



For Official Use Only

Forest Resources Survey of Southern Uttar Pradesh

(Agra, Etawah, Jalaun, Jhansi, Lalitpur
Hamirpur, Banda, Allahabad
Mirzapur and Varanasi
Districts)

INVENTORY RESULTS

FOREST SURVEY OF INDIA
NORTHERN ZONE
SIMLA
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P R E F A C E

Forest survey of India has been carrying out survey of forest resources in the country with a view to monitor periodically (on a ten year cycle) the changing situation of land and forest resources. The survey focuses attention on critical aspects and gives the current status of forest land and resources.

This report presents the inventory results of southern Uttar Pradesh region comprising of Agra, Etawah, Jalaun, Jhansi, Lalitpur, Hamirpur, Banda, Allahabad, Mirzapur and Varanasi districts. Field inventory in this region was carried out during the period 1983 to 1985.

The total geographical area covered under this survey is 62212 km^2 of which 12.55 percent (7805.89 km^2) area was forest area in 1971 (reference year based on year of survey on SOI toposheets). This is far less than one third of the total geographical area laid down in 'National Forest Policy' for maintaining proper ecological balance in such areas. The survey has revealed that during the last 13 years (1971-1984), out of the 7805.89 km^2 tree covered area (6919.55 km^2 under 'greenwash' and 886.34 km^2 under erstwhile 'demarcated blank'), 776.73 km^2 (11.22 percent) area of greenwash and 143.73 km^2 (16.20 percent) area of demarcated blank got diverted for non-forestry purposes like agriculture and habitation, while

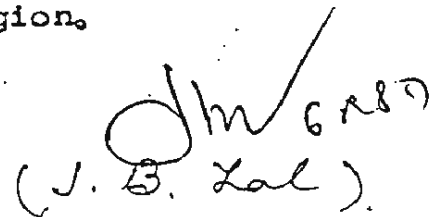
639.78 km² (9.25 percent) area of greenwash got degraded to scrub, barren land and grass land. Thus the existing forest covered area has been shrinking at the rate of 1.54 percent per annum.

Out of the balance area of 6245.65 km² 'greenwash and demarcated blank' only 8.79 km² (.1 percent) area is inaccessible, 33.22 km² (.5 percent) area is under water, 118.18 km² (1.89 percent) area is under bamboo brakes and 335.77 km² (5.37 percent) area continues to be under demarcated blanks. Of the 5354.83 km² area 'greenwash', 434.00 km² (8.10 percent) area has canopy density 70 percent and above, 1977.22 km² (36.92 percent) area has canopy density 30 percent to 69 percent, 2680.64 km² (50.06 percent) area has canopy density of less than 30 percent while 262.97 km² (4.92 percent) of tree forest area falls under 'plantation'. Overall canopy density in the region is 34.02 percent.

The survey has revealed that Teak, Sal, Khair, Salai and Miscellaneous forest types are found in the region. Bamboo bearing area is 1152.55 km², number of culms 74.44 million and dry weight is 123.67 thousand tonnes. The region has an estimated maximum per hectare volume of 26.399 m³ and maximum 90.035 stems per hectare in Sal forest type. The minimum volume/ha is 5.027 in Khair forest type.

Overall volume per hectare in the survey area is 14.390 m³ and stems per hectare are 96.852. In addition, accessible tree forest area of demarcated blank has an estimated per hectare volume of 4.143 m³ and per hectare stems are 52.273. The total growing stock in the survey area is 61.996 million m³.

The report has been compiled by Sh. R.K.Sood, Deputy Director under the guidance of Sh. S.C. Joshi, Joint Director, Forest Survey of India, Northern Zone, Shimla. Sh. M.S.Mehta STA and Sh. Jai Gopal Sharma JTA have done the tabulation work. The report has been typed by Sh. Suresh Chand Sharma, Fieldman. It is hoped that the report will be of help to the State Forest Department and other organisations engaged in National Planning and development of forest resources in the region.


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SUMMARY

1. ⁱⁿ The forest inventory survey has been carried out in Southern U.P. region consisting of the districts of Agra, Etawah, Jalaun, Jhansi, Lalitpur, Hamirpur, Banda, Allahabad, Mirzapur and Varanasi during the period 1983 to 1985.

2. The objectives of the survey are to assess the forest resources and changes therein, so as to focus attention on its critical aspects, thereby helping in developmental planning.

3. Total geographical area covered is 62212 km² of which 12.55 percent (7805.89 km²) area was 'forest area' in 1971 (reference year). Considering the National Forest Policy guide lines, such tracts should have one third of the area under forests. Therefore, the forest area in Southern U.P. region is far less than the prescribed proportion.

4. During the period of 13 years (1971-1984) the following changes have occurred in the forest area 'green wash' and the present status of forest is:-

<u>Status</u>	<u>Area(km²)</u>	<u>Percentage</u>
a) Inaccessible area	8.79	0.13
b) Area diverted for non-forestry purposes	776.73	11.22
c) Degraded, Barren, scrub and grass land.	639.78	9.25
d) Water bodies	33.22	0.48
e) Bamboo brackes	106.20	1.53
f) Accessible tree forest area.	5354.83	77.39
-----	-----	-----
Total:-	6919.55	100
-----	-----	-----

During the period of 13 years (1971-84) the following changes have occurred in the erstwhile demarcated blank and the present status is:-

<u>Status</u>	<u>Area (km²)</u>	<u>Percentage</u>
a) Area diverted for non-forestry purposes	143.73	16.20
b) Unchanged area	335.37	37.80
c) Bamboo brakes	11.98	1.40
d) Accessible tree forest area	395.26	44.60

Total:-	886.34	100

Over all, 920.46 km² of forest area has been diverted for non-forestry purposes in 13 years (1971-84).

The contribution to the total forest inventory is from the accessible tree forest area.

5. The average canopy density over tree forest area is 34.02 percent.

6. Soil depth in the forest area is adequate and only about 10.75 percent area suffers from moderate erosion.

7. 3116.61 km² of area is potentially plantable (new and supplementary planting).

8. Natural regeneration over 1.32 percent (75.84 km²) out of total 5750.09 km² of tree forest area is adequate.

9. Bamboo occurs in 106.94 km² area as bamboo brakes and over 1045.61 km² area is overlapped.

10. Only 5 forest types occur in the survey area. The per hectare volume and stems in various forest types of accessible tree forest area 'green wash' has been estimated as follows:

<u>Forest type</u>	<u>Total area ha.</u>	<u>Vol/ha. m³</u>	<u>Stems/ha. Nos</u>
1. Teak	6368	24.683	188.938
2. Sal	23672	26.399	190.035
3. Khair	38796	5.027	68.799
4. Salai	12502	26.921	108.587
5. Miscellaneous	454145	14.075	92.761

Total:-	535483	14.390	96.852

Bamboo area :	1152.55 km ²		
Number of Culls :	74.44 million		
Dry weight :	123.67 thousand tonnes		

In addition to accessible tree forest area (green wash), the per hectare volume and stems in accessible demarcated blanks which have been converted to tree forest areas has also been estimated and given as under :

Forest types	Total area ha.	Vol/ha. m ³	Stems/ha. Nos.
Miscellaneous Teak and Khair	39526	4.143	52.273

11. The district wise breakup of the accessible tree forest area alongwith per hectare stand and stock figures is :

S. No.	District	Area ha.	Vol/ha. m ³	Stems/ha. Nos.
1.	Agra	11100	9.788	39.333
2.	Etawah	9773	5.596	55.833
3.	Jalaun	10044	3.259	53.333
4.	Jhansi	12515	14.473	88.392
5.	Lalitpur	51743	13.728	103.572
6.	Hamirpur	18390	4.183	41.364
7.	Banda	62399	10.735	121.666
8.	Allahabad	4727	12.290	23.333
9.	Mirzapur	297130	17.079	101.947
10.	Varanasi	57662	12.812	89.001

Total:-		535483	14.390	96.852

11.	Demarcated blanks (all districts)	39526	4.143	52.273
-----	---	-------	-------	--------

12. Total growing stock in the survey area (green wash and demarcated blank) is 7.870 million m³ and 54.126 million stems.

13. Per capita rural household fuel consumption in the survey area is estimated at 758 kgs. Out of this only 9 kgs. come from agricultural waste and 749 kgs. are from trees growing in Govt. forests and Govt. lands.

The fuelwood consumption in Mirzapur district is significantly higher than that of the rest of the districts.

Chapter I

THE BACKGROUND

1.1 Introduction

The Forest Survey of India, organisation has been set up with the aim of monitoring over a 10 year cycle the dynamics of change relating to forest resources and to present data focussing attention of the planners on critical aspects of forest resources in the country. The Expenditure Finance Committee memo (No.6-33/79-F-II) stresses that the activities of Forest Survey of India would be directed towards supplying data for regional, State and National level planning. The following are the objectives of the Forest Survey of India (FSI) relevant to the inventory Survey undertaken by this zone.

- i) To monitor periodically (on a 10 year cycle) the changing situation of land and forest resources and to focus attention of national planners on critical aspects of forestry.
- ii) To collect the data necessary for development planning.

The field inventory methodology necessary to fulfil the above objectives was formulated with the assistance of the Central Statistical Organisation (CSO). The present data is in readily usable form for the national/state level planning. The design for field inventory has been kept uniform for the entire country.

The UP Forest Department in their Forest Statistics have recognized four geographical regions in the state viz; The Hill, The Terai, The Indo-Gangetic plain and The Vindhyan region. The survey area includes the entire Vindhyan region and the adjoining forest bearing districts of the Gangetic plain. These districts are Agra, Etawah, Allahabad and Varanasi. The whole reporting area has been termed as "Southern U.P." survey area. Forest inventory in this region was conducted from 1983 to 1985.

1.2 Location and Boundaries

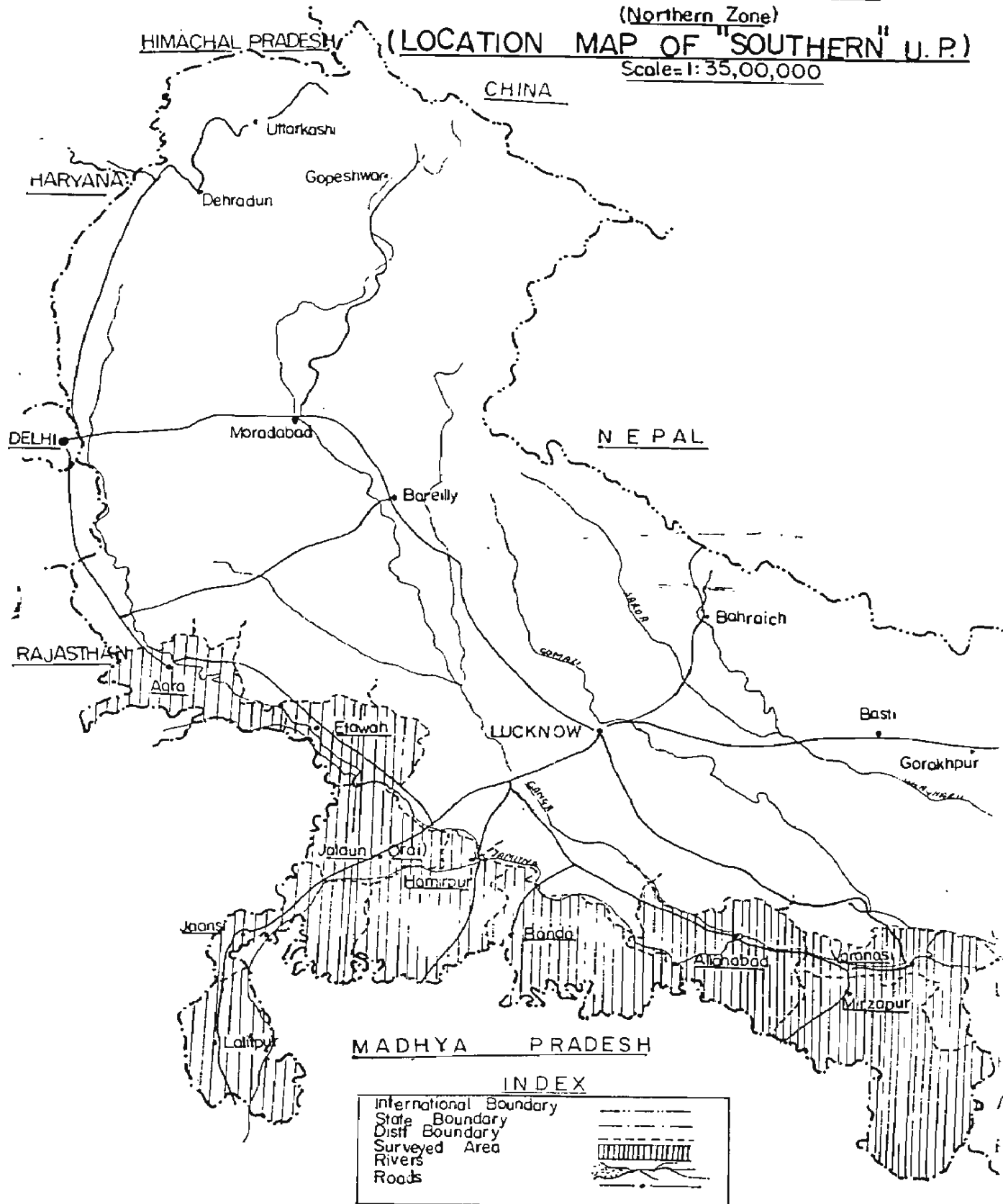
The survey area lies between 77°-15' to 83°-45' East longitudes and 23°-45' to 27°-30' North latitudes (see location map). It is bounded on the east by Bihar State, on the South by Madhya Pradesh, on the West by Madhya Pradesh and Rajasthan states and on the North by districts of central U.P. lying in Gangetic plains.

FOREST SURVEY OF INDIA

(Northern Zone)

(LOCATION MAP OF "SOUTHERN" U.P.)

Scale = 1: 35,00,000



1.3

Climate:

The survey area lies in the sub-tropical zone. 18° C isotherm for January roughly runs to the south of the survey area. The climate of this part of Uttar Pradesh is characterised by a long and intensely hot summer, rather low rainfall and a short and mild winter. Rainfall varies between 654 and 1136 mm annually (1980). The temperature varies between 39.8° and 45.3° C (maximum) in the month of May and 2.1° and 11.3° C (minimum) during January (table 1.3.1).

1.4

Physical features

The physical aspect of the region presents a vast variety of landscape. The Vindhyan region is more or less hilly with continuous belts of hills and plateaus with varying lengths and widths. Smaller hillocks and ridges are also found scattered. Distinct physical regions in the survey area are Vindhyan scarp lands, Avadh plains, Bundelkhand uplands and Ganga-Yamuna doab. The terrain between the principal ridges is an undulating plain cut up by numerous water courses which are mostly dry except immediately after the rains. The surface of the plateau also is by no means level. It consists of gently undulating country intersected by low ridges. The highest elevations are towards the southernmost part of Mirzapur district with maximum height of 650 metres above MSL and Lalitpur district with maximum height of 550 metres above MSL. The lowest level is 75 metres near Varanasi in Varanasi district. Elevations of rest of the survey area vary between 100 and 300 metres.

1.5

Socio-economic conditions of the people

The population of the region is mainly rural and depends on agriculture for livelihood. Economically most of them are poor and in addition to agriculture they also seek employment as casual labourers, development works. In the beginning of this century the region was sparsely populated but now the human and cattle population density is high, thus putting heavy burden on the forests of the region (see tables 1.5.1 and 1.5.2).

District wise Rainfall and Temperature data of selected places in Survey area

Sl. No.	District	Rainfall (mm) 1980			Temperature (centigrade) (1980-81)	
		Normal	Actual	Highest	Lowest	
1.	Agra	654	836	43.4	6.4	
2.	Etawah	774	898	43.7	2.1	
3.	Jalaun	762	1524	NA	NA	
4.	Jhansi	1101	1138	45.3	4.2	
5.	Lalitpur	1101	1122	NA	NA	
6.	Hamirpur	860	1835	NA	NA	
7.	Banda	954	1594	NA	NA	
8.	Allahabad	927	1334	41.5	5.8	
9.	Mirzapur	1136	969	42.2	11.3	1979. As per Obra Forest Division, Working plan 1980-81 to 1089-90.
10.	Varanasi	1026	916	39.8	7.7	

Source : Statistical diary of Uttar Pradesh 1981
Working plan of Obra Forest Division 1980-81 to 1989-90.

Table No. 1.5.1

District wise area under forests and agriculture

Sl. No.	District	(km ²)	Geographical area	(km ²)	Agricultural area	(km ²)	Total % of geographical area	Forest area under demarcated and un-demarcated greenwash		Total (km ²)	% of geographical area
								Demarcated and un-demarcated greenwash	Demarcated blanks		
1.	Agra	4805	3780	78.67	177.60	177.61	355.21	7.39			
2.	Etawah	4326	3232	74.71	146.59	91.96	238.55	5.51			
3.	Jalaun	4565	3733	81.77	209.25	26.16	235.41	5.16			
4.	Jhansi	5024	3382	67.32	241.35	103.58	344.93	6.87			
5.	Lalitpur	5039	2266	44.97	554.39	53.03	607.42	12.05			
6.	Hamirpūr	7166	5700	79.54	259.12	41.87	300.99	4.20			
7.	Banda	7624	5641	73.99	782.19	28.99	811.18	10.64			
8.	Allahabad	7261	5406	74.45	94.53	113.63	208.16	2.87			
9.	Mirzapur	11310	5110	45.18	3820.25	168.03	3988.28	35.26			
10.	Varanasi	5092	3565	70.01	634.28	81.48	715.76	14.06			
Total		62212	41815	67.21	6919.55	886.34	7805.89	12.55			
Percentage		-	67.21	-	11.12	1.43	12.55	-			

Source: Statistical diary of Uttar Pradesh 1981
Agricultural Bulletin U.P. 1980.

* Forest area calculated by dot grid method from the topo sheets of survey of India on 1:50,000 scale.

