available to JFMC as per GoM Circulars/Resolutions, namely Bio-gas, LPG, Providing hybrid mulch cows, Eco-tourism etc.

A.3.2 Implementing Agency:

1) Agency - FDA, Nagpur
2) District - Nagpur
3) Forest Circle - Nagpur (Territorial)
4) State - Maharashtra

A.3.3 Programme Location:

The Nagpur FDA, implemented the plantation programme on 738.18 ha. forest area in 36 villages during 2011-12 to 2016-17.

B. QUANTITATIVE ANALYSIS

B1 Classification of Area covered / treated (Creation Year)

The classification of the forest area (in ha) treated from 2011-12 to 2016-17

Schemes	2011-12	2012-13	2013-14	2014-15	2015-16	Total
NAP	0	0	0	105	0	105.00
NMPB	0	163.18	70	0	0	233.18
CAMPA	210	0	0	0	0	210.00
JFM	0 - 0	0	0	0	190	190.00

B2 Physical and Financial Achievements:

The activities of FDA, Nagpur started in 2003.The present evaluation is for the activities done in2011-12 to 2016-17

Sr. No	Programme	Physical target ha.	Financial target Rs in Lakh*	Grants utilized Rs in Lakh*
1	NAP	105.00		
2	NMPB	233.18		
3	CAMPA	210.00		
4	JFM	190.00		
	Total	**738.33**		

*Figures to be incorporated by FDA Nagpur

B2.1 Financial target for Non -plantation activities

i) Supply of LPG connection Rs.-*-------
ii) Supply of Gobar gas plant Rs. *------
iii) Providing Milch cattles Rs.-*-----
iv) Collection of Moha flowers Rs.-*----
v) Fire protection works Rs.--*---
vi) Eco-tourism works Rs.--*--
vii) Other activities Rs.--*-
Total Rs.--*

Grants released * Rs in Lakh
Grants utilized * Rs in Lakh

People's Participation:

B.3.1 PRA / Micro-planning:

Only 5 Micro plans have been prepared out of 13 villages which were evaluated. Participation of the local people in preparation of micro plan for JFMC village is generally poor. In two villages 0 to 20%, in two villages 20 to 40% and in one village 40 to 60% participation was observed. PRA method was followed while preparing the micro-plans. Land use pattern, map of the area, demographic detail such as socio-economic profile, status of natural resources available, demand and supply of biomass etc. are some of the items included in the micro plans.

Inter action with villagers

B.3.2 EPA/Extension, Awareness, Trainings etc.:

This component is sanctioned for the villages treated for NAP. Out of the 6 villages treated under NAP 4 villages were evaluated. Overall impact of EPA implemented in 7 JFMCs is not encouraging. Out of 13 village, Entry point activity is undertaken in 7 villages, namely Mohgaon Banjadi, Chorvihira, Tekadi, Lodha, Bhondewada, Waroda, and Bhivgad. Income generation from Entry point activity in above 7 villages is negligible. It is also noticed that awareness training is not satisfactory in these 13 villages. In village Mohogaon banjadi training

was organized for preparing articles out of lac. The details of EPA is enclosed in Annexure-IV

1. Entry point activity has created community assets, such as- Pandol/ Mandap, Utensil set, bicycles, lanterns, torches, radio sets etc.

Mixed plantation Ramtek Range

Mixed plantation Ramtek Range

B.3.3. JFM:

The work in the JFM villages selected for treatment has been executed by the respective beneficiaries of the VFCs. Work groups have been formed in each village for carrying out various afforestation works, SMC works and creation of community assets.

i) It is noticed that SMC works have not been undertaken in 10 evaluated villages except in Lodha, Bhondewada and Raiwadi.

ii) In the three villages SMC works of Rs. 3.95 lakh were undertaken

iii) Usufruct sharing has not started

iv) In general, people's participation in protection of forest and implementation of programme is not encouraging.

v) Awareness training for beneficiaries and staff is essential.

