

Result of Sample Tree Enumeration of Sironcha Forest Division

Sironcha forest division is the one of the forest divisions of Gadchiroli circle and within Gadchiroli civil district. The head quarter is at Sironcha. The entire forest area of Sironcha division lies between 18° 41'15"N to 19°20'N North latitude and between 79° 55'19"E to 80° 22'30" East meridian of longitude.

The track is bounded as follows:-

- North :- Boundaries of Allapalli Forest Division and Bandia River along Bhamragad Forest Division.
East :- River Indravati along Chhattisgarh State Boundary .
West :- River Pranhita along Andhra Pradesh State Boundary.
South :- River Godavari along Andhra Pradesh State boundary.

Topography:- The major portion of the area is vast plain or undulating ground with hilly region. The hills are rugged and steep especially at the higher slopes. It has an average elevation about 130 meter above Mean Sea Level (MSL)

Forest Area:-According to Management & Legal Status the following are the forest area figures as on dated 31/3/2015

Table No-1
Classification of Forest area according to Management & Legal status
(Area in Sq. Km.)

Sr. No.	Controlling Agency	Reserved forest	Protected forest	Un-classed forest	Total
1	Area in charge of Forest Department	2509.899	105.678	0.00	2615.577
2	Area in charge of F.D.C.M.	132.418	29.795	0.00	162.213
3	Area in charge of Revenue department	0.000	0.000	0.00	0.00
	Total	2642.317	135.473	0.00	2777.790
	% to total forest area	95.12 %	4.88 %	0 %	100.00

Sironcha forest division consist of eight ranges viz. 1) Sironcha 2) Bamni 3) Kamalapur 4) Jimalgatta 5) Dechali 6) Asaralli 7) Zinganur and 8) Pranhita

The area under Scientific Management as recorded in working plan (for 2005-06 to 2014-15) for Sironcha forest division by Shri Ramjee Singh Yadav, I.F.S. , Conservator of Forest Working Plan, Chandrapur, was as under.

Table No.2
Break- up of the working circle and forest area (Ha.)

Sr. No	Name of the working circle	Area Allotted (Ha.)
1	Selection -Cum -Improvement Working Circle	132070.021
2	Improvement Working Circle	56086.858
3	Teak Plantation Working Circle	10189.412
4	Protection Working Circle	14152.120
	Total	2,12,498.411

The Conservator of Forests, Working plan, Gadchiroli has proposed following working circle and area for this plan.

Table No.3
Working Circle wise Area for current tree enumeration

Sr. No.	Name of working circle	Population area in ha
1	Selection Cum Improvement Working Circle	132070.021
2	Improvement Working Circle	56086.858
3	Teak Plantation Working Circle	10189.412
4	Protection Working Circle	14152.120
	Total	212498.411

Sampling plan of Tree Enumeration

The tree enumeration work was carried out by Forest Resources, Survey, Gadchiroli under the guidance of Conservator of Forests Working Plan, Gadchiroli, from May 2013 to June 2014. The entire Sironcha forest division's area was considered for sampling enumeration plan. The trees are enumerated in girth classes started from 15 cms to 135 cms and above girth at breast height (g.b.h.).

The statistical sampling method (Topo-unit) was used for tree enumeration. The plot size 60 meters x 60 meters, was found to be suitable

with the least standard error. The complete enumeration of trees, seedlings, coppices were carried out in these plots. Similarly qualitative measurements were also carried out.

Scrutiny of data and preparation of results i.e. (1) Stock per hectare was calculated with the help of computer program. The whole work was carried out by Forest Resources Survey Unit, Gadchiroli under the guidance of Conservator of Forests, Working plan, Gadchiroli and the result are being reported in the form of following statements.

- Statement I : Estimated growing stock-No. of Sound trees.
 Statement II : Estimated growing stock-No. of Sound trees per ha.
 Statement III : Percentage distribution of total stock of species over all girth classes.
 Statement IV : Percentage of stock of species in a girth class to the total stock in that particular girth class.
 Statement V : Estimated growing stock in volume in cu.m./ha

Some remarkable result on current enumeration is described in following Table.

Table No. 4 (a)
Statement showing estimated no. of trees per ha. for Previous and Current tree enumeration

Sr. No	Name of Working Circle	Past enumeration 2002-03	Sr. No.	Name of Working Circle	Current enumeration May-2013 to June-2014
1	Selection Cum Improvement Working Circle	411.144	1	Selection Cum Improvement Working Circle	368.465
2	Improvement Working Circle	374.706	2	Improvement Working Circle	258.830
			3	Protection Working Circle	551.478
			4	Teak Plantation Working Circle	316.214
	Weighted average	400.282		Weighted average	349.211

It is observed that there is decrease in total estimated number of trees per hectare in current enumeration (May-2013 to June-2014), from 400.282 to 349.211 as compared to previous enumeration (2002-03). It is also worth to note that in the current enumeration in all 4 working circles, more than 45% of trees are in lower most girth classes i.e. 15 U 30 and 30 U 45. This is evident from the following table.

Table 4 (b)

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

Working Circle	15U30	30U45	Remaining Girth Classes	Total estimated no. of trees
Selection Cum Improvement Working Circle	31.078	17.287	51.635	100
Improvement Working Circle	34.19	17.427	48.383	100
Protection Working Circle	31.365	19.405	49.23	100
Teak Plantation Working Circle	23.374	15.812	60.814	100
Weighted Average	31.549	17.394	51.057	100

It is also necessary to mention that, among the total estimated stock, Teak is the dominant species in all working circle.