Table No. 1.5.2

Human population and Livestock population/Density

Sl. No.	District	Geographical area km ²	Human population '000'	Density/ km ²	Livestock population '000'	Density/ km ²
1.	Agra	4805	2853	594	827	172
2.	Etawah	4326	1763	408	852	197
3.	Jalaun	4565	986	216	536	117
4.	Jhansi	5024	1137	226	654	130
5.	Lalitpur	5039	578	115	618	123
6.	Hamirpur	7166	1194	167	989	138
7.	Banda	7624	1534	201	1191	156
8.	Allahabad	7261	3797	523	1828	252
9.	Mirzapur	11310	2039	180	1327	117
10.	Varanasi	5092	3701	727	1165	229
Total		62212	19582	315	9987	161

Source: Statistical Diary Uttar Pradesh 1981
Indian Livestock census 1972

1.6

Forests

Classification of forests into types has been done on the basis of occurrence of species. The following forest types were found in the survey area:

1. Teak forest - forests in which Teak trees constitute more than 20% of the stand.
2. Sal forest - forests in which Sal trees constitute more than 20% of the stand.
3. Khair forest - forests in which Khair trees constitute more than 50% of the stand.
4. Salai forest - forests in which Salai trees constitute more than 50% of the stand.
5. Miscellaneous-forest - Tree forests which could not be classified in any of the above types.
6. Bamboo forest - Pure bamboo forests and forests named from srl No. 1 to srl No. 5 with bamboo under storey.

Chapter - 2

2.1 Design and Methodology of the Survey

The 'forest areas' marked on 1:50,000 scale topographic map sheets prepared by the Survey of India were used as the basis of forest inventory. The year of survey and publication of the maps used in the survey are given in Appendix-I. To monitor the change in the forest cover thematic maps prepared by interpretation of latest aerial photographs were to be used. Such thematic maps were to form the basis for collection of growing stock data. However thematic maps were not available due to constraints beyond the control of the organisation.

2.2 Definition of forest area.

The following are treated as 'Forest Areas' for carrying out the forest inventory and for the purpose of this report.

- i) All those areas shown in 'green wash' on the Survey of India topographic map sheets.
- ii) All those areas indicated by dotted line or broken line or a pillar line as 'Forest Areas'.

2.3 Sampling design

1:50,000 scale Survey of India topographic sheet was divided into 36 grids of $2\frac{1}{2}' \times 2\frac{1}{2}'$ of latitudes and longitudes. In each of such grids two sample points were marked. The inventory data was collected from a square plot of 0.1 ha. laid out at each of these sample points.

2.3.1 Method of marking two point cluster in the grid

The length and width of each grid is measured to the first decimal in millimetres. From this length 0.6 mm is deducted. Suppose, the measurable length and width of a grid along its X & Y axis are 83.5 mm and 92.5 mm respectively. After deducting 0.6 mm, the reduced length and width are 82.9 mm and 91.9 mm respectively. A three digit random number is selected from the random number table for each axis separately.

If the selected random numbers are less than 829 and 919 respectively then they are retained as such otherwise the next random number is considered. Suppose the random numbers selected are 144 and 161 respectively, then the numbers will correspond to 14.4 mm and 16.1 mm lengths along the X and Y axes respectively. To these lengths viz 14.4 mm and 16.1 mm, 0.3 mm is added. Now 14.7 mm and 16.4 mm become the co-ordinates of the first sample point in the grid. Taking SW corner of this grid as origin and measuring 14.7 mm and 16.4 mm along X & Y axis respectively the centre of the first plot is marked. The centre of the first plot is then joined by a straight line to the grid^{centre}. This line is extended on the other side. On this extended line the second point is marked at a distance equal to the distance of the first point from grid centre. This point is the centre of the second plot.

All sample points falling in forest areas are located on the ground. Quantitative data is collected from sample plots and qualitative data from the surroundings of the plot. The co-ordinates of the plot centres inventoried and the relevant data pertaining to these plots is given in Appendix-II.

2.4 Field methodology

The field data is collected by a crew, consisting of one Junior Technical Assistant (crew leader), a deputy Rager, two to three fieldmen, a Khalasi and unskilled labourers hired locally wherever necessary. The crew leader is provided with a list of sample plots to be surveyed by his crew during the season alongwith a set of toposheets with sample points already marked. A set of measuring instruments viz Silva's compass, Haga/Blume Liess hypsometer, Callipers, measuring tapes and ranging rods etc. are provided.

After deciding the plot and the grid number to be surveyed on a particular day from a camping spot the crew leader reaches a prominent physical feature (also called starting reference point, as near to the sample point as possible) which is depicted on the map and can also be identified on the ground. Usually the following features are selected as reference point:

- i) Benck marks
- ii) Triangulation points
- iii) Village trijunction points
- iv) Bridges and culverts
- v) Temples, mosques and churches.

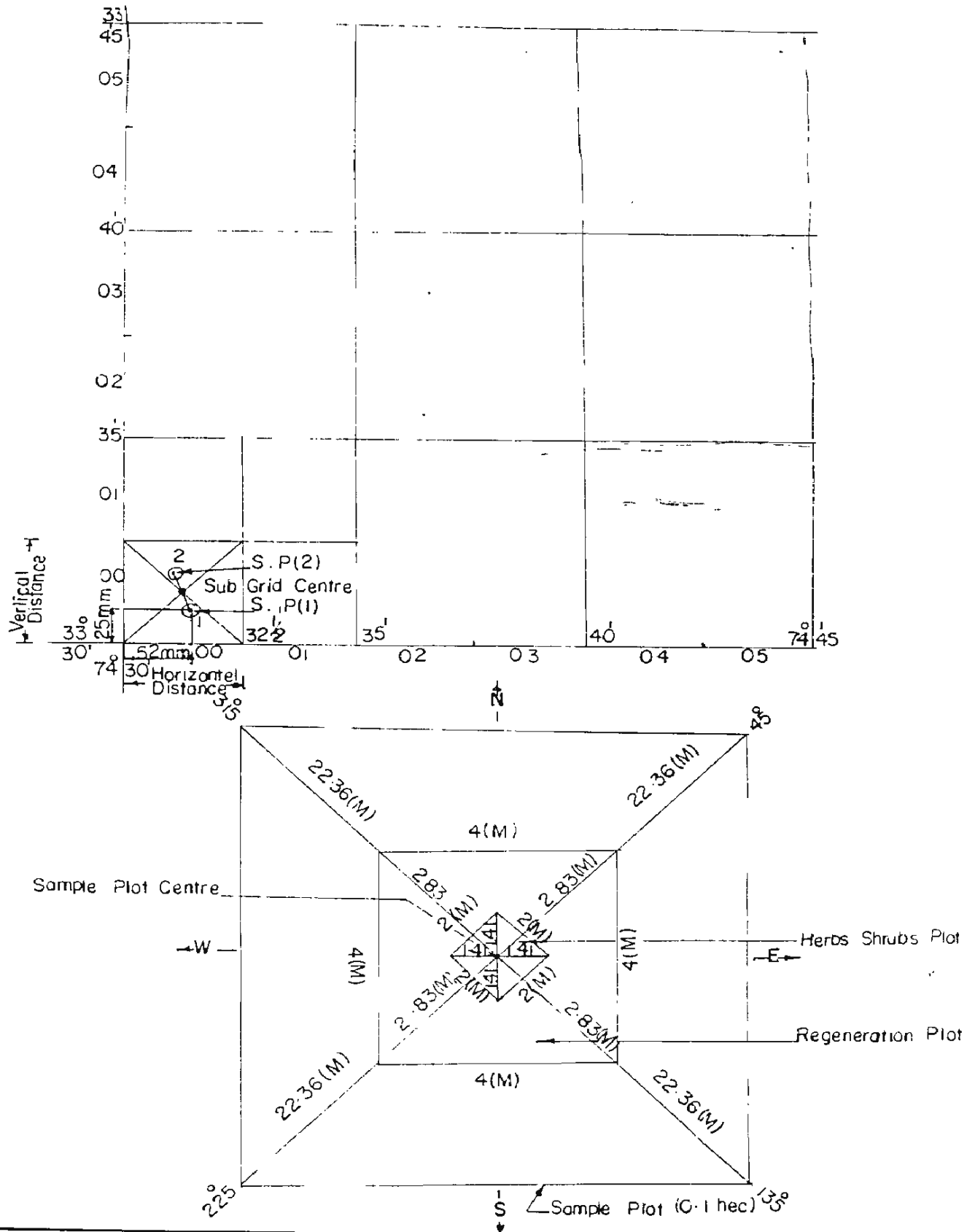
- vi) - Crossing of rail tract with roads, rivers, streams.
- vii) Junctions of rivers or streams with roads
- viii) Junctions of streams
- ix) Junctions of roads
- x) Prominent bends in roads, rivers, streams
- xi) Ponds and wells
- xii) Springs
- xiii) Prominent topographical features in hilly region such as spurs, knolls etc.
- xiv) Mile stones or kilometer stones.
- xv) Boundary pillars (of international, state, district and forest boundaries).

Having located a prominent physical feature (reference point) both on the ground as well as on the map, the distance & bearing of the sample point from this physical feature is measured from the map. The bearing is measured with the help of a protractor or the Silva's compass. At this reference point the crew leader records details of the reference feature used, the bearing distance of the sample point from the reference feature, the name of the camping spot, the time taken to complete the work etc, in the 'Plot Approach Form'. Information recorded in this form is used in time and cost study for the inventory and helping to relocate the point at a future date. Specimen of this Form is given in Appendix-III. From the reference point crew leader traverses the distance in the direction as measured on the map to reach the sample point. A wooden peg is fixed at this location which is the centre of the sample plot. After reaching the sample point, a square sample plot of 0.1 ha. area with diagonals measuring 44.72 metres in NE-SW & NW-SE directions is laid out on the ground by marking its four corners by pegs. Regeneration data is collected from a plot measuring 4 m x 4 m, and herb-shrub data from a plot of 2 m x 2 m size (see diagram at page)

After laying out the plot, the crew leader with the help of other crew members collects the inventory data in the following field forms:

- i) Plot description form
- ii) Plot enumeration Form
- iii) Sample tree form
- iv) Bamboo enumeration form (clump forming)
- v) Bamboo enumeration form (Non clump forming)
- vi) Bamboo weight form
- vii) Herbs and shrubs data form

SKETCH SHOWING SAMPLING DESIGN AND LAYOUT OF PLOTS



Facsimile of the above field forms may be found in Appendix-III. They are briefly described below:

(i) Plot description form(PDF)

Qualitative data such as land use, crop composition of tree crop and its density, intensity of erosion in the area, fire and grazing incidence, regeneration status etc. are recorded in this form. The basis of assessment is ocular, by examining a surrounding area of about 2 ha. around the plot centre.

(ii) Plot enumeration Form (PEF)

In this form the trees and bamboo clumps in the sample plot are enumerated and recorded with their species and diameter at breast height.

(iii) Sample tree Form (STF)

The data in this form is collected from the norther quarter of the sample plot. Name of the tree species, its diameter at breast height, twice bark thickness, dominance status, length of the clear bole, and height etc. of each tree enumerated in this quadrant are recorded. The data from this form helps in developing the local volume equations for the species in the survey area. Under bark volume is also derived from the local volume equations with the help of bark thickness data.

(iv) & (v) Bamboo enumeration (clump and non clump variety) Form

These Forms are used wherever bamboo clumps, whether of clump or non-clump forming variety, are encountered in the sample plots. Data such as culms in each clump, their size, maturity condition, length etc are recorded.

(vi) Bamboo weight Form

For determining the co-relation between green and dry weight of the utilizable length of bamboo culm, data on weight are recorded in this Form.

(vii) Herbs and shrubs data Form

In this form names and other details of all identifiable species of herbs and shrubs are recorded. In case of species that could not be identified in the field, the number of such species only are noted.

The above is a brief description of the design and given in survey methodology. The details are given in 'the Manual of instruction for field inventory' of Forest Survey of India.

CHAPTER - 3

DATA PROCESSING

3.0 Processing on electronic computer

After the completion of field work, the field forms (i to vii) of the region surveyed are consolidated and sent to the data processing unit of this organisation at Dehradun. The data contained in the field forms are checked for inconsistencies and coding mistakes. The coded data is then transferred on to punch card using punching machines. Punching mistakes, are detected with the help of card verifier, and the mistakes, if any, are rectified. The cards are then sorted and loaded onto the computer. A suitable programme is evolved to get the results in the desired format.

3.1 Area computation

The area of 'forest land' on the 1:50,000 scale, topographical maps was calculated using closely spaced dot grid template where one dot represented one hectare. The district-wise forest area was separately computed in respect of greenwash and demarcated blanks to obtain more reliable information about changes occurring in each category. Further distribution of forest area under various classes such as land use, accessible tree forest area, forest type, soil erosion status, grazing incidence, fire incidence, canopy density classes etc. was arrived at proportionately using ratio estimator. However it may be noted that area tables are based on few sample points and therefore, should be considered as indicative only and used with due caution.

3.2 Volume Estimation

Collection of felled tree data by zones for developing general volume equations has been discontinued. Therefore, the height diameter data of sample trees of current survey area were compared with height diameter data of other project areas completed by this organisation in the past for which general volume equation of species were available based on actual felled trees. The felled tree data found to match most closely were adopted for the present area.

General volume equations used in the report are :

1. Acacia catechu (Gujarat)

$$V = -0.009686 + 0.367188 D^2H - 0.012914 (D^2H)^2$$

2. Anogeissus species (Gujarat)

$$\frac{V}{D^2H} = 0.424503 - 0.009419 D^2H - 0.012484/D^2H$$

3. Lagerstromia parviflora (Balaghat)

$$\frac{V}{D^2H} = 0.489814 - 0.005520 D^2H + \frac{0.002565}{D^2H}$$

4. Lannea coromendilica (Rajasthan)

$$V = -0.004511 + 0.377131 D^2H$$

5. Shorea robusta (Balaghat)

$$\frac{V}{D^2H} = 0.489814 - 0.005520 D^2H + 0.002565/D^2H$$

6. Terminalia crenulata/tomentosa (Gujarat)

$$\frac{V}{D^2H} = 0.348579 - 0.001412 D^2H - 0.004409/D^2H$$

7. Boswellia serrata (Rajasthan)

$$\frac{V}{D^2H} = 0.382544 - 0.000751/D^2H$$

8. Rest of species (Balaghat)

$$\frac{V}{D^2H} = 0.489814 - 0.005520 D^2H + 0.002565/D^2H$$

The name in brackets is the report on which the equations is based.

On the basis of the above general volume equation the following local volume equation were derived for Southern U.P. region.

1. Acacia catechu (136)

$$V = 0.21612 - 4.16597 D + 24.50948 D^2 - 29.67773 D^3$$

2. Anogeissus species (99)

$$\sqrt{V} = - 0.20236 + 3.13959 D$$

3. Lagerstromia parviflora (90)

$$V = 0.10529 - 1.68829 D + 10.29573 D^2$$

4. Lanea coromendelica (144)

$$V = 0.04460 - 0.91313 D + 6.65224 D^2$$

5. Shorea robusta (128)

$$V = - 0.17763 + 0.54602\sqrt{D} + 3.62682 D^2$$

6. Tectona grandis* (18)

$$V = 0.17763 + 0.54602\sqrt{D} + 3.62682 D^2$$

7. Terminalia crenulata/tomentosa (77)

$$\sqrt{V} = 0.41071 + 5.51319 D - 2.59952\sqrt{D}$$

8. Boswallia serrata (95)

$$\sqrt{V} = - 0.15030 + 2.79425 D$$

9. Rest of species (804)

$$V = 0.17553 - 0.71434\sqrt{D} + 7.94663 D^2$$

Figures in the brackets indicate the number of trees on which the equations are based.

In the equations:-

V = Underbark volume (m)³ upto 5 cms top, overbark limit.

D = Breast height overbark diameter (m)

H = Total standing height (m)

* Due to less number of sample trees of tectona grandis species. The volume equation of Shorea robusta has been used for Tectona grandis.

3.3 Stand and stock tables:

The volume of each enumerated tree of a species was estimated by substituting its breast height overbark diameter in local volume equation of that species. The volumes converted to per hectare were stored in a tree/plot volume file together with species code, diameter of tree, parameters of plot description form, per hectare volume and stems of the plot. The elements of information stored in the above files were utilised to classify the tree by species and diameter. Estimates of number of stems and volume per hectare and total by species and diameter classes were obtained for different strata viz. district, forest types etc.

3.4 Sampling error

The sample was considered to constitute a simple random sample of unequal clusters as in many cases only one plot was available from a grid. The sampling error was calculated as follows:

Let n = Total No. of clusters (grids) in the sample

x_i = The No. of plots in the i^{th} cluster (grid)

y_i = The total of per hectare volume in the i^{th} cluster.

$$\bar{x} = \frac{\sum_{i=1}^n x_i}{n} = \text{Avg. No. of plots per cluster}$$

$$\hat{R} = \frac{\sum_{i=1}^n y_i}{\sum_{i=1}^n x_i} = \text{Estimate of average volume per hectare over all clusters.}$$

$$V(\hat{r}) = \frac{1}{n(n-1)\bar{x}^2} \left(\sum_{i=1}^n y_i^2 - 2\hat{R} \sum_{i=1}^n x_i y_i + \hat{R}^2 \sum_{i=1}^n x_i^2 \right)$$

(Ignoring finite population correction factor)

Estimate of standard error of \hat{R}

$$\text{S.E.} = \sqrt{V(\hat{R})}$$

$$\text{S.E. \%} = \frac{\text{S.E.} \times 100}{\text{Mean}} = \frac{\text{S.E.} \times 100}{\hat{R}}$$

The S.E. of the total volume for the region as a whole is calculated by pooling the SEs of Vol./ha. of districts, using the formula

$$\text{SE (Vol. region)} = \sqrt{\text{SE}_1^2 \cdot A_1^2 + \text{SE}_2^2 \cdot A_2^2 + \dots + \text{SE}_n^2 \cdot A_n^2}$$

Where $\text{SE}_1, \dots, \text{SE}_n$ are SEs of districts 1 to n

and A_1, \dots, A_n are areas of districts 1 to n

$$\text{SE (Vol. region)\%} = \frac{\text{SE (Vol. region)} \times 100}{\text{Total Vol. of region}}$$

Chapter - 4

FOREST INVENTORY RESULTS

4.0 In this chapter, the results of forest inventory and the critical aspects of forest resources as evident therefrom in the survey area are presented. This is a low intensity survey (0.01 percent). Its results are therefore, reliable and valid for the region as a whole. However, districtwise information of some attributes has also been given which may be considered as indicative only.