The forest areas of the evaluated 13 villages is as under.

Sr no	Name of village	R.F.ha	P.F.ha	other F.ha	Total ha
1	Ahmadnagar	243.89	80.17	0	324.06
2	Dudha	0	0	81.15	81.15
3	Panchla kh.	0	483.42	0	483.42
4	Patgowari	0	400.10	0	400.10
5	Tekadi	515.98	70.42	6.42	592.82
6	Rampuri	289.33	26.09	0	315.42
7	Mohogon Banjadi	293.21	332.97	0	626.18
8	Chorvihira	0	201.14	0	201.14
9	Lodha	585.18	125.59	84.71	795.48
10	Waroda	0	0	11.29	11.29
11	Bhondewada	0	299.52	0	299.52
12	Raiwadi	673.80	148.49	0	822.29
13	Bhivgad	0	641.54	0	641.54
	Total	2601.39	2809.45	183.57	5594.41

The beneficiaries under the programme were impressed by supply of LPG connection but did not show interest in protection of the plantation assets created.

B.3.3.1 Number of Villages where formation of JFMCs initiated in the Division-

In Nagpur Territorial Forest Division, the JFMC activities were initiated in 35 villages out of 36 villages during the current evaluation period. The activity in Patgowari village was implemented departmentally.

B.3.3.2 No. of villages where formal committees established in the Division-

36 JFMCs have been formed to implement various afforestation programmes. The VFCs are registered under the Societies Act by the CCF Nagpur Circle.

B.3.3.3 Total No. of committees established so far in the project area-

In 2011-12 to 2016-17, 36 JFMCs were proposed to be established under FDA, Nagpur Forest Division. All the 36 JFMCs have been constituted by the implementing agency. During 2003 to 2010-11
30 JFMCs were established to implement phase 1 programme.

B.3.3.4 Total membership in terms of households / families –

The total number of households / families in the 13 evaluated villages is 2105. (No. of households from village Dudha of Butibori Range is not available) From each family one member is selected as a VFC member, hence the total VFC members in the FDA are 2105

B.3.3.5 Percentage of Women, SC/ST in the VFCs-

Data of S.C., S.T. and others was not available for Waroda, Raiwadi and Dudha villages.

Sr. No.	Categories	Total	
		No.	%
1	SC	201	9.54
2	ST	698	33.2
3	Others	1206	57.3
Total		**2105**	

B.3.3.6 Establishment of Non Govt. Account (VDF-)

Out of 13 villages, this A/c is created in 7 villages namely, Rampuri, Chirvihira, Mohgaon B, Bhivgad, Ahmadnagar, Panchla Kh and Takadi. The balance amount in this a/c is very less, indicating-no income generation activity is implemented.

B.3.3.7 Micro-Planning-

Out of the 13 JFMCs evaluated, Micro-plans in (5) villages were prepared by the concerned Member Secretary of the VFC based on the PRA exercise. Technical approvals of the micro-plans were given by the Chief Executive Officer of the FDA – Nagpur Division, and the same are implemented in the village area. Participation of villagers is not encouraging in preparation of micro-plan.

B.3.3.7.1. List of important Registers / Records maintained by and available with JFMCs and FDA-

The list of important registers and records maintained by the JFMCs are:

(i) Plantation journal

(ii) Bank pass book

(iii) Cash Book Register

(iv) Measurement book, however, most of the measurement books are not update.

(v) Micro-plan

(vi) C.A. Audit report

(vii) Progress Report

B.3.3.7.2 In FDA, the following records are maintained-

The list of registers and records maintained by the FDA are:

(i) Cheque book register

(ii) Cash register

(iii) Plantation register

(iv) Quarterly progress reports

(v) Minutes of meetings

(vi) C.A. Audit reports

(vii) Copies of estimates

(viii) Quarterly progress reports

(ix) Bank pass book

B.3.4.1 Training on JFM/Community participation conducted during plan period

It is noticed that no training programme was arranged for staff as well for the community.