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

Table No.5**No. of sound trees per ha**

Sr. No.	Name of Working Circle	Total	General utility species	Special utility species	Minor forest produce species	Other species
1	2	3	4	5	6	7
1	Selection Cum Improvement Working Circle	368.465	97.60	44.87	60.17	165.82
	% of stock to total stock	100.00	26.49	12.18	16.33	45.00
2	Improvement Working Circle	258.830	60.27	26.91	53.09	118.57
	% of stock to total stock	100.00	23.29	10.40	20.51	45.81
3	Protection Working Circle	551.478	116.723	81.493	79.481	273.871
	% of stock to total stock	100.00	21.17	14.78	14.41	49.65

4	Teak Plantation Working Circle	316.214	100.81	36.84	46.74	131.82
	% of stock to total stock	100.00	31.88	11.65	14.78	41.69
	Total weighted average	349.211	89.177	42.185	58.941	158.908
	% of stock to total stock	100.00	25.54	12.08	16.88	45.50

Table No.5A
Volume in cum. per ha

Sr. No.	Name of Working Circle	Total	General utility species	Special utility species	Minor forest produce species	Other species
1	2	3	4	5	6	7
1	Selection Cum Improvement Working Circle	100.156	32.011	11.079	15.942	41.124
	% of stock to total stock	100	31.961	11.062	15.917	41.060
2	Improvement Working Circle	70.348	18.232	7.067	15.188	29.861
	% of stock to total stock	100	25.916	10.044	21.590	42.450
3	Protection Working Circle	129.721	29.442	12.924	19.847	67.508
	% of stock to total stock	100	22.700	9.960	15.300	52.040
4	Teak Plantation Working Circle	103.123	32.730	11.109	17.681	41.603
	% of stock to total stock	100	31.740	10.770	17.150	40.340
	Total weighted average	94.40	28.238	10.144	16.086	39.931
	% of stock to total stock	100	29.91	10.75	17.04	42.30

Highlights from the results of tree enumeration as given in table no.5, are summarised below:

1) Selection Cum Improvement Working Circle:-

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

Sr. No.	Category of Species	Name of Species	% to total growing stock
1	A:- Species of General Utility	Ain, Bija, Lendia, Shisam, Teak, Tiwas	26.49
2	B:-Species of Special Utility	Dhawada, Haldu, Khair, Shiwan	12.18
3	C:-Species of Minor Forest Produce	Awala, Behada, Char, Hirda, Moha, Tendu	16.33
4	D:-Other Species	Garari, Surya	45.00

2) Improvement Working Circle:-

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

Sr. No.	Category of Species	Name of Species	% to total growing stock
1	A:- Species of General Utility	Ain, Bija, Lendia, Shisam, Teak, Tiwas	23.29
2	B:-Species of Special Utility	Dhawada, Haldu, Khair, Shiwan	10.40
3	C:-Species of Minor Forest Produce	Awala, Behada, Char, Hirda, Moha, Tendu	20.51
4	D:-Other Species	Garari, Surya	45.81

3) Protection Working Circle:-

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

Sr. No.	Category of Species	Name of Species	% to total growing stock
1	A:- Species of General Utility	Ain, Bija, Lendia, Shisam, Teak, Tiwas	21.17
2	B:-Species of Special Utility	Dhawada, Haldu, Khair, Shiwan	14.78
3	C:-Species of Minor Forest Produce	Awala, Behada, Char, Hirda, Moha, Tendu	14.41
4	D:-Other Species	Garari, Surya	49.65

4) Teak Plantation Working Circle:-

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

Sr. No.	Category of Species	Name of Species	% to total growing stock
1	A:- Species of General Utility	Ain, Bija, Lendia, Shisam, Teak, Tiwas	31.88
2	B:-Species of Special Utility	Dhawada, Haldu, Khair, Shiwan	11.65
3	C:-Species of Minor Forest Produce	Awala, Behada, Char, Hirda, Moha, Tendu	14.78
4	D:-Other Species	Garari, Surya	41.69

Table No.6

Availability of Teak in current Enumeration (May-2013 to June-2014)

Sr. No	Name Working Circle	Total growing Stock	Teak/Ha	% of stock of teak trees to the total stock
1	2	3	4	5
1	Selection Cum Improvement W.C.	368.465	24.606	6.678
2	Improvement W.C.	258.830	11.625	4.491
3	Protection W.C.	551.478	13.333	2.418
4	Teak Plantation W.C.	316.214	35.907	11.355
	Total (Weighted Average)	349.211	20.971	6.005

Table No.6(A)
Availability of Teak in previous Enumeration (2002-03)

Sr. No	Name Working Circle	Total growing Stock	Teak/Ha	% of stock of teak trees to the total stock
1	2	3	4	5
1	Selection Cum Improvement W. C.	411.144	33.20	8.07
2	Improvement W.C.	374.706	31.00	8.27
	Weighted Average	400.282	32.544	8.13

From the Table-6 and 6(A) it is observed that the availability of Teak is decreased from 32.544 to 20.971 trees per ha.

Statistical Analysis: -

The Statistical personnel of the office of the Chief Forest Statistician, Maharashtra State, Nagpur, have carried out the statistical analysis of the data. The percentage of standard error is calculated for each W.C. is as given in the following Table No.7.

Table No.7
Working Circlewise percentage of Standard Error

Sr. No.	Name of working circle	Population area in ha	Sample area in ha	Intensity of sampling %	% of standard error
1	Selection Cum Improvement Working Circle	132070.021	1459.800	1.11	0.91
2	Improvement Working Circle	56086.858	550.080	0.98	2.72
3	Protection Working Circle	14152.120	138.60	0.98	4.65
4	Teak Plantation Working Circle	10189.412	39.600	0.39	2.35
		212498.411	2188.080		

**Chief Forest Statistician,
Maharashtra State, Nagpur.**