4.1 FOREST AREA

Forest area has already been defined in Chapter 2. This is an essential component of forest inventory and is computed from maps. In the present survey SOI topo sheets on 1:50,000 scale formed the basis of inventory survey and as such these were made use of in computing forest area and estimation of growing stock by ground surveys. Within the forest area the demarcated blank areas have been mentioned separately.

The survey area is covered by 149 topo sheets of 1:50,000 scale viz:- 54 E/12,15,16, 54 F/5,6,9,10,13, 54 I/3,4,7,8,12, 54 J/1,5,9,10,13,14,16, 54 K/6,7,8,10, 11,12,13,14,15,16, 54 L/1,2,3,5,6,7,9,10,11,12,13,14,15, 16, 54 N/1,2,3,4,5,6,7,8,9,10,11,12,13,14,16, 54 O/1,2, 3,4,5,6,7,8,9,10,11,12,13,14,15,16, 63 B/4, 63 C/1,2,3, 5,6,7,8,9,10,11,12,14,15,16, 63 D/5,13, 63 G/2,3,4,5,6, 7,8,10,11,12,14,15,16, 63 H/1,13, 63 K/2,3,4,6,7,8,10, 11,12,14,15,16, 63 L/1,2,5,6,9,10,11,12,13,14,15,16, 63 O/2,3,4,6,7,8,11, 63 P/1,2,3,4,5,6,7,8,10, 63 M/1, 64 I/13. Areas of these topo sheets were surveyed by survey of India during the period from 1966-67 to 1975-76. (see appendix I).

The year 1971 has therefore been taken as base year for monitoring the changes in the forest area till 1984 (1983 to 1985 being the field survey years) as computed from the greenwash as well as demarcated blanks on survey of India topo sheets. Forest area in these sheets has been computed by dot grids and the same alongwith number of sample plots inventoried therein are given in table No. 4.1.

Table No.4.1

Forest area (greenwash as well as demarcated blanks on 1:50,000 topo sheets computed by dot grid) districtwise and number of sample plots inventoried therein.

S.No.	District	Forest area (hectares)	No. of sample plots	Weightage of area (hectares) per plot
1.	Agra	17760	24	740
2.	Etawah	14659	18	814
3.	Jalaun	20925	25	837
4.	Jhansi	24135	27	894
5.	Lalitpur	55439	60	924
6.	Hamirpur	25912	31	836
7.	Banda	78219	89	879
8.	Allahabad	9453	12	788
9.	Mirzapur	382025	468	816
10.	Varanasi	63428	77	824
11.	Total	691955	831	-
12.	Demarcated blanks of all districts	88634	74	1198

Distribution of area in all the tables that follow has been worked out on the basis of ratio estimator.

4.1.1 Distribution of forest area by landuse classes

Total greenwash forest area surveyed is 6919.55 km² of which 77.39 percent (5354.83 km²) is under accessible tree forest, followed by 0.13 percent (8.79 km²) as inaccessible area. 11.70 percent (809.95 km²) diverted to agriculture or habitation and 9.24 percent (639.78 km²) is degraded to scrub, barren land, grassland and other lands, 1.53 percent (106.20 km²) is under bamboo brakes. One sample plot (representing an area of 8.79 km²) could not be visited due to difficult terrain and has been classified as inaccessible. However, this sample plot covering an area of 8.79 km² has been ascertained to be under tree cover. No data in respect of this sample plot could be collected during inventory. Forest area by plot status and thereby accessibility is given in table No. IV.1.1 alongwith the breakup of forest area by landuse classes.

Table No. 4.1.1.1

Distribution of forest area (Tree covered shown by greenwash and of demarcated blank for the region) and number of sample plots inventoried therein by land use

S. No.	Land use	AGRA		ETAWAH		JALAUN		JHANSI		LALITPUR		HAMIRPUR		BANDA	
		No. of sample plots	Area (km ²)	No. of sample plots	Area (km ²)	No. of sample plots	Area (km ²)	No. of sample plots	Area (km ²)	No. of sample plots	Area (km ²)	No. of sample plots	Area (km ²)	No. of sample plots	Area (km ²)
01	Tree forest	9	66.60	6	48.86	8	66.96	12	107.27	56	517.43	19	158.82	65	571.26
02	Plantation	6	44.40	6	48.87	4	33.48	2	17.88	-	-	3	25.08	6	52.73
03	Bamboo brakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-
04	Scrub forest	2	14.80	5	40.72	6	50.22	7	62.57	2	18.48	4	33.43	9	79.10
05	Govt. grass land	2	14.80	-	-	-	-	-	-	-	-	-	-	-	-
06	Barren land	-	-	-	-	-	-	-	-	-	-	-	-	-	-
07	Agricultural lands with/without trees in surround	4	29.60	1	8.14	7	58.59	6	53.63	2	18.48	5	41.79	6	52.73
08	Water bodies	1	7.40	-	-	-	-	-	-	-	-	-	-	2	17.58
09	Habitatlon	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	Non-forestry plantation	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	Inaccessibbe	-	-	-	-	-	-	-	-	-	-	-	-	1	8.79
Total:-		24	177.60	18	146.59	25	209.25	27	241.35	60	554.39	31	259.12	89	782.19
(a) Accessible forest area (01 to 06)		19	140.60	17	138.45	18	150.66	21	187.72	58	535.91	26	217.33	81	711.88
(b) Accessible tree forest area (01 to 02)		15	111.00	12	97.73	12	100.44	14	125.15	56	517.43	22	183.90	71	623.99
(c) Forest area de-forested or diver-ted for other uses (07+08+09+10)		5	37.00	1	8.14	7	58.59	6	53.63	2	18.48	5	41.79	8	70.31
(d) Forest area de-graded to scrub/barren land and grass (04+05+06)		4	29.60	5	40.72	6	50.22	7	62.57	2	18.48	4	33.43	9	79.10
(c) Bamboo brakes (03)		-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table-No. 4.1.1 (Continue)

Distribution of forest area (Tree covered shown by greenwash and of demarcated blank for the region) and number of sample plots inventoried therein by land use

S. No. Land use														
ALLAHABAD MIRZAPUR VARANASI TOTAL														
		No. of sample plots	Area (km ²)	No. of sample plots	Area (km ²)	No. of sample plots	Area (km ²)	No. of sample plots	Area (km ²)	%	No. of sample plots	Area (km ²)	%	
Demarcated blank of all districts														
01	Tree forest	5	39.39	360	2938.65	70	576.62	610	5091.86	73.59	15	179.66	20.27	
02	Plantation	1	7.88	4	32.65	-	-	32	262.97	3.80	18	215.60	24.33	
03	Bamboo brakes	-	-	12	97.96	1	8.24	13	106.20	1.53	1	11.98	1.35	
04	Scrub forest	3	23.63	35	285.70	-	-	73	608.65	8.80	16	191.64	21.62	
05	Govt. grass land	-	-	-	-	-	-	2	14.80	0.21	3	35.93	4.05	
06	Barren land	-	-	2	16.33	-	-	2	16.33	0.24	9	107.80	12.16	
07	Agricultural lands with/without trees in surround	3	23.63	51	416.31	5	41.18	90	744.08	10.75	12	143.73	16.22	
08	Water bodies	-	-	-	-	1	8.24	4	33.22	0.48	-	-	-	
09	Habitat	-	-	3	24.49	-	-	3	24.49	0.35	-	-	-	
10	Non-forestry plantation	-	-	1	8.16	-	-	1	8.16	0.12	-	-	-	
11	Inaccessible	-	-	-	-	-	-	1	8.79	0.13	-	-	-	
Total:-		12	94.53	468	3820.25	77	634.28	831	6919.55	100	74	886.34	100	
(a) Accessible forest area (01 to 06)		9	70.90	413	3371.29	71	584.86	732	6100.81	88.17	62	742.61	83.78	
(b) Accessible tree forest area (01 to 02)		6	47.27	304	2971.30	70	576.62	642	5354.83	77.39	33	395.26	44.59	
(c) Forest area de-forest or diver-ted for other uses (07+08+09+10)		3	23.63	55	448.96	6	49.42	98	809.95	11.70	12	143.73	16.22	
(d) Forest area de-graded to scrub/barren land and grass (04+05+06)		3	23.63	37	302.03	-	-	77	639.78	9.24	28	335.37	37.84	
(e) Bamboo brakes (03)		-	-	12	97.96	1	8.24	13	106.20	1.53	1	11.98	1.35	

On further examination of data therein, following critical aspects about state of forest resources in the region are evident.

- (a) Only 11.12 percent (6919.55 km^2) of total reported area of 62212 km^2 in the region was under forest cover in the year 1971, (reference year) shown as greenwash on topo sheets and 1.42 percent (886.34 km^2) under demarcated blanks. The total forest area in the region is 12.54 percent against the National forest policy which envisages 33 percent of geographical area to be under forest cover in hills for its proper ecological balance and development. Thus forest area in the region is far less than required under the National forest policy. Hence, there is a need to bring more areas under tree cover in the region for its ecological balance and economic development.
- (b) During the past 13 years (1971 to 1984) out of total greenwash area, 11.70 percent (809.95 km^2) and of demarcated blank 16.32 percent (143.73 km^2) has been diverted to agriculture or habitation, 9.24 percent (639.78 km^2) of greenwash and 37.84 percent (335.37 km^2) of demarcated blank is degraded to scrub, barren land and grass land etc. However, in the same period 44.59 percent (395.26 km^2) of demarcated blank area has been brought under forest tree cover which shows a considerable increase in bringing the area under forest tree cover. Though diversion of forest area to non-forestry purpose in past 13 years is not alarming but needs to be checked and stopped altogether for maintaining proper ecological balance.
- (c) Area under accessible greenwash tree forest is 5354.83 km^2 of which 8.52 percent (434.00 km^2) has canopy cover of 70 percent and above, 38.83 percent (1977.22 km^2) has canopy cover of 30 percent to 69 percent, 52.65 percent (2680.65 km^2) has canopy cover of 5 percent to 29 percent and the balance (262.96 km^2) area is under plantation. Over all canopy density is 34.02 percent.

In addition to 6919.55 km^2 of greenwash forest area, 886.34 km^2 area has been surveyed in demarcated blanks in all districts of the region combined. The forest area has been computed from the SOI topo sheets taking 1971 as base year of survey by Survey of India. The breakup of this area is as under:

Total demarcated blank area surveyed is 886.34 km² of which 44.59 percent (395.26 km²) is under accessible tree forest area followed by 16.22 percent (143.73 km²) diverted to agriculture and habitation, 37.84 percent (335.37 km²) has remained blank and 1.35 percent (11.98 km²) is under Bamboo brakes. By surveying the demarcated blank area, it is seen that out of 886.34 km² area shown as blank in 1971 (reference year) on the SOI topo sheets 44.59 percent (395.26 km²) has been brought under the tree cover.

4.1.2 Distribution of accessible forest area by soil depth

Total accessible forest area is 6100.81 km²
(table No. 4.1.1)

29.69% of greenwash area and 59.68% of demarcated blank area has soil depth of 90 cms and more, 29.99% of greenwash area and 12.90% of demarcated blank area has soil depth of 30 cms or more but less than 90 cms, 28.31% of greenwash area and 9.69% of demarcated blank area has soil depth of 15 cms or more but less than 30 cms, 10.79% of greenwash area and 17.74% of demarcated blank area has soil depth less than 15 cms while 1.22% of greenwash area has no soil. Distribution of accessible forest area under greenwash by districts and of demarcated blank for the region by soil depth classes is given in table No. 4.1.2.

Table No. 4.1.2

Total greenwash area : 6100.81 km²

Demarcated blank area: 742.61 km²

Unit : km²

Districts	S O I L D E P T H C L A S S					Total
	No soil	Soil depth less than 15 cms	Soil depth 15 cms or more but less than 30 cms.	Soil depth 30 cms or more but less than 90 cms.	Soil depth 90 cms or more	
Agra	-	7.40	-	-	133.20	140.60
Etawah	-	-	-	-	138.45	138.45
Jalaun	-	-	-	58.59	92.07	150.66
Jhansi	-	8.94	17.88	17.88	143.02	187.72
Lalitpur	-	36.96	120.12	230.99	147.84	535.91
Hamirpur	-	25.08	25.08	91.94	75.23	217.33
Banda	17.58	114.25	281.24	246.08	43.94	703.09
Allahabad	-	-	-	31.51	39.39	70.90
Mirzapur	57.14	448.96	1142.81	946.90	775.48	3371.29
Varanasi	-	16.48	140.03	205.94	222.41	584.86
Total:-	74.72	658.07	1727.16	1829.83	1811.03	6100.81
%	1.22	10.79	28.31	29.99	29.69	100
Demarcated blank of all districts	-	131.75	71.87	95.82	443.17	742.61
%	-	17.74	9.68	12.90	59.68	100

4.1.3 Distribution of accessible forest area by soil texture

As is evident from table 4.1.3, 15.87% of greenwash area and 24.19% of demarcated blank area has clayey soil, 45.70% of greenwash area and 43.55% of demarcated blank area has clayey loam, 9.84% of greenwash area and 6.45% of demarcated blank area has loam, 25.33% of greenwash area and 17.74% of demarcated blank area has sandy loam soil while 3.26% of greenwash area and 8.07% of demarcated blank area is sandy. This region does not have significant areas requiring specific treatment of choice of species from soil texture point of view. Distribution of accessible forest area under greenwash by districts and of demarcated blank for the region by soil texture is given in table No. 4.1.3.

Table No. 4.1.3.

Total greenwash area					: 6100.81 km ²	
Demarcated blank area					: 742.61 km ²	
Unit					: km ²	
Districts	S O I L			T E X T U R E		
	Clayey	Clayey loam	Loam	Sandy loam	Sandy	Total
Agra	-	66.60	-	51.80	22.20	140.60
Etawah	8.14	130.31	-	-	-	138.45
Jalaun	66.96	83.70	-	-	-	150.66
Jhansi	26.82	62.57	26.82	35.755	35.755	187.72
Lalitpur	18.48	323.39	138.60	55.44	-	535.91
Hamirpur	8.36	16.72	58.51	50.16	83.58	217.33
Banda	-	43.94	8.79	650.36	-	703.09
Allahabad	31.51	23.63	-	15.76	-	70.90
Mirzapur	791.80	1518.31	334.68	669.36	57.14	3371.29
Varanasi	16.48	518.95	32.95	16.48	-	584.86
Total:-	968.55	2788.12	600.35	1545.115	198.675	6100.81
%	15.87	45.70	9.84	25.33	3.26	100
Demarcated blank of all districts	179.66	323.40	47.91	131.75	59.89	742.61
%	24.19	43.55	6.45	17.74	8.07	100

4.1.4 Distribution of accessible forest area by soil erosion status

83.81% of greenwash area and 53.23% of demarcated blank area is under mild erosion i.e. no erosion or slight erosion has taken place, 10.75% of greenwash area and 6.45% of demarcated blank area has moderate erosion i.e. where small gullies and rills are formed on the top surface of soil, 5.31% of greenwash area and 40.32% of demarcated blank area has heavy erosion i.e. areas which have deep gullies ravines and land slips etc. Such areas need special attention from soil conservation point of view so as to prevent further degradation fellingings and grazings in such areas also need to be regulated. 0.13% of greenwash area is unrecorded. Hence not taken into account. Distribution of forest area under greenwash by districts and of demarcated blank for the region by soil erosion is given in table No. 4.1.4.

Table No. 4.1.4.

		Total greenwash area		:	6100.81 km ²
		Demarcated blank area		:	742.61 km ²
		Unit		:	km ²

	E R O S I O N		S T A T U S		
Districts	Mild erosion i.e. no ero- sion or sli- ght erosion where only surface ero- sion taken pla ce	Moderate ero- sion i.e. where small gullies and rills are formed on the top surface of soil	Heavy ero- sion i.e. areas whi- ch have deep gullies, ravines, land slips etc.	Un- recorded	Total

Agra	37.00	81.40	22.20	-	140.60
Etawah	-	57.01	81.44	-	138.45
Jalaun	41.85	33.48	75.33	-	150.66
Jhansi	53.633	80.451	53.633	-	187.72
Lalitpur	535.91	-	-	-	535.91
Hamirpur	108.67	41.79	66.87	-	217.33
Banda	667.94	35.15	-	-	703.09
Allahabad	63.02	7.88	-	-	70.90
Mirzapur	3020.28	318.36	24.49	8.16	3371.29
Varanasi	584.86	-	-	-	584.86

Total:-	5113.163	655.521	323.963	8.16	6100.81

%	83.81	10.75	5.31	0.13	100

Demarcated blank of all districts	395.26	47.91	299.44	-	742.61

%	53.23	6.45	40.32	-	100

* Un-recorded relates to those points where information could not be collected.

4.1.5 Distribution of accessible forest area by grazing incidence classes.

34.70% of greenwash area and 40.32% of demarcated blank area is under heavy grazing incidence class while incidence of medium grazing has been observed in 42.93% of greenwash area and 16.13% of demarcated blank area. The rest of the area has either light grazing or no grazing. Grazing in former areas needs to be regulated. Distribution of forest area under greenwash by districts and of demarcated blank for the region by grazing incidence classes is given in table No. 4.1.5.