B.3.4.2 Year wise expenditure (Rs. in lacs) incurred on training activities-

As no training programme was undertaken, the expenditure is nil

B.3.5. Monitoring and Evaluation:

B.3.5.1 Number of inspections by –

1. Additional Principal Chief Conservator of Forests 0
2. CCF (Territorial), Nagpur Circle 0
3. Dy. Conservator Nagpur 1
4. Divisional Forest Officer, Evaluation Nagpur 0
5. Assistant Conservator of Forests - 15
6. Range Forest officer 15

1B.3.5.2 Regular monitoring and evaluation of the project activities conducted by FDA-

It noticed that regular monitoring is done through progress reports and internal evaluation of the project activities is not being undertaken.

B.3.5.3 Involvement of independent agency in the monitoring process: Yes/No-

No independent agency for monitoring is engaged by FDA. However, the A/C of FDA is audited by C.A.

B.4. FDA-Mechanism:

B.4.1 Composition of General and Executive Bodies of FDA, deviations if any, reasons therefore and concurrence of MOEF:

The FDA has been established as per the approved guidelines of NAP. The composition of FDA, Nagpur Division is as detail below.

B.4.1.1 **General Body-**

1) Chairman – CCF (Territorial), Nagpur.
2) Member Secretary cum Chief Executive Officer-, Dy.CF, Nagpur.
3) Chairman of working VFCs.
4) Member secretary of VFCs.
5) All Territorial RFOs.
6) Non-official representative (1 number)

B.4.1.2. **Executive Body-**

The executive body is composed of:

1) Chairman – CCF(Territorial), Nagpur
2) Member Secretary cum Chief Executive Officer - Dy.CF, Nagpur
3) Member (ex- officio member without voting rights): Chief Executive Officer, Zilla Parishad, District Superintendent of Agriculture, Executive Engineer (Zilla Parishad), Deputy Director of Social Forestry Division, Officers from Drought Prone Area Programme and District Rural Development Area Programme, Animal Husbandry Officer, District Educational Officer, District Health Officer, District Industrial Officer, District Social Welfare Officer and District Agriculture Officer
4) Member Secretaries of at least 25 VFCs
5) Nominees from VFCs
6) RFOs of Nagpur Forest -Division

B.4.2 Highlights of the strengths and weakness, pertaining to the mutual responsibilities assigned to FDA (Administrative, Supervisory and Monitoring) and VFCs/EDCs (Execution of field work):

a) Strength:

The EPA as proposed by the local people is implemented in the project villages. Employment opportunities are also created to the local people

by involving them in afforestation works and SMC works (construction of check dams, nala bunds etc.). Due to this, the villagers have built faith in the FDA and agreed for the participatory development of forest areas. The NAP and other schemes in Nagpur Forest Division has envisaged a composite package addressing the needs of the local population and attempts have been made for re-afforesting the degraded forest pockets of Nagpur Division.

b) Weakness:

The implementing agency has not prepared all the micro plans in consultation with the local people. Emphasis should be for preparation of all micro plans with active participation of local people. A good number of training programmes needs to be organized by the implementing agency to create awareness among the beneficiaries about the objectives of the FDA and capacity building of staff.

B.4.3. Comments on whether the project implementing VFCs/EDCs are also benefited through any other forestry / community development project from State/ Central Govt. if no, then what role and initiatives and FDA proposes regarding the overall rural / eco-development of the project area:

The VFCs created by FDA are also enjoying the benefits of other forestry / community development prgrammes such as Employment Guarantee Schemes, District Level Schemes and Afforestation on special Sites through CAMPA, JFM and NMPB etc.

B.4.4. Provide the brief outline of FDA bank account, its mode of operation, auditing status supported with progress of works as envisaged in the guidelines. Comment on the flow of funds to the VFCs / EDCs. Disbursement of funds by JFMCs for works executed. If delayed: reasons thereof.