Table No. 4.1.5

Total greenwash area ; 6100.81 km²
Demarcated blank area : 742.61 km²
Unit : km²

Districts	G R A Z I N G I N C I D E N C E					Total
	Heavy grazing	Medium grazing	Light grazing	No grazing	Un-recorded	
Agra	22.20	66.60	51.80	-	-	140.60
Etawah	40.72	65.15	16.29	16.29	-	138.45
Jalaun	75.33	66.96	8.37	-	-	150.66
Jhansi	160.90	17.88	8.94	-	-	187.72
Lalitpur	194.03	249.48	73.92	18.48	-	535.91
Hamirpur	108.67	83.58	16.72	8.36	-	217.33
Banda	87.89	246.08	237.29	123.04	8.79	703.09
Allahabad	63.02	7.88	-	-	-	70.90
Mirzapur	1232.60	1485.65	473.45	122.45	57.14	3371.29
Varanasi	131.80	329.49	107.09	16.48	-	584.86
Total:-	2117.16	2618.75	993.87	305.10	65.93	6100.81
%	34.70	42.93	16.29	5.00	1.08	100
Demarcated blank of all districts	299.44	119.78	119.78	35.93	167.68	742.61
%	40.32	16.13	16.13	4.84	22.58	100

* Un-recorded relates to those points where information not be collected.

4.1.6 Distribution of accessible forest area by plantation potential.

45.47% of greenwash area and 38.71% of demarcated blank area has been assessed as needing no further stocking by way of plantations. In 45.79% of greenwash area and 43.55% of demarcated blank area there is scope for afforestation or augmentation of stocking by enrichment plantation. 8.74% of greenwash area and 17.74% of demarcated blank area has been assessed as unplantable due to absence of soil cover of adverse conditions. Distribution of forest area under greenwash by districts and of demarcated for the forest region by plantation potential is given in table No. 4.1.6.

Table No. 4.1.6

Total greenwash area : 6100.81 km²

Demarcated blank area : 742.61 km²

Unit : km²

Districts	P L A N T A T I O N		P O T E N T I A L	
	Plantable	Un-plantable	Not applicable	Total
Agra	66.60	-	74.00	140.60
Etawah	81.44	-	57.01	138.45
Jalaun	58.59	-	92.07	150.66
Jhansi	98.33	8.94	80.45	187.72
Lalitpur	203.28	18.48	314.15	535.91
Hamirpur	150.45	16.72	50.16	217.33
Banda	263.66	96.67	342.76	703.09
Allahabad	39.39	-	31.51	70.90
Mirzapur	1501.98	310.19	1559.12	3371.29
Varanasi	329.49	82.38	172.99	584.86
Total:-	2793.21	533.38	2774.22	6100.81
%	45.79	8.74	45.47	100
Demarcated blank of all districts	323.40	131.75	287.46	742.61
%	43.55	17.74	38.71	100

Explanatory note:

Plantation potential was assessed only at those sample points having tree crown cover density of less than 30%. Plantable/unplantable potential was determined by giving due consideration to aspect, soil depth, drainage, crop in surrounding area and other biotic and climate factors. The maximum permissible slope upto which plantation can be raised was kept as 40° and minimum soil depth as 20 cms. Sample plots having crown density of 30% or more were catogorised as not applicable since plantation potential of such area from afforestation point of view is not of any significance.

4.1.7 Distribution of accessible forest area by fire incidence classes.

No incidence of very heavy fire has been observed. Only 1.07% of greenwash area and 1.61% of demarcated blank area has incidence of frequent fire. In rest of the area there is either incidence of occasional fire or there is no fire, or the area is unrecorded. Distribution of area under greenwash by districts and of demarcated blank for the region by fire incidence classes is given in table No.4.1.7

Table No. 4.1.7

Total greenwash area : 6100.81 km²
Demarcated blank area : 742.61 km²
Unit : Km²

Districts	F I R E I N C I D E N C E					Total
	Very heavy	Frequent	Occasional	No fire	*Unrecorded	
Agra	-	-	14.80	125.80	-	140.60
Etawah	-	-	-	138.45	-	138.45
Jalaun	-	-	83.70	66.96	-	150.66
Jhansi	-	-	62.57	107.27	17.88	187.72
Lalitpur	-	-	286.43	249.48	-	535.91
Hamirpur	-	-	58.51	158.82	-	217.33
Banda	-	-	448.22	237.29	17.58	703.09
Allahabad	-	-	47.26	15.76	7.88	70.90
Mirzapur	-	48.98	1469.33	1795.84	57.14	3371.29
Varanasi	-	16.48	8.24	560.14	-	584.86
Total:-	-	65.46	2479.06	3455.81	100.48	6100.81
%	-	1.07	40.63	56.65	1.65	100
Demarcated blank of all districts	-	11.98	131.75	419.22	179.66	742.61
%	-	1.61	17.74	56.45	24.20	100

* Un-recorded relates to those points where information could not be collected.

4.1.8. Distribution of accessible tree forest area by size class.

Accessible tree forest area in greenwash is 5354.83 km² and in demarcated blank area 395.26 km².

18.62% of the greenwash area and 69.70% of demarcated blank area is under regeneration. 55.42% of greenwash and 27.27% of demarcated blank is under pole crop. 16.83% of greenwash area is under small timber. Only 2.30% of greenwash area is under big timber while 6.83% of greenwash area and 3.03% of demarcated blank area is under mixed size class. Distribution of tree forest area under greenwash by districts and of demarcated blank for the region by size classes is given in table No. 4.1.8.

Table No. 4.1.8

Total greenwash area : 5354.83 km²

Demarcated blank area : 395.26 km²

Unit : km²

Districts	S I Z E C L A S S					Total
	Regenera- tion	Pole crop.	Small timber	Big timber	Mixed size class	
Agra	81.40	22.20	7.40	-	-	111.00
Etawah	57.01	32.58	-	-	8.14	97.73
Jalaun	75.33	25.11	-	-	-	100.44
Jhansi	26.82	53.63	44.70	-	-	125.15
Lalitpur	36.96	425.03	27.72	-	27.72	517.43
Hamirpur	66.87	108.67	8.36	-	-	183.90
Banda	114.25	430.64	61.52	8.79	8.79	623.99
Allahabad	15.76	23.63	7.88	-	-	47.27
Mirzapur	497.94	1681.56	644.87	106.12	40.81	2971.30
Varanasi	24.71	164.75	98.85	8.24	280.07	576.62
Total:-	997.05	2967.80	901.30	123.15	365.53	5354.83
%	18.62	55.42	16.83	2.30	6.83	100
Demarcated blank in all districts.	275.48	107.80	-	-	11.98	395.26
%	69.70	27.27	-	-	3.03	100

EXPLANATORY NOTE :

Regeneration: i.e. crop below 10 cms diameter predominating.

Pole crop : Crop between 10 to less than 20 cms diameter predominating.

Small timber: Crop 20 cms to under 30 cms diameter predominating.

Big timber : Tree with diameter 30 cms and over predominating.

Mixed size class : Tree crop with no marked domination of any class.

4.1.9 Distribution of accessible tree forest area by regeneration status.

Only 1.42% of greenwash area has adequate regeneration. 21.45% of greenwash and 21.21% of demarcated blank has inadequate regeneration while regeneration in 76.22% of greenwash and 78.79% of demarcated blank area is absent. Regeneration in 0.91% of greenwash area is un-recorded. Distribution of tree forest area under greenwash by districts and of demarcated blank for the region by regeneration is given in table No. 4.1.9

Table No. 4.1.9

					Total greenwash area : 5354.83 km ²
					Demarcated blank area : 395.26 km ²
					Unit : km ²
Districts	R E G E N E R A T I O N S T A T U S				Total
	Adequate	Inadequate	Absent (No reg- enera- tion)	Unrecorded (Regeneration plot could not be laid out be- cause of diffi- cult terrain)	
Agra	-	-	111.00	-	111.00
Etawah	-	40.72	57.01	-	97.73
Jalaun	-	16.74	83.70	-	100.44
Jhansi	-	17.88	107.27	-	125.15
Lalitpur	9.24	147.84	360.35	-	517.43
Hamirpur	-	25.08	158.82	-	183.90
Banda	17.58	149.41	457.00	-	623.99
Allahabad	-	7.88	39.39	-	47.27
Mirzapur	40.81	702.01	2179.50	48.98	2971.30
Varanasi	8.24	41.18	527.20	-	576.62
Total:-	75.84	1148.74	4081.24	48.98	5354.83
%	1.42	21.45	76.22	0.91	100
Demarcated blank of all districts	-	83.84	311.42	-	395.26
%	-	21.21	78.79	-	100

EXPLANATORY NOTE :

Adequate regeneration: Means where 8 or more than 8 seedlings (having diameter 2cms to less than 10 cms at breast height) of economically imported species were found in a regeneration plot of 16 square meter area.

Inadequate regeneration: Means where less than 8 seedling (having diameter between 2 cms to less than 10 cms) of economically important species were found in a regeneration plot of 16 sq. meter area.

4.1.10 Distribution of accessible tree forest area by type of injury to crop.

51.46% of greenwash area and 51.52% of demarcated blank area is affected by man made injuries while 7.97% of greenwash area and 3.03% of demarcated blank area is subjected to natural injuries. Injury to crop in 40.42% of greenwash area and 45.45% of demarcated blank area is absent. 0.15% area of greenwash is un-recorded. Distribution of tree forest area by under greenwash by districts and of demarcated blank for the region by type of injury to crop is given in table No. 4.1.10

Table No. 4.1.10

Total greenwash area : 5354.83 km²

Demarcated blank area : 395.26 km²

Unit : km²

District	I N J U R Y T O C R O P				Total
	Natural	Man made/ Un-natural	Absent *	Unrecorded	
Agra	14.80	37.00	59.20	-	111.00
Etawah	-	65.15	32.58	-	97.73
Jalaun	-	58.59	41.85	-	100.44
Jhansi	17.88	71.52	35.75	-	125.15
Lalitpur	64.68	267.95	184.80	-	517.43
Hamirpur	-	117.03	66.87	-	183.90
Banda	35.15	184.56	404.28	-	623.99
Allahabad	-	39.39	7.88	-	47.27
Mirzapur	285.70	1428.51	1248.93	8.16	2971.30
Varanasi	8.24	486.00	82.38	-	576.62
Total :-	426.45	2755.70	2164.52	8.16	5354.83
%	7.97	51.46	40.42	0.15	100
Demarcated blank of all districts	11.98	203.62	179.66	-	395.26
%	3.03	51.52	45.45	-	100

* Un-recorded relates to those points where information not to be collected.

EXPLANATORY NOTE:

Injury to crop was judged by ocular estimation in two hectare area around the centre of plot, provided the effected trees formed at least 10% of the crop.

Natural injury: Means injury by wind/snow of flood, climber, lightening, wildlife, borer attack, leaf defoleator or other posts.

Manmade/ un.natural : Means injury by gridling/illicit felling, scarring/fire, lopping.

4.1.11 Distribution of accessible tree forest area by forest types.

84.81% (4541.45 km²) of the total of 5354.83 km² of 'greenwash' accessible tree forest area falls under miscellaneous forest type. In 'demarcated blank' accessible tree forest area 87.88% (347.34 km²) out of 395.26 km² falls under miscellaneous forest type. Other forest types occurring in the region are Teak, Sal, Khair and Salai.

Distribution of accessible tree forest area under greenwash by districts and of demarcated blank for the region by forest types is given in table No. 4.1.11.

Table No. 4.1.11

Total greenwash area : 5354.83 km ²						
Demarcated blank : 395.26 km ²						
Unit : km ²						
Districts	F O R E S T A R E A					Total
	Teak	Sal	Khair	Salai	Miscellaneous	
Agra	-	-	-	-	111.00	111.00
Etawah	-	-	-	-	97.73	97.73
Jalaun	-	-	41.85	-	58.59	100.44
Jhansi	-	-	26.82	17.88	80.45	125.15
Lalitpur	55.44	-	46.20	-	415.79	517.43
Hamirpur	-	-	25.08	16.72	142.10	183.90
Banda	-	-	43.94	8.79	571.26	623.99
Allahabad	-	-	-	-	47.27	47.27
Mirzapur	-	236.72	204.07	81.63	2448.88	2971.30
Varanasi	8.24	-	-	-	568.38	576.62
Total:-	63.68	236.72	387.96	125.02	4541.45	5354.83
%	1.19	4.42	7.25	2.33	82.81	100
Demarcated blank of all districts	11.98	-	35.93	-	347.34	395.26
%	3.03	-	9.09	-	87.88	100

4.1.12 Distribution of accessible tree forest area
by forest types and canopy density classes

The table relates to 'tree forest area' which has developed canopy density of 5 percent and above. Out of 5354.83 km² of accessible tree forest area in greenwash 5091.87 km² area has developed canopy density of 5% and above. Out of 395.26 km² of accessible tree forest area in demarcated blank.179.67 km² has developed canopy density of 5% and above. The overall density % is 34.02 in greenwash and 28.40 in demarcated blank.

Distribution of 'canopied' accessible tree forest area under greenwash by districts and of demarcated blank for the region by forest types and canopy density classes is given in table No. 4.1.12 (a) and table No. 4.1.12 (b) respectively.

Table No. 4.1.12 (a)

Distribution of tree forest area under green wash by districts, forest types and canopy density classes

Area: 5091.86 km²*

Unit: km²

District	Canopy density class	Forest types					Total	Density %
		Teak	Sal	Khair	Salal	Misc		
Agra	70% & Above	-	-	-	-	22.20	22.20	
	30 to 69%	-	-	-	-	14.80	14.80	45.66
	5 to 29%	-	-	-	-	29.60	29.60	
Etawah	70% & above	-	-	-	-	-	-	
	30 to 69%	-	-	-	-	8.14	8.14	19.99
	5 to 29%	-	-	-	-	40.72	40.72	
Jalaun	70% & above	-	-	33.48	-	-	-	
	30 to 69%	-	-	33.48	-	25.11	58.59	45.50
	5 to 29%	-	-	8.37	-	-	8.37	
Jhansi	70% & above	-	-	-	-	-	-	
	30 to 69%	-	-	8.94	8.94	44.70	62.58	35.00
	5 to 29%	-	-	-	8.94	35.75	44.69	
Lalitpur	70% & above	18.48	-	-	-	55.44	73.92	
	30 to 69%	27.72	-	9.24	-	194.03	230.99	40.21
	5 to 29%	9.24	-	36.96	-	166.32	212.52	
Hamirpur	70% & above	-	-	-	-	-	-	
	30 to 69%	-	-	8.36	-	16.72	25.08	19.68
	5 to 29%	-	-	8.36	16.72	108.66	133.74	
Banda	70% & above	-	-	8.79	-	35.15	43.94	
	30 to 69%	-	-	26.37	-	219.71	246.08	34.96
	5 to 29%	-	-	8.79	8.79	263.66	281.24	
Allahabad	70% & above	-	-	-	-	-	-	
	30 to 69%	-	-	-	-	23.63	23.63	35.59
	5 to 29%	-	-	-	-	15.76	15.76	

Contd. in next page

Teak Sal Khan Sal Mxe.

Mirzapur	70% & above	-	57.14	8.16	16.33	204.07	285.70	
	30 to 69%	-	130.61	138.77	40.81	857.11	1167.30	44.23
	5 to 29%	-	48.98	57.14	24.49	1355.04	1485.65	
Varanasi	70% & above	8.24	-	-	-	-	8.24	
	30 to 69%	-	-	-	-	140.03	140.03	23.75
	5 to 29%	-	-	-	-	428.35	428.35	
Total		63.68	236.73	361.73	125.02	4304.70	5091.86	
Density %		59.46	50.99	39.73	37.59	32.13		
Overall density %								34.02

*Note: 262.97 km² of tree forest area falls under land use 'plantation'. Canopy in such area is not formed i.e. Canopy density is below 5 percent. Such area has been omitted from this analysis.

Table No. 4.1.12 (b)

Distribution of tree forest area under 'demarcated blank' for the region by forest types and canopy density classes

		Area: 179.66 km ²				
		Unit: km ²				
	Canopy density class	Forest types			Total	%
		Teak	Khair	Misc		
Southern U.P. Region	70% & above	-	-	-	-	-
	30% to 69%	11.98	23.96	35.93	71.87	28.40
	5% to 29%	-	-	107.79	107.79	
Total		11.98	23.96	143.72	179.66	
Density%		50.00	50.00	23.00	28.40	
Over all density%						28.40

Note: 215.60 km² of tree forest area falls under land use 'plantation'. Canopy in such area is not formed i.e. Canopy density is below 5 percent. Such area has been omitted from this analysis.

4.2 Stand and stock tables.

Distribution of volume per hectare (stock table) and stems per hectare (stand table) by species and diameter classes in accessible tree forest area of the region are given forest type wise from table No. IV.2.21 to IV.2.30. The over all distribution of stock and stems is given in table No. IV.2.31 and IV.2.32. Abstract of the forest type wise stock and stand table is given below:

Stratum : Southern U.P.
Accessible tree : 5354.83 km²
forest area

'Forest area surveyed in green wash'

Forest type	Total area ha.	Vol/ha. m ³ /ha.	Stems/ha.
Teak	6368	24.687	188.938
Sal	23672	26.399	190.035
Khair	38796	5.027	68.799
Salai	12502	26.921	108.587
Miscellaneous	454145	14.075	92.761
Total:-	535483	14.390	96.852

The number of stems per hectare are 96.852 where as the volume per hectare is 14.390 m³. These figures reflect that the crop is sparse and volume per tree is very low.

Stand and stock table for demarcated blank

Forest type	Total area ha.	Vol/ha. m ³ /ha.	Stems/ha.
Teak	1198	-	-
Khair	3593	-	-
Miscellaneous	34734	4.714	65.174
Total:-	39526	4.143	52.273

This table shows that out of 88634 ha of demarcated blank, 39526 ha. has been afforested.

4.2.1 Growing stock in forest types and its critical aspects

(i) Teak forest type

This type occurs over 63.68 km^2 out of the 5354.83 km^2 of accessible tree forest area in 'green wash', thus accounting for 1.19 percent of the area. The overall canopy density is 59.46 percent. Amongst the forest type in this region, the canopy density is highest in teak forest type. Growing stock per hectare in this forest type is $24.687 \text{ m}^3/\text{ha}$. Teak accounts for 28.9 percent of the growing stock. Other species occurring are *Lagerstroemia parviflora* 3.8 percent, *Lannea coromandelica* 1.9 percent, *Acacia catechu* 0.2 percent and *Terminalia tomentosa* 0.2 percent. Rest of the species contribute 65.0 percent to the growing stock. The crop has 4.807 m^2 basal area and 189 stems per hectare. The crop diameter corresponding to the above basal area and number of stems is 0.18 m.