The FDA- Nagpur has maintained bank account (A/c No.442401010015009) in Union Bank of India, Nagpur. The accounts of FDA are jointly operated by the Chairman and Member Secretary cum Chief Executive Officer of FDA. The accounts are audited by the CA M/s. H.K.Kolwadkar and Co, Nagpur (Membership. No. 038460), who is on the panel of AG vide his letter no dated 28.10.2016.

The FDA has released the funds to the concerned VFCs as per the requirement and progress of work. The disbursement of funds has been done by the Member Secretary (Forester/Forest Guard) and President of the concerned JFMCs after withdrawing the funds from Banks. It is noticed that heavy balances are with the JFMCs. Proper control is essential over these balances. The details are given below. For village Patgowari details were not available as it is worked departmentally.

Sr no	Name of village	Funds received by JFMC	Funds utilized by JFMC	Balance	Remark
1	Ahmadnagar	14,79,656	14,16,417	1,78,031	
2	Dudha	16,89,862	13,06308	3,83,550	
3	Panchla kh	51,87,477	40,70,692	13,06308	
4	Patgowari	NA	NA	NA	Deptt.work
5	Tekadi	8,69,120	8,85,426	2,91,789.15	
6	Lodha	59,11,785	49,49,737	10,27,411	
7	Waroda	4,64,949	5,45,341	39,96,801	
8	Bhondewada	84,74,252	49,87,730	34,87,022	
9	Raiwadi	17,57,496.13	15,58,043	8,95,839	
10	Bhivgad	16,39,171	11,94,988.50	4,82,202	
11	Rampuri	33,88,287	16,28,192	15,99,701.50	
12	Mohogaon B.	34,55,772	15,20,770	8,53,882	
13	Chorvihira	41,91,904	18,36,926	23,60,179	

B.4.5. Similar details should also be provided for the individual VFCs/EDCs whose works were assessed and interactions held with. Details of statements of accounts and progress reports sent by VFCs/EDCs and the FDA. Comment on the receipt of funds by VFCs/EDCs:

The FDA has released the funds to the concerned VFCs on receipt of funds from SFDA as per the approved programme. The VFCs have maintained separate bank accounts. The bank accounts of the VFCs are jointly operated by the Member Secretary and President of the VFC. Submission of the statement of accounts and progress reports to FDA, needs to be monitored on regular basis. The flow of funds from the FDA through the VFCs is irregular. The VFCs have disbursed the funds to the concerned for the work done in cash mostly. However, large balances have been noticed in the passbook of JFMC's/VFC's.

i) Heavy interest on FDA funds accumulated in JFMC pass book shows non-utilization of funds timely.
ii) There is no transparency of fund flow.
iii) Details of expenditure is not known to general body members.
iv) Participation of other Line Departments is minimal.
v) There is heavy demand for LPG gas connection.
vi) Shramdan activity is negligible.
vii) Initially disbursement of wages was done in cash and now it is through on line by direct credit.

FDA has sent progress reports to SFDA/NAEB Quarterly/annually.

C. QUALITATIVE ANALYSIS

C.1 Assessment of plantations, SMC works and their output:

C.1.1 Briefly comment on the suitability of areas selected for project implementations:

Following Table indicate the suitability of the site for the treatment.

Sr.no	Name of village	Treatment	Working plan prescription	Remark
1	Lodha	NMPB	SCI W.C.	Mismatch
2	Waroda	NMPB	SCI W.C.	Mismatch
3	Bhondewada	NMPB	SCI W.C	Mismatch
4	Raiwadi	NAP	SCI W.C.	Suitable
5	Rampuri	JFM	SCI W.C.	Suitable
6	Mohogaon B.	CAMPA	SCI W.C.	Suitable
7	Chorvihira	CAMPA	SCI.W.C.	Suitable
8	Ahmadnagar	NAP	Aff. W.C.	Mismatch
9	Dudha	NMPB	G & F M W.C.	Mismatch
10	Panchla.Kh.	JFM	Aff. W.C.	Suitable
11	Patgowari	JFM	Aff. W.C.	Suitable
12	Tekadi	NAP	SCI.W.C.	Mismatch
13	Bhivgad	NAP	SCI.W.C.	Mismatch

sC.1.2 Assessment of work as seen in the field including quality of work:

Considering the status of the forest areas and to meet the demand of local community (small timber, fuel wood, NTFPs including medicinal

plants etc.), the implementing agency has proposed plantation programmes CAMPA, NMPB, NAP and JFM.13 villages evaluated are classified as under.

Sr. No.	Tahsil	Range	Village	Area Treated in ha. & Model	
1	Ramtek	Deolapar	Lodha	20	NMPB
2	Kalmeshwar	Kalmeshwar	Waroda	9	NMPB
3	Ramtek	Pauni	Bhondewada	25	NMPB
4	Nagpur	Butibori	Dhudha	20	NMPB
5	Umred	Umred North	Bhivgad	10	NAP
6	Parsheoni	Parsheoni	Tekadi	25	NAP
7	Katol	Kondhali	Ahmednagar	10	NAP (Grass & hamata)
8	Savner	Khapa	Raiwadi	25	NAP(bamboo)
9	Bhivapur	Umred South	Chorvihira	30	CAMPA(bamboo)
10	Katol	Katol	MohogaonBanjadi	30	CAMPA(bamboo)
11	Narkhed	Narkhed	Rampuri	25	State JFM
12	Ramtek	Ramtek	Patgowari (OTSP)	10	JFM(OTSP)
13	Ramtek	Ramtek	Panchala.Kh.	10	JFM
TOTAL				**249**	

CAMPA: i) Bamboo has been planted in Mohogaon Banjadi., Chorvihira village under CAMPA and in Raiwadi village under NAP.

ii) Advance works, creation works, S.Y.O, T.Y.O. works are carried out in Mohogaon Banjadi village but in Chorvihira, T.Y.O, and 4th year works not done. In Raiwadi village advance work creation and SYO work is done

Present status of plantation: Bamboo in Chorvihira village is failure. In Mohogaon Banjadi survival percentage of bamboo is 55.2%.Bamboo plants especially rhizomes are heavily damaged due to wild boar attack. In Raiwadi bamboo is failure.

i) Vegetative fencing works were not undertaken in all these villages.

NMPB: Medicinal plants have been planted in 4 villages namely Lodha, Bhondewada, Waroda and Dudha.

i) It is noticed that 1100 plants have been planted /ha which is clear deviation of NMPB original model. In future, such irregularity should be avoided. No efforts for in situ conservation of medicinal plants are done.

ii) For Lodha village, planting of medicinal plants on high scale is technically not suitable and the site is suitable for in situ conservation.

iii) Advance works, Creation works, FYO.SYO, and TYO works are done except in Dudha village where TYO works not done.

Status of plantation: Entire plantation of Dudha village is burnt in April2017 hence survival percentage is nil. In other villages, namely Waroda and Bhondewada plantation is satisfactory, while in Lodha village, though plants are surviving, it has not been established even after 4 years. It has no future.

iv) Cement dam constructed in Bhondewada as SMC work, is breached and as such not effective. Nalla bunds in village Lodha and Bhondewada are satisfactory while in village Waroda and Dudha SMC works not done.

NAP: Grass and hamata seeds have been sown in village Bhivgad and Ahmadnagar resp. Grass regeneration is failure in both these villages whereas hamata is partially successful in village Ahmadnagar.

i) Advance works carried out in Bhivgad but no expenditure on creation works, FYO, SYO and TYO works.

ii) Advance works and creation works done in village Ahmadnagar and Tekadi but no expenditure on SYO and TYO.

iii) In village Raiwadi advance works, creation works and SYO works undertaken but no expenditure on TYO.