Teak forest type also occurs in 3.03 percent of the demarcated blank regenerated. (11.98 km^2 out of 395.26 km^2)

(ii) Sal forest type :

This type occurs over 236.72 km^2 out of the 5354.83 km^2 of accessible tree forest area in 'green wash'. Thus accounting for 4.42 percent of the area. The overall canopy density is 50.99 percent. Growing stock per hectare in this forest type is $26.399 \text{ m}^3/\text{ha}$. Sal accounts for 47.4 percent of the growing stock. Other species contributing to the growing stock are *Boswellia serrata* 10.0 percent, *Terminalia tomentosa* 5.3 percent and *Acacia catechu*, *Anogeissus* species, *Lagerstromia parviflora*, *Lannea coromandelica* 4.0 percent. Other miscellaneous species contribute 33.3 percent to the growing stock. The crop has 4.835 m^2 basal area and 190 stems per hectare. The crop diameter corresponding to the above basal area and number of stems is 0.18 m.

(iii) Khair Forest Type :

This type occurs over 387.96 km² of the accessible tree forest area in 'green wash', thus accounting for 7.25 percent of the area. The overall canopy density is 39.73 percent; growing stock per hectare in this forest type is 5.027 m³/ha., which lowest amongst the forest types in the region. Khair accounts for 21.2 percent of the growing stock. Other predominant species are *Boswellia serrata* 18.9 percent, *Anogeissus* species 8.7 percent, *Lannea coromandelica* 6.2 percent. Rest of the miscellaneous species contribute 49.0 percent to the growing stock. The crop has 1.562 m² basal area and 69 stems per hectare. The crop diameter corresponding to the above basal area and number of stems is 0.17 m.

Khair forest type also occurs in 9.09 percent of the demarcated blank regenerated (35.93 km² out of 395.26 km²).

(iv) Salai Forest Type :

This type occurs over 125.02 km² of the accessible tree forest area in 'green wash', thus accounting for 2.33 percent of the area. The overall canopy density is 37.59 percent. The growing stock per hectare in this forest type is 26.921 m³/ha., which highest amongst the forest type in the region. Salai accounts for 70.6 percent of the growing stock. Other species are *Anogeissus* species 6.6 percent, *Lannea coromandelica* 3.3 percent, *Terminalia tomentosa* 2.2 percent, *Lagerstroemia parviflora* 1.0 percent and *Acacia catechu* 0.9 percent. Other Miscellaneous species contribute 15.4 percent of the growing stock. The crop has 4.512 m² basal area and 108 stems per hectare. The crop diameter corresponding to the above basal area and number of stems is 0.23 m.

(v) Miscellaneous Forest Type :

This type is most abundant in the region, occurring over an area of 4541.45 km². This is 82.81 percent of the accessible tree forest area of 5354.83 km² in 'green wash'. The overall canopy density is 32.13 percent, which is the lowest amongst the forest type in the region. The growing stock per hectare in this forest type is 14.075 m³/ha. The species contributing to the growing stock are *Boswellia serrata* 13.4 percent, *Lannea coromandelica* 6.9 percent, *Anogeissus* species 6.6 percent, *Lagerstroemia parviflora* 4.8 percent, *Shorea robusta* 4.4 percent, *Terminalia tomentosa* 4.0 percent, *Acacia catechu* 2.3 percent, *Tectona grandis* 0.4 percent and miscellaneous species 57.2 percent. The crop has 2.630 m² basal area and 93 stems per hectare. The crop diameter corresponding to the above basal area and the number of stems is 0.19 m.

87.88 percent of the demarcated blank has been regenerated under miscellaneous forest type. (347.34 km² out of 395.26 km²). The volume per hectare and stems per hectare is 4.7 m³ and 65 respectively.

4.2.2 Analysis of growing stock in districts

The volume per hectare and stems per hectare by species and dia-meter classes in accessible tree forest area districtwise is given in table No. IV.2.1 to IV.2.20. These tables are given at the end of this chapter. The abstract of the tables is given below:

Stratum : Southern U.P.
Accessible tree : 535483 km²
forest area

S.No.	District	Area/ha.	Volume/ha. m ³ /ha.	Stems/ha.
1.	Agra	11100	9.788	39.333
2.	Etawah	9773	5.596	55.833
3.	Jalaun	10044	3.259	53.333
4.	Jhansi	12515	14.473	88.392
5.	Lalitpur	51743	13.728	103.572
6.	Hamirpur	18390	4.183	41.364
7.	Banda	62399	10.735	121.666
8.	Allahabad	4727	12.290	23.333
9.	Mirzapur	297130	17.079	101.947
10.	Varanasi	57662	12.812	89.001

Total:-		535483	14.390	96.852

From the above table it is observed that volume per hectare varies from 3.259 m³ in Jalaun district to 17.079 m³ in Mirzapur district. Number of stems varies from 23.333 per hectare in Allahabad district to 121.666 stems per hectare in Banda district.

The whole of the accessible tree forest area sampled has a total growing stock of 7.7 million m³ and 51.9 million stems. Per hectare volume and stems in the accessible tree forest area is 14.390 m³ and 96.852 stems respectively.

4.3 Bamboo area and Inventory

In the Southern U.P. region, the occurrence of bamboo has been found in pure, as well as overlapping with tree forest. The bamboo species found in the region is *Dendrocalamus strictus*. The total bamboo bearing area in the region is 1152.55 km²

4.3.1 The district wise distribution of bamboo bearing area into pure and overlapping crop is given in table No.4.3.1. Out of 1152.55 km² of bamboo area 9.28% (106.94 km²) is pure bamboo area and 90.72 % (1045.61 km²) is overlapping bamboo area.

Table No. 4.3.1

District	No. of plots	Pure bamboo area	No. of plots	Mixed bamboo area	Area Unit: km ²	
					No. of plots	Total
Jhansi	1	8.94	-	-	1	8.94
Lalitpur		-	3	27.72	3	27.72
Banda		-	7	61.53	7	61.53
Allahabad		-	1	7.88	1	7.88
Mirzapur	11	89.76	92	750.72	103	840.48
Varanasi	1	8.24	24	197.76	25	206.00
Total	13	106.94	127	1045.61	140	1152.55*
%		9.28		90.72		100

*Bamboo area calculated by using district weightage.

It is evident from the above table that reliable districtwise bamboo results cannot be given because of insufficient number of plots in Jhansi, Lalitpur, Banda and Allahabad districts. Hence in the subsequent tables the bamboo data has not been analysed separately for the districts. Similarly pure bamboo and overlapping bamboo areas have been merged for the subsequent analysis.

4.3.2 Distribution of Bamboo area by quality classes

		Area:	1152.55 km ²
		No. of plots:	140
		Area Unit:	km ²
Quality class*	No. of plots	Area	%
I	38	312.84	27.1
II	68	559.81	48.6
III	29	238.74	20.7
IV	5	41.16	3.6
Total	140	1152.55	100

Out of 1152.55 km² of bamboo area, 27.1% (312.84 km²) is of I quality, 48.6% (559.81 km²) is of II quality and 20.7% (238.74 km²) is of III quality and 3.6% (41.16 km²) is of IV quality i.e. regeneration crop.

<u>*Bamboo quality class</u>	<u>Description</u>
I	Average culm height 6 metres or more for <u>Dendrocalamus strictus</u> and 14 metres or more for <u>Bambusa arundinacea</u>
II	Average culm height 4 metres or more but less than 6 metres for <u>Dendrocalamus strictus</u> and 10 metres or more but less than 14 metres for <u>Bambusa arundinacea</u>
III	Average culm height of 2 metres or more but less than 4 metres for <u>Dendrocalamus strictus</u> and two metres or more but less than 10 metres for <u>Bambusa arundinacea</u>
IV	Regeneration crop.

4.3.3 Mean number of clumps/ha

For each quality class, the size class-wise distribution of clumps per hectare are given in the table No.4.3.3.

Table No. 4.3.3

				Unit: Clumps/ha
Quality	Size classes*			Total
	1	2	3	
I	61.05	27.89	2.11	91.05
II	45.88	13.97	0.88	60.73
III	16.20	6.21	0.34	22.75
IV	2.00	-	-	2.00

The overall clumps/ha in the region are 59.

4.3.4 Mean number of culms/clump by size classes

The mean number of culms per clump vary according to the size class of the clump. The distribution is given below:

<u>Size class*</u>	<u>Mean number of culms/clump</u>
1	12
2	23
3	33

<u>*Clump size class</u>	<u>Description</u>	
1	Small	All clumps with less than 1 metre average diameter.
2	Medium	Clumps of average diameter between 1 metre to less than 2 metres.
3	Large	Clumps of average diameter 2 metres and over.

4.3.5 The quality wise distribution of culms by soundness is given in table No.4.3.5. The total culms sampled are 2201.

Table No. 4.3.5

Quality	Green sound	Green damaged	Dry sound	Dry damaged	Decayed	Total
I	533 54.06	152 15.41	42 4.26	90 9.13	169 17.14	986 100
II	535 49.86	343 31.97	26 2.42	108 10.07	61 5.68	1073 100
III	45 31.69	54 38.03	11 7.75	25 17.60	7 4.93	142 100

From the above table to obtain equivalent number of sound culms, the following criteria is used.

Damaged culms = $\frac{1}{2}$ Sound culm.

Decayed culms are considered to contribute nothing to the inventory. For the purpose of numbers, green and dry culms are equal. The equivalent sound culms are given below:

Equivalent sound culms - quality wise

Quality	%
I	70.59
II	73.30
III	67.25

4.3.6 Mean length of bamboo - quality wise

Table No. 4.3.6.

Bamboo quality	No. of samples	Mean dia of bamboo culm	Mean total length (m)	upto 1 cm top dia (m)	upto 2 cm top dia (m)
I	19	2.79	6.84	5.46	3.80
II	20	2.65	5.81	4.38	2.90
III	-	-	3.00	1.6	-
IV	- - -	- - -	Regeneration crop	- - -	- - -

* Mean figures for quality class III

4.3.7 Average dry weight of equivalent sound culms - quality wise

Table No. 4.3.7

Quality	No. of sample	Green weight (kgs)	Dry weight (kgs)
I	19	3.348	2.087
II	20	2.360	1.470
III	-	-	0.500*
IV	- - - Regeneration crop - - -		

* Mean dryage 62.33%. Dry wt. based on mean total length of III quality bamboo.

4.3.8 Total bamboo culms - quality wise

Table No. 4.3.8

Quality	No. of culms	Mean dry weight per culm (kgs)	Dry weight Kgs
I	31881769	2.087	66537252
II	36968007	1.470	54342970
III	5594457	0.500	2797228
Total:- 74,444,233			123,677,450

The total number of culms are 74.44 million and the dry weight is 123.67 thousand tonnes.

4.4 Sampling error

Standard error percent of growing stock district wise is given below :

District	Total volume 000, m ³	S.E. percent
Agra	108.646	71.477
Etawah	54.695	32.957
Jalaun	32.732	47.060
Jhansi	181.133	50.140
Lalitpur	710.344	21.704
Hemirpur	76.935	42.065
Banda	669.864	14.844
Allahabad	58.095	44.943
Mirzapur	5074.626	7.995
Varanasi	738.773	15.533
Total:-	7705.843	6.196

The standard error expressed as the percentage of growing stock in the hill region is 6.196 percent.

4.5 Household fuel consumption in the Southern U.P. region

Information on the quantity and pattern of fuel consumption in rural households of the survey area was also collected while doing the forest inventory works. This information was collected by direct inquiry method from four representative households of villages selected. Villages where the forest inventory Crew set up camps for halts were selected for sampling. These villages, naturally come near the forest areas. The information so collected was compiled and is given in table No. 4.5.1 Fuelwood consumption pattern varies depending upon distance of village from the forest. This information gives indication about the rural fuelwood consumption in the vicinity of forests.

From the table it is seen that on the average, per capita per annum fuelwood/Agricultural waste consumption is 758 kgs of which 592 kgs come from trees, 157 kgs from brushwood and 9 kgs from agricultural waste. 100 per cent fuel consumption from trees and brushwood comes from Govt. forests. As regards fuel consumption from agricultural waste, it comes 100 percent from private land.

Other sources of energy are kerosene oil and dung. The per capital per annum consumption is 5.08 litres and 61 kgs respectively. Kerosene oil is mainly used for lighting purpose in lanterns.

The fuelwood consumption in Mirzapur district is significantly higher than that of the rest of the districts sampled. The per capita per annum fuelwood consumption in Mirzapur district is 810 kgs and the rest of the districts is 298 kgs. Brushwood consumption varies from 40 kgs in Jhansi to 344 kgs in Varanasi. No brushwood consumption was reported from Banda (8 households sampled).

Consumption of Agricultural waste has not been reported from Banda, Lalitpur and Varanasi districts. In other districts the per capita per annum consumption varies from 6 kgs in Mirzapur district to 51 kgs from Hamirpur district.

Kerosene consumption shows an even trend. The per capita per annum consumption varies from 2.85 litres in Jalaun to 7.25 litres in Lalitpur with a regional even consumption of 5.08 litres.

Cow dung consumption shows a wide range.

No consumption has been reported from Varanasi district (20 households sampled). In other districts cow dung consumption varies from 30 kgs in Lalitpur district to 326 kgs in Hamirpur district.

List of villages sampled for house-hold fuel consumption:

<u>District</u>	<u>Name of village</u>	<u>No. of house-holds sampled</u>
Jalaun	Niamatpur	4
	Sareni	4
Jhansi	Katera	4
	Bhoogon	4
	Ardi	4
	Gorha	4
Lalitpur	Balabahat	4
	Bhamouri Bansha	4
	Dhourri Sagar	4
	Larwan	4
	Nathikhua	4
Hamirpur	Deriganj	4
	Bhagauna	4
Banda	Lachhmanpur	4
	Kihunia	4
Mirzapur	Manchi	4
	Rampur	4
	Panauna	4
	Chakaria	4
	Bhalukhuder	4
	Ghicharwa	4
	Bagharwa	4
	Harpura	4
	Kurechi	4
	Charam	4
	Pipara	4
	Sukhara	4

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	Barahara	4
	Khadar	4
	Laut	4
	Bhitri	4
	Chirui	4
	Tita	4
	Maruar	4
	Lalli	4
	Kandhari	4
	Majrohi	4
	Jaroha	4
	Barwadih	4
	Lusa	4
	V. Patahra	4
	Ludki	4
	Telgarwah	4
	Jhiringadandi	4
	Bhalukhadar	4
	Patgori	4
	Kondari	4
Varanasi	Parhanti	4
	Dhotwa	4
	Lowari	4
	Majgain	4
	Amritpur	4
Total = 52 Villages		208 households

Table No. 4.5.1

House hold fuel consumption pattern in Southern U.P. survey area

Sl. No.	District	No. of House-holds sampled	Total family members	Per capita per annum consumption					
				From trees			From brushwood		
				Total kgs	% from Govt. forests	% from private land	Total kgs	% from Govt. forests	% from private land
1	2	3	4	5	6	7	8	9	10
1.	Mirzapur	128	1114	810	100	-	148	100	-
2.	Jhansi	16	163	349	100	-	40	100	-
3.	Banda	8	126	261	100	-	-	-	-
4.	Jalaun	8	55	97	100	-	131	100	-
5.	Hamirpur	8	95	233	100	-	137	100	-
6.	Varanasi	20	193	270	100	-	344	100	-
7.	Lalitpur	20	193	394	100	-	234	100	-
Per capita per annum consumption for survey area				592			157		

Continued in next page

Table No. 4.5.1

House-hold fuel consumption pattern in Southern U.P. survey area

Sl. No.	District	No. of house-holds sampled	Total family members	Per capita per annum consumption			
				Agricultural waste in kgs (100% from private land	Total of Cols. 5, 8 & 11 in kgs	Kerosene oil in litres	Cow dung in kgs.
				11	12	13	14
1.	Mirzapur	128	1114	6	964	5.98	36
2.	Jhansi	16	163	36	425	3.75	202
3.	Banda	8	126	-	261	4.86	32
4.	Jalaun	8	55	34	262	2.85	65
5.	Hamirpur	8	95	51	421	3.83	326
6.	Varanasi	20	193	-	614	2.95	-
7.	Lalitpur	20	195	-	628	7.25	30
Per capita per annum 208 consumption for survey area				9	758	5.08	61

consumption for survey area

Note: The above data was collected from rural areas located in the vicinity of forest lands. Therefore this consumption pattern applies to such areas only.

Table No. IV.2.1

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area.

District : AGRA

Area : 11100 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms')								Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+		
1.	Acacia catechu	-	-	-	-	-	-	-	-	-	-
2.	Anogeissus sp.	-	-	-	-	-	-	-	-	-	-
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-
4.	Lagerstromia parviflora	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	17.624	9.922	42.714	19.334	-	19.052	-	-	108.646	100.0
Total		17.624	9.922	42.714	19.334	-	19.052	-	-	108.646	
Vol/ha m ³ /ha		1.588	0.894	3.848	1.742	-	1.716	-	-	9.788	
%		16.221	9.132	39.315	17.796	-	17.536	-	-		100.0

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Table No. IV.2.2

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area. District : ETAWAH

Area : 9773 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms')									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	-	-	-	-	-	-	-	-	-	-
2.	Anogeissus <i>apa</i>	-	-	-	-	-	-	-	-	-	-
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-
4.	Lagerstromia parvi- flora	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	28.489	13.936	12.270	-	-	-	-	-	54.695	100.0
	Total	28.489	13.936	12.270	-	-	-	-	-	54.695	
	Vol/ha m ³ /ha	2.915	1.426	1.255	-	-	-	-	-	5.596	
	%	52.1	25.5	22.4	-	-	-	-	-		100.0

Table No. IV.2.3

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area,

District : JALAUN

Area : 10044 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	1.036	-	-	-	-	-	-	-	1.036	3.2
2.	Anogeissus sp.	-	-	-	-	-	-	-	-	-	-
3.	Boswellia serrata	5.985	2.029	-	-	-	-	-	-	8.014	24.5
4.	Lagerstromia parviflora	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	18.128	5.554	-	-	-	-	-	-	23.682	72.3
	Total	25.149	7.583	-	-	-	-	-	-	32.732	
	Vol/ha m ³ /ha	2.505	0.754	-	-	-	-	-	-	3.259	
	%	76.8	23.2	-	-	-	-	-	-	-	100.0

Table No. IV.2.4

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area.