JFM: Mixed plantations are done in villages namely Rampuri, Panchla Kh. @1100/h and Patgowari @2500/h.

i) Choice of Indigenous species is technically suitable in above villages.

ii) Advance works and creation works done and no expenditure on SYO and TYO.

iii) Mixed plantation of village Patgowari is undertaken departmentally instead of working by JFMC. This should be avoided in future.

iv) Status of plantation in village Rampuri is not encouraging as plants are damaged heavily by neelgai. Plantation of Panchla Kh. is satisfactory while in village Patgowari, due to lack of protection and wild life damage, it is unsatisfactory.

15% grant for SMC works provided in the scheme remains unutilized. There was good scope for SMC works as these villages have large forest areas.

Active involvement of the local people needs to be strengthened in site preparation, planting, maintenance and protection of plantations.

Overall grading of JFMC is as below.

Sr No	Name of village	Grading	Remark
1	Raiwadi	3.00	Poor
2	Bhivgad	2.20	Poor
3	Patgowari	1.90	Poor
	Total 3JFMC		
4	Rampuri	3.67	Good
5	Mohogaon Banjadi	4.50	Good
6	Chorvihira	3.25	Good
7	Ahmadnagar	3.5	Good
8	Dudha	3.5	Good
9	Panchla Kh.	5.00	Good
10	Tekadi	3.5	Good
	Total 7 JFMC		
11	Lodha	5.1	V.Good
12	Waroda	7.8	V. Good
13	Bhondewada	5.6	V. Good
	Total 3JFMC		

Avarage of 13 villages: 4.04

Poor:Upto 30% **3**JFMC
Good:31% to 50% 7 JFMC
V.Good: 51% to 80% 3 JFMC
Excellent 81% to 100 % No JFMC

C.1.2.1. <u>Management practices followed in AR site –</u>

i)In 13 villages evaluated,4 sites are under NMPB model where medicinal plants have been planted.
(Lodha ,Bhondewada,Waroda and Dudha)
ii)2 sites are under grass seed sowing.
(Ahmadnagar& Bhivgad) In Bhivgad original Silvi-Pasture Development model is deviated as provision for 400 tree species has been deleted
iii) 3 sites are under bamboo plantation
(Mohogaon B.,Chorvihira,Raiwadi)
iv) 2 sites under mixed plantation
(Rampuri,Panchla Kh.)
In NMPB model 1100plants/h has been planted which is deviation from the original model.
In Bamboo plantation 625 plants/h have been planted.

In mixed plantation 1100plants/h have been planted in Tekadi and Panchla.Kh. In Patgowari 2500/h is planted
Pre-monsoon works, first year operations, second year operations and third year operations were carried out. Pits of the size 30cmx30cmx30cm were taken up. In departmental nurseries seedlings were raised in poly bag of the size of 12.5x25cm and seedlings used for planting were 8 months to 1 year old. In some plantations seedlings were procured from private nurseries.

Waroda-Shivan Plantation2013 (9ha) C/no 231

C.1.3. Survival Rate (estimated statistically, indicating methodology adopted and average height of plants):

There are 36 sites of plantations covering 738.18 ha. raised from 2011-12 to 2015-16. Out of these 13 plantations of 249 ha were randomly selected for evaluation comprising about 33.73% of the treated area. Sample plot of the size 50mx50m were laid on 3% of plantation area of each site and 100% count was taken in each plot in the presence of local staff. Also, average height was recorded for the species planted.GPS readings were also recorded along with polygon map of the site. At places, existing grids were also selected for survival count and average height.

Total scheme wise area (36 sites) Details of the sampling area(13sites)

Sr.No	Scheme	Area (Ha)
1	NAP	105
2	NMPB	233.18
3	CAMPA	210
4	JFM	190
	Total	**738.18**

Scheme	Area (Ha)
NAP	70
NMPB	74
CAMPA	60
JFM	45
Total	**249**

Survival percentage of evaluated villages

Sr No	Name of village	Survival %	Remark
1	Raiwadi	13.9	
2	Bhivgad	0	
3	Patgowari	24	
4	Rampuri	24.5	
5	Mohogaon Banjadi	55.2	
6	Chorvihira	0	
7	Ahmadnagar	N.Ap	Grass seed sown
8	Dudha	0	plantation burnt
9	Panchla Kh.	65	
10	Tekadi	0	
11	Lodha	54.25	
12	Waroda	80.50	
13	Bhondewada	51.02	

4 villages are having 0 survival percentage.

The details are given in Annexure-i & ii

Annexure I: Team members of Evaluation Team Nagpur Division

Sr No	Name and designation of member	Period of evaluation	Villages	Range
Team 1	Mr. V. T. Patki C.F. (Retd.) Mr.A.S. Shemla DFO (Retd.)	16.06.2017 to 18.06.2017	Dudha	Butibori
			Ahmednagar	Kondhali
Team 2	Mr.P.K.Kulkarni D.M.(Retd.) Mr.C.D.Asutkar Fr (Retd.)	16.06.2017 to 22.06.2017	Bhondewada	Pauni
			Lodha	Deolapar
			Raiwadi	Khapa
			Waroda	Kalmeshwar
Team 3	Mr.R.K.Adkar DFO (Retd.) Mr.S.S.Battulwar RFO (Retd.)	16.06.2017 to 22.06.2017	Bhivgad	Umred N
			Rampuri	Narkhed
			Mohogaon B.	Katol
			Chorvihira	Umred S
Team 4	Mr.P.N.Kukdolkar D.M.(Retd.) P.V.Urkude RFO (Retd.)	16.06.2017 to 22.06.2017	Panchla Kh.	Ramtek
			Patgowari	Ramtek
			Tekadi	Parshivani

Annexure II

Programme wise details of villages evaluated.

Sr.No.	Tahsil	Range	Village	Area Treated in ha. & Model	
1	Ramtek	Deolapar	Lodha	20	NMPB
2	Kalmeshwar	Kalmeshwar	Waroda	9	NMPB
3	Ramtek	Pauni	Bhondewada	25	NMPB
4	Nagpur	Butibori	Dhudha	20	NMPB
5	Umred	Umred North	Bhivgad	10	NAP modified SPD
6	Parsheoni	Parsheoni	Tekadi	25	NAP
7	Katol	Kondhali	Ahmednagar	10	NAP Modified SPD (Grass & hamata)
8	Savner	Khapa	Raiwadi	25	NAP(bamboo)
9	Bhivapur	Umred South	Chorvihira	30	CAMPA(bamboo)
10	Katol	Katol	MohogaonBanjadi	30	CAMPA(bamboo)
11	Narkhed	Narkhed	Rampuri	25	State JFM
12	Ramtek	Ramtek	Patgowari (OTSP)	10	JFM(OTSP)
13	Ramtek	Ramtek	Panchala.Kh.	10	JFM
TOTAL				**249**	

C.1.3.1. Survival percentage of plantations evaluated under variousModel-

The survival percentage of plantations evaluated under various model in 2011-12 and 2016-17 The village wise survival % is as below:

Avarage survival percentage of 13 villages is 28.33.

Sr. No.	Village/Scheme	Year of Planting	Survival %	Avg. Height of plant (cm)
1	Bhondewada	2012-13	51	35
2	Lodha	2012-13	54.3	46
3	Waroda	2012-13	80.5	220
4	Raiwadi	2014-15	13.9	50
5	Bhivgad	2014-15	0	Nil
6	Mohogaon Banjadi	2011-12	55.2	35
7	Chorvihira	2011-12	0	Nil
8	Rampuri	2015-16	24.5	45
9	Panchla.Kh	2015-16	65	85
10	Tekadi	2014-15	0	Nil
11	Patgowari	2015-16	24	57
12	Ahmednagar	2014-15	N. Ap.	N. Ap.
13	Dudha	2013-14	0	Nil