District : JHANSI

Area : 12515 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)								Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+		
1.	Acacia catechu	4.952	-	-	-	-	-	-	-	4.952	2.7
2.	Anogeissus <i>sp.</i>	4.847	2.398	10.505	-	-	-	-	-	17.750	9.8
3.	Boswellia serrata	3.431	15.897	-	-	-	-	-	-	19.328	10.7
4.	Lagerstromia parviflora	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	3.239	-	-	-	-	-	-	3.239	1.8
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	36.309	37.420	50.929	11.206	-	-	-	-	135.864	75.0
Total		49.539	58.954	61.434	11.206	-	-	-	-	181.133	
Vol/ha. m ³ /ha		3.958	4.711	4.909	0.909	-	-	-	-	14.473	
%		27.3	32.6	33.9	6.2	-	-	-	-		100.0

Table No. IV.2.5

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area.

District : LALITPUR

Area : 51743 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)										Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+				
1.	Acacia catechu	13.732	-	-	-	-	-	-	-	-	13.732	1.9	
2.	Anogeissus <i>sp</i>	1.668	-	-	-	-	-	-	-	-	1.668	0.8	
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-	-	
4.	Lagerstromia parviflora	25.203	5.588	-	-	-	-	-	-	-	30.791	4.3	
5.	Lannea coromandellica	13.890	24.550	4.321	-	-	-	-	-	-	42.761	6.0	
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-	-	
7.	Tectona grandis	29.410	27.106	-	-	-	-	-	-	-	56.516	8.0	
8.	Terminalia tomentosa	6.696	2.825	-	-	-	-	-	-	-	9.521	1.4	
9.	Misc. species	190.330	98.217	49.172	50.368	40.203	32.078	36.152	54.835	551.355	77.6		
	Total	284.929	158.286	53.493	50.368	40.203	32.078	36.153	54.835	710.344			
	Vol/ha m ³ /ha	5.507	3.059	1.034	0.973	0.777	0.620	0.698	1.060	13.728			
	%	40.1	22.3	7.5	7.1	5.7	4.5	5.1	7.7			100.0	

Table No. IV.2.6

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area. District : HAMIRPUR

Area : 18390 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	0.624	-	-	-	-	-	-	-	0.624	0.8
2.	Anogelssus <i>sp.</i>	1.795	-	-	-	-	-	-	-	1.795	2.3
3.	Boswellia serrata	8.550	7.091	6.120	-	-	-	-	-	21.761	28.3
4.	Lagerstromia parviflora	1.154	-	-	-	-	-	-	-	1.154	1.5
5.	Lannea coromandelica	0.320	1.744	-	-	-	-	-	-	2.064	2.7
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	58
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	1
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	20.787	17.815	10.935	-	-	-	-	-	49.537	64.4
Total		33.230	26.650	17.055	-	-	-	-	-	76.935	
Vol/ha m ³ /ha		1.807	1.449	0.927	-	-	-	-	-	4.183	
		43.2	34.6	22.2	-	-	-	-	-		100.0

Table No. IV. 2.7

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area.

District : BANDA

Area : 62399 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms')									Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+			
1.	Acacia catechu	30.231	9.800	-	-	-	-	-	-	40.031	6.0	
2.	Anogeissus <i>sp.</i>	24.597	1.835	-	-	-	-	-	-	26.432	3.9	
3.	Boswellia serrata	14.807	7.827	23.063	11.887	-	-	-	-	57.586	8.6	
4.	Lagerstromia parviflora	19.677	2.041	-	-	-	-	-	-	21.718	3.2	
5.	Lannea coromandelica	60.197	39.193	20.915	6.929	-	-	-	-	127.234	19.0	
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	- 59 -	
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-	
8.	Terminalia tomentosa	8.413	-	-	-	-	-	-	-	8.413	1.3	
9.	Misc. species	159.355	73.329	33.573	63.475	15.900	-	-	-	388.450	58.0	
Total		317.279	134.025	77.551	82.291	15.900	-	-	-	669.864		
Vol/ha m ³ /ha		5.084	2.148	1.243	1.319	0.255	-	-	-	10.735		
%		47.4	20.0	11.6	12.3	2.3	-	-	-	6.4	100.0	

Table No. IV. 2.8

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area.

District : ALLAHABAD

Area : 4727 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms')									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	0.186	-	-	-	-	-	-	-	0.186	0.3
2.	Anogeissus <i>arpa</i>	-	2.969	-	-	-	-	-	-	2.969	5.1
3.	Boswellia serrata	0.569	-	-	-	-	-	-	-	0.569	1.0
4.	Lagerstromia parvi- flora	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	3.706	2.482	11.564	9.268	-	27.351	-	-	54.371	93.6
	Total	4.461	5.451	11.564	9.268	-	27.351	-	-	58.095	
	Vol/ha m ³ /ha	0.944	1.153	2.446	1.961	-	5.786	-	-	12.290	
	%	7.7	9.4	19.9	15.9	-	47.1	-	-		100.0

Table No. IV. 2.9

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area.

District : MIRZAPUR

Area : 297130 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)										Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+				
1.	Acacia catechu	73.962	23.226	17.894	-	-	-	-	-	-	115.082	2.3	
2.	Anogeissus <i>arpa</i>	91.589	142.046	77.835	21.529	18.695	-	-	-	-	351.694	6.9	
3.	Boswellia serrata	92.038	357.380	285.493	167.591	32.061	27.344	29.063	53.774	1044.744		20.6	
4.	Lagerstromia parviflora	83.576	55.541	36.683	38.285	-	-	-	-	-	214.085	4.2	
5.	Lannea coromandellica	85.280	64.278	39.596	28.847	10.979	17.072	-	-	-	246.052	4.9	
6.	Shorea robusta	285.054	221.113	60.266	7.535	-	-	-	-	-	573.968	11.3	
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-	-	
8.	Terminalia tomentosa	74.139	67.913	56.395	17.596	17.396	-	-	-	-	233.439	4.6	
9.	Misc. species	729.950	586.126	318.172	267.458	82.640	53.254	136.181	121.781	2295.562		45.2	
	Total	1515.588	1517.623	892.334	548.841	161.771	97.670	165.244	175.555	5074.626			
	vol/ha m ³ /ha	5.101	5.108	3.003	1.847	0.544	0.329	0.556	0.591	17.079			
	%	29.9	29.9	17.6	10.8	3.2	1.9	3.3	3.4	100.0			

Table No. IV. 2.10

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area. District : VARANASI
 Area : 57662 ha.
 Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)										Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+				
1.	Acacia catechu	9.923	1.213	3.462	-	-	-	-	-	-	14.598	2.0	
2.	Anogeissus <i>capa</i>	19.749	30.519	16.330	-	-	-	-	-	-	66.598	9.0	
3.	Boswellia serrata	1.375	-	10.989	18.773	13.386	-	-	-	-	44.523	6.0	
4.	Lagerstromia parviflora	25.995	16.344	4.706	-	-	-	-	-	-	47.045	6.4	
5.	Lannea coromandelica	19.949	24.109	12.025	7.265	-	-	-	-	-	63.348	8.6	
6.	Shorea robusta	1.101	3.259	-	-	-	-	-	-	-	4.360	0.6	
7.	Tectona grandis	4.289	-	5.625	-	-	-	-	-	-	9.914	1.3	
8.	Terminalia tomentosa	7.436	8.123	6.721	-	-	26.159	-	-	-	48.439	6.5	
9.	Misc. species	150.291	164.269	44.259	65.579	15.550	-	-	-	-	439.948	59.6	
	Total	240.108	247.836	104.117	91.617	28.936	26.159	-	-	-	738.773		
	Vol/ha m ³ /ha	4.164	4.298	1.806	1.589	0.502	0.453	-	-	-	12.812		
	%	32.5	33.6	14.1	12.4	3.9	3.5	-	-	-		100.0	

Table No. IV.2.11.

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area.

District : AGRA

Area : 11100 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)								Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+		
1.	Acacia catechu	-	-	-	-	-	-	-	-	-	-
2.	Anogeissus <i>apa</i>	-	-	-	-	-	-	-	-	-	-
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-
4.	Lagerstromia parvi- flora	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	325.600	29.600	59.200	14.800	-	7.400	-	-	436.600	100.0
	Total	325.600	29.600	59.200	14.800	-	7.400	-	-	436.600	
	Stems/ha.	29.333	2.667	5.333	1.333	-	0.667	-	-	39.333	
	%	74.6	6.8	13.5	3.4	-	1.7	-	-		100.0

Table No. IV.2.12.

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area. District : ETAWAH
Area : 9773 ha.
Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	-	-	-	-	-	-	-	-	-	-
2.	Anogeissus ^{sp}	-	-	-	-	-	-	-	-	-	-
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-
4.	Lagerstromia parviflora	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	488.649	40.720	16.288	-	-	-	-	-	545.657	100.0
	Total	488.649	40.720	16.288	-	-	-	-	-	545.657	
	Stems/ha.	50.000	4.167	1.666	-	-	-	-	-	55.833	
	%	89.5	7.5	3.0	-	-	-	-	-		100.0

Table No. IV. 2.13.

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area.

District : JALAU

Area : 10044 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	41.850	-	-	-	-	-	-	-	41.850	7.8
2.	Anogeissus <i>sp</i>	-	-	-	-	-	-	-	-	-	-
3.	Boswellia serrata	92.070	8.370	-	-	-	-	-	-	100.440	18.8
4.	Lagerstromia parviflora	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	376.650	16.740	-	-	-	-	-	-	393.390	73.4
	Total	510.570	25.110	-	-	-	-	-	-	535.680	
	Stems/ha.	50.833	2.500	-	-	-	-	-	-	53.333	
	%	95.3	4.7	-	-	-	-	-	-	-	100.0

Table No. IV.2.14.

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area. District : JHANSI
 Area : 12515 ha.
 Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)									Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+			
1.	Acacia catechu	221.247	-	-	-	-	-	-	-	-	221.247	20.0
2.	Anogeissus <i>pa</i>	90.506	10.056	10.056	-	-	-	-	-	-	110.618	10.0
3.	Boswellia serrata	54.756	53.640	-	-	-	-	-	-	-	108.396	9.8
4.	Lagerstromia parvi-flora	-	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromendelica	-	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	10.056	-	-	-	-	-	-	-	10.056	0.9
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	454.783	120.675	70.393	10.056	-	-	-	-	-	655.907	59.3
Total		821.292	194.427	80.449	10.056	-	-	-	-	-	1106.224	
Stems/ha.		62.625	15.536	6.428	0.803	-	-	-	-	-	88.392	
%		74.2	17.6	7.3	0.9	-	-	-	-	-		100.0

Table No. IV. 2.15.

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area. District : LALITPUR
 Area : 51743 ha.
 Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)									Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+			
1.	Acacia catechu	526.672	-	-	-	-	-	-	-	-	526.672	9.8
2.	Anogeissus <i>sp.</i>	184.796	-	-	-	-	-	-	-	-	184.796	3.4
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-	-
4.	Lagerstromia parviflora	360.354	18.480	-	-	-	-	-	-	-	378.834	7.1
5.	Lannea coromandelica	203.276	101.637	9.240	-	-	-	-	-	-	314.153	5.9
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	332.637	92.400	-	-	-	-	-	-	-	425.037	7.9
8.	Terminalia tomentosa	166.316	18.480	-	-	-	-	-	-	-	184.796	3.4
9.	Misc. species	2873.584	314.153	73.919	36.959	18.480	9.240	9.240	9.240	9.240	3344.815	62.5
Total		4647.635	545.150	83.159	36.959	18.480	9.240	9.240	9.240	9.240	5359.103	
Stems/ha.		89.822	10.536	1.607	0.714	0.357	0.179	0.179	0.179	0.179	103.572	
%		86.7	10.1	1.6	0.7	0.3	0.2	0.2	0.2	0.2	100.0	

Table No. IV.2.16 ..

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area. District : HAMIRPUR
Area : 18390 ha.
Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)								%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	
1.	Acacia catechu	41.798	-	-	-	-	-	-	-	5.5
2.	Anogeissus indica	58.512	-	-	-	-	-	-	-	7.7
3.	Boswellia serrata	142.120	25.079	8.360	-	-	-	-	-	23.1
4.	Lagerstromia parviflora	16.718	-	-	-	-	-	-	-	2.2
5.	Lannea coromandelica	8.360	8.360	-	-	-	-	-	-	2.2
6.	Shorea robusta	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-
9.	Misc. species	384.507	50.153	16.718	-	-	-	-	-	59.3
Total		652.015	83.592	25.078	-	-	-	-	-	760.685
Stems/ha.		35.455	4.545	1.364	-	-	-	-	-	41.364
%		85.7	11.0	3.3	-	-	-	-	-	100.0

Table No. IV.2.17.

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area.

District : BANDA

Area : 62399 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (In cms)										Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+				
1.	Acacia catechu	1300.690	52.730	-	-	-	-	-	-	-	1353.420	17.8	
2.	Anogeissus indica	553.669	8.789	-	-	-	-	-	-	-	562.458	7.4	
3.	Boswellia serrata	158.195	26.368	35.156	8.789	-	-	-	-	-	228.508	3.0	
4.	Lagerstromia parviflora	351.545	8.789	-	-	-	-	-	-	-	360.334	4.8	
5.	Lannea coromandelica	1212.826	193.349	43.944	8.789	-	-	-	-	-	1458.908	19.2	
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-	-	
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-	-	
8.	Terminalia tomentosa	254.870	-	-	-	-	-	-	-	-	254.870	3.4	
9.	Misc. species	2988.122	263.659	43.943	52.732	8.789	-	-	-	8.789	3366.034	44.4	
Total		6819.917	553.684	123.043	70.310	8.789	-	-	-	8.789	7584.532		
Stems/ha.		109.400	8.882	1.974	1.128	0.141	-	-	-	0.141	121.666		
%		90.0	7.3	1.6	0.9	0.1	-	-	-	0.1		100.0	

Table No. IV. 2.18.

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area. District : ALLAHABAD

Area : 4727 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	7.878	-	-	-	-	-	-	-	7.878	7.1
2.	Anogeissus <i>sp.</i>	-	7.878	-	-	-	-	-	-	7.878	7.1
3.	Boswellia serrata	7.878	-	-	-	-	-	-	-	7.878	7.1
4.	Lagerstromia parvi- flora	-	-	-	-	-	-	-	-	-	-
5.	Lannea coromendelica	-	-	-	-	-	-	-	-	-	-
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-
9.	Misc. species	47.270	7.878	15.756	7.878	-	7.878	-	-	86.660	78.7
Total		63.026	15.756	15.756	7.878	-	7.878	-	-	110.294	
Stems/ha.		13.333	3.334	3.334	1.666	-	1.666	-	-	23.333	
%		57.2	14.3	14.3	7.1	-	7.1	-	-		100.0

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area.

District : MIRZAPUR

Area : 297130 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (In cms)									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	2153.103	118.783	33.546	-	-	-	-	-	2305.432	7.6
2.	Anogeissus <i>sp.</i>	1445.482	412.565	100.639	16.773	8.387	-	-	-	1983.846	6.5
3.	Boswellia serrata	1109.152	1124.639	438.647	144.166	18.591	8.387	8.387	8.387	2860.356	9.4
4.	Lagerstromia parvi- flora	1247.811	176.118	50.319	25.160	-	-	-	-	1499.408	4.9
5.	Lannea coromandelica	1804.538	275.191	75.255	33.546	8.387	8.387	-	-	2205.304	7.3
6.	Shorea robusta	2932.695	744.049	116.293	8.163	-	-	-	-	3801.200	12.6
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	1342.431	283.353	94.070	16.773	8.387	-	-	-	1745.014	5.8
9.	Misc. species	11129.625	2001.311	450.863	200.607	41.933	16.550	33.546	16.773	13891.208	45.9
Total		23164.837	5136.009	1359.632	445.188	85.685	33.324	41.933	25.160	30291.768	
Stems/ha.		77.962	17.285	4.576	1.498	0.288	0.112	0.141	0.085	101.947	
%		76.5	17.0	4.5	1.4	0.3	0.1	0.1	0.1	100.0	

Table No. IV.2.20.

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area. District : VARANASI

Area : 57662 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)								Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+		
1.	Acacia catechu	428.344	8.237	8.237	-	-	-	-	-	444.818	8.7
2.	Anogeissus <i>sp.</i>	280.072	90.611	24.714	-	-	-	-	-	395.395	7.7
3.	Boswellia serrata	8.237	-	16.474	16.475	8.237	-	-	-	49.423	1.0
4.	Lagerstromia parvi- flora	337.733	57.661	8.237	-	-	-	-	-	403.631	7.9
5.	Lannea coromandelica	428.344	107.086	24.712	8.237	-	-	-	-	568.379	11.1
6.	Shorea robusta	8.237	8.237	-	-	-	-	-	-	16.474	0.3
7.	Tectona grandis	57.680	-	8.240	-	-	-	-	-	65.920	1.2
8.	Terminalia tomentosa	156.511	32.950	8.237	-	-	8.237	-	-	205.935	4.0
9.	Misc. species	2347.675	510.763	65.907	49.424	8.237	-	-	-	2982.006	58.1
Total		4052.833	815.545	164.756	74.136	16.474	8.237	-	-	5131.981	
Stems/ha.		70.286	14.143	2.857	1.286	0.286	0.143	-	-	89.001	
%		79.0	15.9	3.2	1.4	0.3	0.2	-	-		100.0

Table No. IV. 2.21

Distribution of total volume by species and diameter classes and volume/ha by diameter classes in accessible tree forest area.

Forest type : Teak
Area : 6368 ha.
Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)								%	
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+		Total
1.	Acacia catechu	0.414	-	-	-	-	-	-	-	0.414	0.2
2.	Anogeissus <i>sp</i>	-	-	-	-	-	-	-	-	-	-
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-
4.	Lagerstromia parviflora	5.927	-	-	-	-	-	-	-	5.927	3.8
5.	Lannea coromandelica	2.953	-	-	-	-	-	-	-	2.953	1.9
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	43
7.	Tectona grandis	21.583	18.173	5.625	-	-	-	-	-	45.381	28.9
8.	Terminalia tomentosa	0.407	-	-	-	-	-	-	-	0.407	0.2
9.	Misc. species	31.846	51.715	18.565	-	-	-	-	-	102.126	65.0
Total		63.130	69.888	24.190	-	-	-	-	-	157.208	
Vol/ha. m ³ /ha.		9.914	10.975	3.798	-	-	-	-	-	24.687	
%		40.1	44.5	15.4	-	-	-	-	-		100.0

Table No. IV. 2.22

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area. Forest type : Sal
 Area : 23672 ha.
 Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (In cms')								Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+		
1.	Acacia catechu	1.540	-	-	-	-	-	-	-	1.540	0.2
2.	Anogeissus	4.835	5.685	-	-	-	-	-	-	10.520	1.7
3.	Boswellia serrata	4.828	33.732	15.149	9.020	-	-	-	-	62.729	10.0
4.	Lagerstromia parviflora	1.128	-	-	-	-	-	-	-	1.128	0.2
5.	Lannea coromandelica	1.563	6.240	3.818	-	-	-	-	-	11.621	1.9
6.	Shorea robusta	154.962	113.511	20.320	7.535	-	-	-	-	296.328	47.4
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	20.526	12.777	-	-	-	-	-	-	33.303	5.3
9.	Misc. species	88.267	50.962	22.520	21.861	-	24.138	-	-	207.748	33.3
	Total	277.649	222.907	61.807	38.416	-	24.138	-	-	624.917	
	Vol/ha m ³ /ha	11.729	9.416	2.611	1.623	-	1.020	-	-	26.399	
	%	44.4	35.7	9.9	6.1	-	3.9	-	-		100.0

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area.

Forest type : Khair

Area : 38796 ha.

Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms')								Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+		
1.	Acacia catechu	34.055	7.260	-	-	-	-	-	-	41.315	21.2
2.	Anogeissus <i>apa</i> .	9.856	7.170	-	-	-	-	-	-	17.026	8.7
3.	Boswellia serrata	9.120	21.473	6.120	-	-	-	-	-	36.713	18.9
4.	Lagerstromia parvi- flora	0.360	-	-	-	-	-	-	-	0.360	0.2
5.	Lannea coromandelica	3.833	8.346	-	-	-	-	-	-	12.179	6.2
6.	Shorea robusta	-	2.629	-	-	-	-	-	-	2.629	1.3
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	0.295	-	-	-	-	-	-	-	0.295	0.2
9.	Misc. species	42.381	26.866	5.147	10.123	-	-	-	-	84.517	43.3
Total		99.900	73.744	11.267	10.123	-	-	-	-	195.034	
Vol/ha m ³ /ha		2.575	1.901	0.290	0.261	-	-	-	-	5.027	
%		51.2	37.8	5.8	5.2	-	-	-	-		100.0

Table No. IV.2.24

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area. Forest type : Salal
Area : 12502 ha.
Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms.)								%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+ Total	
1.	Acacia catechu	1.401	1.733	-	-	-	-	-	3.134	0.9
2.	Anogeissus <i>ops</i>	2.268	20.089	-	-	-	-	-	22.357	6.6
3.	Boswellia serrata	18.713	111.998	78.307	11.883	16.581	-	-	237.482	70.6
4.	Lagerstromia parviflora	3.235	-	-	-	-	-	-	3.235	1.0
5.	Lannea coromandelica	4.753	-	6.537	-	-	-	-	11.290	3.3
6.	Shorea robusta	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	0.245	-	7.127	-	-	-	-	7.372	2.2
9.	Misc. species	15.331	6.105	30.264	-	-	-	-	51.700	15.4
Total		45.946	139.925	122.235	11.883	16.581	-	-	336.570	
Vol/ha. m ³ /ha.		3.675	11.193	9.777	0.950	1.326	-	-	26.921	
%		13.7	41.6	36.3	3.5	4.9	-	-		100.0

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in accessible tree forest area.

Forest type : Miscellaneous
Area : 454145 ha.Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)									Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+			
1.	Acacia catechu	97.236	25.246	21.356	-	-	-	-	-	143.838	2.3	
2.	Anogeissus <i>sp</i>	131.286	146.823	104.670	21.529	18.695	-	-	-	423.003	6.6	
3.	Boswellia serrata	94.096	223.021	226.089	177.348	28.866	27.344	29.063	53.774	859.601	13.4	
4.	Lagerstromia parvi- flora	144.955	79.514	41.389	38.285	-	-	-	-	304.143	4.8	
5.	Lanea coromendelica	166.534	139.288	66.502	43.041	10.979	17.072	-	-	443.416	6.9	
6.	Shorea robusta	131.193	108.232	39.946	-	-	-	-	-	279.371	4.4	
7.	Tectona grandis	12.116	12.172	-	-	-	-	-	-	24.288	0.4	
8.	Terminalia tomentosa	75.211	66.084	55.989	17.596	17.396	26.159	-	-	258.435	4.0	
9.	Misc. species	1177.144	873.422	497.092	454.704	154.293	107.597	172.333	219.434	3656.019	57.2	
Total		2029.771	1673.802	1053.033	752.503	230.229	178.172	201.396	273.208	6392.114		
Vol/ha m ³ /ha		4.470	3.686	2.319	1.657	0.507	0.392	0.443	0.601	14.075		
%		31.7	26.2	16.5	11.8	3.6	2.8	3.1	4.3		100.0	

Table No. IV.2.26

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area. Forest type : Teak

Area : 6368 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms.):									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	27.720	-	-	-	-	-	-	-	27.720	2.3
2.	Anogeissus Rapa	-	-	-	-	-	-	-	-	-	-
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-
4.	Lagerstromia parvi- flora	92.400	-	-	-	-	-	-	-	92.400	7.7
5.	Lannea coromandelica	27.720	-	-	-	-	-	-	-	27.720	2.3
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	251.720	64.680	8.240	-	-	-	-	-	324.640	27.0
8.	Terminalia tomentosa	9.240	-	-	-	-	-	-	-	9.240	0.7
9.	Misc. species	547.400	149.320	24.720	-	-	-	-	-	721.440	60.0
	Total	956.200	214.000	32.960	-	-	-	-	-	1203.160	
	Stems/ha.	150.157	33.605	5.176	-	-	-	-	-	188.938	
	%	79.5	17.8	2.7	-	-	-	-	-	-	100.0

crop dia : 0.18 m.

Table No. IV.2.27

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area. Forest type : Sal
 Area : 23672 ha.
 Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms.)									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	73.465	-	-	-	-	-	-	-	73.465	1.6
2.	Anogeissus indica	65.302	16.326	-	-	-	-	-	-	81.628	1.8
3.	Boswellia serrata	73.465	114.279	24.489	8.163	-	-	-	-	220.396	4.9
4.	Lagerstromia parviflora	16.326	-	-	-	-	-	-	-	16.326	0.3
5.	Lannea coromandelica	57.139	24.489	8.163	-	-	-	-	-	89.791	2.0
6.	Shorea robusta	1624.389	383.650	40.814	8.163	-	-	-	-	2057.016	45.7
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	342.835	65.302	-	-	-	-	-	-	408.137	9.1
9.	Misc. species	1322.367	187.743	24.488	16.326	-	8.163	-	-	1559.087	34.6
	Total	3575.288	791.789	97.954	32.652	-	8.163	-	-	4505.846	
	Stems/ha	151.035	33.448	4.138	1.379	-	0.345	-	-	190.035	
	%	79.3	17.6	2.2	0.7	-	0.2	-	-		100.0

crop dia : 0.18 m.

Table No. IV. 2.28

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area. Forest type : Khair

Area : 38796 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms.):									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	1232.563	42.690	-	-	-	-	-	-	1275.253	47.8
2.	Anogeissus <i>arpa</i>	227.065	16.326	-	-	-	-	-	-	243.391	9.1
3.	Boswellia serrata	73.466	65.697	8.360	-	-	-	-	-	147.523	5.5
4.	Lagerstromia parviflora	8.163	-	-	-	-	-	-	-	8.163	0.3
5.	Lannea coromandelica	110.517	41.011	-	-	-	-	-	-	151.528	5.7
6.	Shorea robusta	-	8.163	-	-	-	-	-	-	8.163	0.3
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	8.163	-	-	-	-	-	-	-	8.163	0.3
9.	Misc. species	727.488	83.119	8.163	8.163	-	-	-	-	826.933	31.0
	Total	2387.425	257.006	16.523	8.163	-	-	-	-	2669.117	
	Stems/ha	61.799	6.625	0.426	0.210	-	-	-	-	68.799	
	%	89.5	9.6	0.6	0.3	-	-	-	-		100.0

crop dia : 0.17 m.

Table No. IV.2.29

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area.

Forest type : Salai

Area : 12502 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms.)									%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+	Total	
1.	Acacia catechu	71.520	10.204	-	-	-	-	-	-	81.724	6.0
2.	Anogeissus indica	30.612	61.223	-	-	-	-	-	-	91.835	6.8
3.	Boswellia serrata	268.450	327.727	121.031	10.204	10.204	-	-	-	737.616	54.3
4.	Lagerstromia parviflora	40.815	-	-	-	-	-	-	-	40.815	3.0
5.	Lannea coromandellica	71.426	-	8.790	-	-	-	-	-	80.216	5.9
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-
8.	Terminalia tomentosa	10.204	-	10.204	-	-	-	-	-	20.408	1.5
9.	Misc. species	243.720	20.408	40.816	-	-	-	-	-	304.944	22.5
Total		736.747	419.562	180.841	10.204	10.204	-	-	-	1357.558	
Stems/ha		58.930	33.560	14.465	0.816	0.816	-	-	-	108.587	
%		54.3	30.9	13.3	0.75	0.75	-	-	-		100.0

crop dia : 0.23 m.

Table No. IV. 2.30

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in accessible tree forest area.

Forest type : Miscellaneous

Area : 454145 ha.

Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms.):									Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+			
1.	Acacia catechu	3316.314	126.856	41.783	-	-	-	-	-	3484.953	8.3	
2.	Anogeissus indica	2290.058	436.024	135.407	16.773	8.387	-	-	-	2886.649	6.9	
3.	Boswellia serrata	1157.027	730.393	344.757	151.063	16.624	8.387	8.387	8.387	2425.025	5.7	
4.	Lagerstromia parviflora	2156.457	261.048	58.556	25.160	-	-	-	-	2501.221	5.9	
5.	Lannea coromandelica	3390.542	620.123	136.198	50.572	8.387	8.387	-	-	4214.209	10.0	
6.	Shorea robusta	1316.543	360.473	75.479	-	-	-	-	-	1752.495	4.2	
7.	Tectona grandis	138.597	37.776	-	-	-	-	-	-	176.373	0.4	
8.	Terminalia tomentosa	1549.686	269.481	92.103	16.773	8.387	8.237	-	-	1944.667	4.6	
9.	Misc. species	18575.490	2915.062	714.800	347.967	77.439	32.905	42.786	34.802	22741.251	54.0	
Total		33890.714	5757.236	1599.083	608.308	119.224	57.916	51.173	43.189	42126.843		
Stems/ha		74.625	12.677	3.521	1.339	0.263	0.128	0.113	0.095	92.761		
%		80.5	13.7	3.8	1.4	0.3	0.1	0.1	0.1	100.0		

crop dia : 0.19 m.

Distribution of total volume by species and diameter classes and volume/ha by diameter classes in accessible tree forest area.

Stratum : Southern U.P.
Area : 535483 ha.
Unit : ,000 m³

Species	D I A M E T E R (in cms)							Total	%
	10-20	20-30	30-40	40-50	50-60	60-70	70-80		
Acacia catechu	134.646	34.239	21.356	-	-	-	-	190.241	2.5
Anogeissus <i>sp.</i>	148.245	179.767	104.670	21.529	18.695	-	-	472.906	6.1
Boswellia serrata	126.757	390.224	325.665	198.251	45.447	27.344	29.063	1196.525	15.5
Lagerstromia parviflora	155.605	79.514	41.389	38.285	-	-	-	314.793	4.1
Lansea coromendelica	179.636	153.874	76.857	43.041	10.979	17.072	-	481.459	6.2
Shorea robusta	286.155	224.372	60.266	7.535	-	-	-	578.328	7.5
Tectona grandis	33.699	30.345	5.625	-	-	-	-	69.669	0.9
Terminalia tomentosa	96.684	78.861	63.116	17.596	17.396	26.159	-	299.812	3.9
Misc. species	1354.969	1009.070	573.588	486.688	154.293	131.735	172.333	4102.110	53.3
Total	2516.396	2180.266	1272.532	812.925	246.810	202.310	201.396	273.208	7705.843
Vol/ha m ³ /ha	4.699	4.072	2.376	1.518	0.461	0.378	0.376	0.510	14.390
%	32.7	28.3	16.5	10.6	3.2	2.6	2.6	3.5	100.0

Table No. IV, 2,32

Distribution of total stems by species and diameter classes and stems /ha by diameter classes in accessible tree forest area.

Stratum : Southern U.P.

Area : 535483 ha.

Unit : ,000 stems

Species	D I A M E T E R C L A S S E S (in cms)								Total	%
	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+		
Acacia catechu	4721.582	179.750	41.783	-	-	-	-	-	4943.115	9.5
Anogeissus <i>sp.</i>	2613.037	529.899	135.407	16.773	8.387	-	-	-	3303.503	6.4
Boswellia serrata	1572.408	1238.096	498.637	169.430	26.828	8.387	8.387	8.387	3530.560	6.8
Lagerstromia parvi-flora	2314.161	261.048	58.556	25.160	-	-	-	-	2658.925	5.1
Lannea coromandelica	3657.344	694.413	144.361	50.572	8.387	8.387	-	-	4563.464	8.8
Shorea robusta	2940.932	752.286	116.293	8.163	-	-	-	-	3817.674	7.4
Tectona grandis	390.317	102.456	8.240	-	-	-	-	-	501.013	1.0
Terminalia tomentosa	1920.128	334.783	102.307	16.773	8.387	8.237	-	-	2390.615	4.6
Misc. species	21416.465	3355.652	812.987	372.456	77.439	41.068	42.786	34.802	26153.655	50.4
Total	41546.374	7439.593	1927.361	659.327	129.428	66.079	51.173	43.189	51862.524	
Stems/ha.	77.587	13.893	3.599	1.231	0.242	0.123	0.096	0.081	96.852	
%	80.1	14.4	3.7	1.3	0.2	0.1	0.1	0.1	100.0	

Table No. IV. 2.33

Distribution of total volume by species and diameter classes and volume/ha by diameter

classes in demarcated blank

Stratum : Demarcated blank in all districts.
 Area : 39526 ha.
 Unit : ,000 m³

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms')										Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+				
1.	Acacia catechu	0.572	2.317	-	-	-	-	-	-	-	2.889	1.8	
2.	Anogeissus <i>ops</i>	-	-	-	-	-	-	-	-	-	-	-	
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-	-	
4.	Lagerstromia parvi- flora	-	-	-	-	-	-	-	-	-	-	-	
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-	-	
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-	-	
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-	-	
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-	-	
9.	Misc. species	113.765	17.997	6.486	-	22.610	-	-	-	-	160.858	98.2	
Total		114.337	20.314	6.486	-	22.610	-	-	-	-	163.747		
Vol/ha m ³ /ha		2.893	0.514	0.164	-	0.572	-	-	-	-	4.143		
%		69.8	12.4	4.0	-	13.8	-	-	-	-		100.0	

Table No. IV. 2.34.

Distribution of total stems by species and diameter classes and stems/ha by diameter

classes in demarcated blank Stratum : Demarcated blank in all districts.
 Area : 39526 ha.
 Unit : ,000 stems

Sl.No.	Species	D I A M E T E R C L A S S E S (in cms)									Total	%
		10-20	20-30	30-40	40-50	50-60	60-70	70-80	80+			
1.	Acacia catechu	35.933	11.978	-	-	-	-	-	-	47.911	2.1	
2.	Anogeissus sp.	-	-	-	-	-	-	-	-	-	-	
3.	Boswellia serrata	-	-	-	-	-	-	-	-	-	-	
4.	Lagerstromia parviflora	-	-	-	-	-	-	-	-	-	-	
5.	Lannea coromandelica	-	-	-	-	-	-	-	-	-	-	
6.	Shorea robusta	-	-	-	-	-	-	-	-	-	-	
7.	Tectona grandis	-	-	-	-	-	-	-	-	-	-	
8.	Terminalia tomentosa	-	-	-	-	-	-	-	-	-	-	
9.	Misc. species	2132.010	59.888	11.978	-	11.978	-	-	-	2215.854	97.9	
Total		2167.943	71.866	11.978	-	11.978	-	-	-	2263.765		
Stems/ha.		54.840	1.818	0.303	-	0.303	-	-	-	57.273		
%		95.8	3.2	0.5	-	0.5	-	-	-		100.0	

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Appendix-I

Year of Survey and publication of Survey of India topo Maps used for Forest inventory in Southern U.P. Survey area.

<u>Topo Sheet No.</u>	<u>Year of Survey</u>	<u>Year of Publication</u>
54 E/12	1969-70	1970
54 E/15	1969-70	1973
54 E/16	1969-70	1972
54 F/5	1968-69	1973
54 F/6	1968-69	1972
54 F/9	1968-69	1970
54 F/10	1968-69	1977
54 F/13	1968-69	1973
54 I/3	1971-72	1973
54 I/4	1971-72	1973
54 I/7	1971-72	1973
54 I/8	1971-72	1974
54 I/12	1972-73	1975
54 J/1	1972-73	1974
54 J/5	1972-73	1974
54 J/9	1972-73	1974
54 J/10	1973-74	1977
54 J/13	1972-73	1974
54 J/14	1972-73	1976
54 J/16	1972-73	1977
54 K/6	1967-68	1974
54 K/7	1970-71	1972
54 K/8	1970-71	1972
54 K/10	1967-68	1970
54 K/11	1970-71	1973
54 K/12	1970-71	1973
54 K/13	1967-68	1970
54 K/14	1970-71	1972
54 K/15	1970-71	1973
54 K/16	1970-71	1973
54 L/1	1971-72	1977
54 L/2	1971-72	1977
54 L/3	1971-72	1977
54 L/5	1971-72	1976
54 L/6	1971-72	1973
54 L/7	1971-72	1976
54 L/9	1971-72	1973
54 L/10	1971-72	1976

<u>Topo Sheet No.</u>	<u>Year of Survey</u>	<u>Year of Publication</u>
54 L/11	1972-73	1976
54 L/12	1971-72	1977
54 L/13	1972-73	1976
54 L/14	1972-73	1976
54 L/15	1972-73	1976
54 L/16	1971-72	1977
54 N/1	1974-75	1976
54 N/2	1974-75	1977
54 N/3	1973-74	1975
54 N/4	1973-74	1976
54 N/5	1974-75	1976
54 N/6	1974-75	1976
54 N/7	1973-74	1976
54 N/8	1973-74	1975
54 N/9	1974-75	1976
54 N/10	1974-75	1976
54 N/11	1973-74	1976
54 N/12	1973-74	1976
54 N/13	1974-75	1976
54 N/14	1974-75	1976
54 N/16	1973-74	1976
54 O/1	1973-74	1974
54 O/2	1972-73	1975
54 O/3	1972-73	1973
54 O/4	1972-73	1973
54 O/5	1973-74	1976
54 O/6	1972-74	1975
54 O/7	1972-73	1974
54 O/8	1972-73	1974
54 O/9	1973-74	1976
54 O/10	1973-74	1976
54 O/11	1973-74	1976
54 O/12	1973-74	1976
54 O/13	1973-74	1976
54 O/14	1973-74	1975
54 O/15	1973-74	1975
54 O/16	1973-74	1976

<u>Topo Sheet No.</u>	<u>Year of Survey</u>	<u>Year of Publication</u>
63 B/4	1973-74	1976
63 C/1	1973-74	1975
63 C/2	1972-73	1974
63 C/3	1971-72	1973
63 C/5	1973-74	1975
63 C/6	1972-73	1974
63 C/7	1971-72	1973
63 C/8	1974-75	1976
63 C/9	1973-74	1975
63 C/10	1972-73	1974
63 C/11	1972-73	1974
63 C/12	1974-75	1977
63 C/14	1972-73	1974
63 C/15	1972-73	1974
63 C/16	1974-75	1977
63 D/5	1968-69	1973
63 D/13	1968-69	1971
63 G/2	1973-74	1975
63 G/3	1973-74	1975
63 G/4	1973-74	1975
63 G/5	1973-74	1975
63 G/6	1973-74	1976
63 G/7	1973-74	1975
63 G/8	1973-74	1974
63 G/10	1972-73	1974
63 G/11	1972-73	1974
63 G/12	1973-74	1976
63 G/14	1972-73	1974
63 G/15	1972-73	1978
63 G/16	1973-74	1976
63 H/1	1968-69	1971
63 H/13	1968-69	1973
63 K/2	1971-72	1973
63 K/3	1971-72	1973
63 K/4	1970-71	1972
63 K/6	1971-72	1973
63 K/7	1971-72	1973
63 K/8	1971-72	1973
63 K/10	1971-72	1976
63 K/11	1971-72	1976
63 K/12	1970-71	1978

<u>Topo Sheet No.</u>	<u>Year of survey</u>	<u>Year of Publication</u>
63 K/14	1971-72	1976
63 K/15	1972-73	1974
63 K/16	1970-71	1972
63mL/1	1972-73	1976
63 L/2	1969-70	1975
63 L/5	1972-73	1976
63 L/6	1969-70	1975
63 L/9	1970-71	1973
63 L/10	1966-67	1970
63 L/11	1966-67	1970
63 L/12	1969-70	1975
63 L/13	1970-71	1972
63 L/14	1966-67	1971
63 L/15	1966-67	1970
63 L/16	1966-67	1970
63 O/2	1972-73	1974
63 O/3	1972-73	1975
63 O/4	1972-73	1974
63 O/6	1972-73	1974
63 O/7	1972-73	1974
63 O/8	1975-76	1978
63 O/11	1973-74	1975
63 P/1	1966-67	1970
63 P/2	1966-67	1971
63 P/3	1966-67	1971
63 P/4	1966-67	1971
63 P/5	1966-67	1971
63 P/6	1966-67	1971
63 P/7	1966-67	1971
63 P/8	1966-67	1971
63 P/10	1966-67	1974
64 I/13	1967-68	1974
63 M/1	1970-71	1981

Appendix - II

LOCATION OF CENTRE OF SAMPLE PLOTS

District: Agra

Map sheet coverage: 54 E/15,16
54 F/5,13
54 I/4,8
54 J/1,5,9,13 (10 sheets)

Grid No.	Plot No.	Longitude E Latitude N of plot centre			Forest Divi- sion code*	Land use Code*	Forest type code*	No. of trees enum- erated in sample plot of 0.1 ha.	Vol/ha (m ³) in sample plot.
		Degree	Minutes	Seconds					
1.	2	3			4	5	6	7	8
<u>Map Sheet No. 54 E/15</u>									
0002	1	77 27	50 15	35 E 30 N	-	07	20	13	102.065
0004	2	77 27	57 15	11 E 03 N	-	01	20	00	0.000
<u>Map Sheet No. 54 E/16</u>									
0502	1	77 27	50 14	44 E 50 N	-	16	-	-	-
0503	2	77 27	54 13	44 E 54 N	-	02	20	04	1.355
0504	2	77 27	56 14	31 E 52 N	-	01	20	07	2.657
0505	1	77 27	58 13	38 E 16 N	-	02	20	00	0.000
<u>Map Sheet No. 54 F/5</u>									
0204	2	77 26	25 50	50 E 15 N	-	03	20	02	0.773
<u>Map Sheet No. 54 F/13</u>									
0502	2	77 26	50 58	25 E 34 N	-	13	-	-	-

*Codes are explained at the end of the appendix

1	2	3	4	5	6	7	8
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Map Sheet No. I/4

0501	1	78 27	13 04	56 E 08 N	-	03	20	00	0.000
0502	2	78 27	05 14	15 E 06 N	-	01	20	24	35.221

Map Sheet No. 54 I/8

0004	2	78 27	26 01	50 E 15 N	-	10	-	-	-
0103	2	78 27	24 03	14 E 38 N	-	07	20	00	0.00
0104	1	78 27	25 04	42 E 00 N	-	10	-	-	-
0200	1	78 27	16 05	09 E 55 N	-	03	20	00	0.00
0200	2	78 27	16 06	18 E 31 N	-	04	-	-	-

Map Sheet No. J/1

0205	1	78 26	14 51	53 E 08 N	-	04	-	-	-
0205	2	78 26	12 51	38 E 22 N	-	04	-	-	-

Map Sheet No. J/5

0104	2	78 26	26 49	50 E 40 N	-	07	20	00	0.000
0105	1	78 26	29 49	35 E 32 N	-	12	-	-	-
0105	2	78 26	27 47	56 E 59 N	-	07	20	00	0.000
0200	1	78 26	16 51	32 E 02 N	-	04	-	-	-
0200	2	78 26	15 50	59 E 54 N	-	07	20	00	0.000
0201	1	78 26	18 52	57 E 10 N	-	07	20	00	0.000
0203	2	78 26	23 52	14 E 17 N	-	07	20	00	0.000

1	2	3	4	5	6	7	8		
0204	2	78 26	26 50	55 E 26 N	-	07	20	00	0.000
0400	1	78 26	16 55	53 E 44 N	-	03	20	00	0.000
0401	2	78 26	18 55	54 E 51 N	-	13	-	-	-
0404	2	78 26	26 57	51 E 14 N	-	12	-	-	-
0503	1	78 26	24 58	38 E 11 N	-	04	-	-	-
0504	2	78 26	25 58	27 E 29 N	-	04	-	-	-
Map Sheet No. 54 J/9									
0001	2	78 26	34 45	51 E 29 N	-	04	-	-	-
0002	2	78 26	35 46	20 E 31 N	-	04	-	-	-
0004	2	78 26	40 46	02 E 52 N	-	04	-	-	-
0100	1	78 26	30 47	14 E 34 N	-	07	20	02	1.357
0101	2	78 26	34 48	49 E 41 N	-	07	20	04	1.489
0104	1	78 26	42 48	15 E 47 N	-	12	-	-	-
0203	2	78 26	39 52	28 E 18 N	-	07	20	00	0.000
0300	1	78 26	32 54	29 E 36 N	-	12	-	-	-
0303	1	78 26	39 52	29 E 39 N	-	10	-	-	-
0401	1	78 26	33 55	18 E 29 N	-	07	20	02	0.988
0401	2	78 26	34 57	15 E 02 N	-	12	-	-	-
0402	1	78 26	35 55	14 E 24 N	-	07	20	01	0.291
Map Sheet No. J/13									
0101	1	78 26	49 49	47 E 01 N	-	07	20	03	2.230
0103	1	78 26	54 48	30 E 09 N	-	07	20	05	1.568
0300	1	78 26	45 53	45 E 16 N	-	07	20	03	1.239

Total = 45 Plots

District: Etawah

Map sheet coverage: 54 J/13,14
54 N/2,3,7 (5 sheets)

1	2	3	4	5	6	7	8
<u>Map Sheet No. 54 J/13</u>							
0004	1	78 26	56 45	02 E 07 N	-	04	-
0004	2	78 25	56 47	25 E 22 N	-	07	20
0005	1	78 26	57 47	41 E 14 N	-	07	20
0005	2	78 26	59 45	48 E 15 N	-	03	20
0100	2	78 26	47 48	15 E 38 N	-	12	-
0300	2	78 26	46 54	45 E 10 N	-	04	-
<u>Map Sheet No. 54 J/14</u>							
0405	2	78 26	59 40	27 E 58 N	-	03	20
0502	2	78 26	51 44	09 E 23 N	-	07	20
0503	1	78 26	54 42	18 E 57 N	-	03	20
0504	1	78 26	56 42	01 E 55 N	-	03	20
0505	2	78 26	59 44	31 E 54 N	-	07	20
<u>Map Sheet No. 54 N/2</u>							
0001	1	79 26	04 30	33 E 24 N	-	03	20
0001	2	79 26	06 32	43 E 05 N	-	03	20
0102	2	79 26	07 18	06 E 34 N	-	07	20
0105	2	79 26	14 34	20 E 15 N	-	02	20
0201	1	79 26	03 36	00 E 03 N	-	07	20
0201	2	79 26	04 36	29 E 24 N	-	03	20
0202	1	79 26	07 35	08 E 18 N	-	04	20

1	2	3	4	5	6	7	8		
0202	2	79 26	56 36	00 E 34 N	-	04	20	20	0.000
0300	1	79 26	01 37	28 E 41 N	-	04	20	00	0.000
0303	2	79 26	08 37	48 E 47 N	-	02	20	20	15.253
<u>Map Sheet No. 54 N/3</u>									
0502	2	79 26	05 28	27 E 24 N	-	07	20	03	1.356
<u>Map Sheet No. 54 N/7</u>									
0400	2	79 26	16 27	24 E 27 N	-	03	20	02	1.590
0501	2	79 26	19 29	01 E 37 N	-	12	-	-	-

Total = 24 Plots

District: Jalaun

Map Sheet coverage: 54 N/3,4,7,8,11,12,16
54 O/1,5,9 (10 sheets)

1	2	3	4	5	6	7	8
<u>Map Sheet No. 54 N/3</u>							
0001	1	79 26	04 16	05 E 33 N	34	13	-
0204	1	79 26	10 21	25 E 12 N	34	07	20
0405	2	79 26	12 25	03 E 20 N	34	07	20
<u>Map Sheet No. 54 N/4</u>							
0100	2	79 26	00 02	18 E 50 N	34	07	20
0201	1	79 26	02 06	32 E 28 N	34	13	-
<u>Map Sheet No. 54 N/7</u>							
0105	2	79 26	29 19	53 E 36 N	34	07	20
<u>Map Sheet No. 54 N/8</u>							
0004	1	79 26	02 25	12 E 48 N	34	13	-
<u>Map Sheet No. 54 N/11</u>							
0201	1	79 26	32 20	42 E 10 N	34	12	-
<u>Map Sheet No. 54 N/12</u>							
0202	1	79 26	36 07	54 E 08 N	34	04	17
0204	1	79 26	40 05	56 E 58 N	34	-	20
0204	2	79 26	41 06	35 E 32 N	34	17	17
0205	1	79 26	44 05	33 E 10 N	34	02	17
0205	2	79 26	42 07	58 E 19 N	34	02	20
0302	1	79 26	35 07	02 E 57 N	34	04	17
0305	1	79 26	42 07	49 E 36 N	34	17	17
0502	1	79 26	35 14	11 E 00 N	34	17	17

1	2	3	4	5	6	7	8
<u>Map Sheet No. 54 N/16</u>							
0200	2	79 26	45 05	02 E 29 N	34	17 17	03 1.842
<u>Map Sheet No. 54 O/1</u>							
0102	2	79 25	07 49	28 E 24 N	-	07 20	04 1.586
0104	1	79 25	10 48	36 E 24 N	-	07 20	00 0.000
<u>Map Sheet No. 54 O/5</u>							
0101	1	79 25	48 19	52 E 58 N	34	12 -	- -
0104	1	79 25	48 25	48 E 57 N	34	12 -	- -
0205	2	79 25	27 05	41 E 57 N	34	02 20	12 9.575
<u>Map Sheet No. 54 O/9</u>							
0200	2	79 25	51 30	43 E 40 N	34	04 -	- -
0300	1	79 25	54 30	29 E 36 N	34	12 -	- -
0401	1	79 25	55 34	39 E 46 N	34	04 -	- -
0402	1	79 25	56 37	07 E 08 N	34	04 -	- -
0404	1	79 25	56 40	47 E 34 N	34	04 -	- -

Total = 27 Plots

District: Jhansi

Map Sheet coverage: 54 K/8, 11, 12, 13, 15, 16
 54 L/9
 54 O/1, 2, 6, 7 (11 sheets)

1	2	3	4	5	6	7	8
<u>Map Sheet No. 54 K/8</u>							
0105	2	78 29 25 02	37 E 33 59 N	04	-	-	-
0204	2	78 25 25 05	07 E 33 14 N	07	12	03	1.279
0505	1	79 22 25 29	42 E 33 40 N	03	20	06	12.544
<u>Map Sheet No. 54 K/11</u>							
0304	2	78 41 25 23	01 E 33 53 N	03	20	10	36.528
<u>Map Sheet No. 54 K/12</u>							
0400	2	78 32 25 12	36 E 33 19 N	02	20	07	8.219
<u>Map Sheet No. 54 K/13</u>							
0202	2	78 51 25 51	50 E 33 44 N	12	-	-	-
0303	1	78 54 25 54	32 E 33 55 N	12	-	-	-
0404	1	78 56 25 55	20 E 33 43 N	04	-	-	-
0404	2	78 56 25 56	10 E 33 44 N	07	17	00	0.000
<u>Map Sheet No. 54 K/15</u>							
0002	2	78 52 25 16	00 E 33 51 N	04	-	-	-
0004	2	78 57 25 15	00 E 33 03 N	12	-	-	-
<u>Map Sheet No. 54 K/16</u>							
0503	1	78 54 25 14	19 E 33 40 N	04	-	-	-
0504	1	78 56 25 13	01 E 33 36 N	04	-	-	-
0504	2	78 56 25 13	31 E 33 44 N	04	-	-	-

1	2	3	4	5	6	7	8
<u>Map Sheet No. 54 L/9</u>							
0503	2	78 24	37 59	53 E 04 N	33	10	-
<u>Map Sheet No. 54 O/1</u>							
0000	2	79 25	46 01	00 E 32 N	33	12	-
0001	1	79 25	46 04	43 E 44 N	33	07	20
0001	2	79 25	45 02	46 E 48 N	33	04	-
0002	1	79 25	46 05	51 E 04 N	33	07	20
<u>Map Sheet No. 54 O/2</u>							
0400	1	79 25	44 02	58 E 11 N	33	07	20
0500	2	79 25	02 44	09 E 58 N	33	02	17
0501	2	79 25	04 02	27 E 34 N	33	07	17
<u>Map Sheet No. 54 O/6</u>							
0100	1	79 25	17 33	26 E 15 N	33	02	17
0101	2	79 25	17 33	33 E 44 N	33	02	17
0102	2	79 25	20 34	06 E 44 N	33	12	-
0103	1	79 25	22 33	39 E 47 N	33	03	18
0201	1	79 25	19 35	00 E 14 N	33	04	20
0202	1	79 25	21 36	45 E 44 N	33	02	20
0202	2	79 25	20 35	46 E 46 N	33	02	18
0302	1	79 25	20 38	23 E 38 N	33	02	20
0303	1	79 25	22 39	39 E 17 N	33	03	20
0401	2	79 25	19 41	41 E 45 N	33	11	-

1	2	3		4		5	6	7	8
0402	2	79 25	21 41	44 E 32 N	33	02	20	09	3.339
0501	2	79 25	19 44	04 E 52 N	33	12	-	-	-
<u>Map Sheet No. 54 0/7</u>									
0000	1	79 25	15 17	30 E 10 N	33	02	20	26	80.622
0200	2	79 25	16 20	50 E 51 N	33	12	-	-	-
0301	2	79 25	19 24	47 E 55 N	33	03	20	14	8.788
0402	2	79 25	20 26	16 E 57 N	33	03	20	06	4.436
0502	1	79 25	21 28	54 E 03 N	33	04	-	-	-

Total = 39 Plots

District: Lalitpur

Map Sheet coverage: 54 K/12
54 L/1,2,6,7,9,11,12,15,16 (10 sheets)

1	2	3	4	5	6	7	8		
<u>Map Sheet No. 54 K/12</u>									
0100	1	78 25	31 04	41 E 26 N	33	03	20	05	2.207
0200	1	78 25	31 05	08 E 46 N	33	03	17	01	0.554
0200	2	78 25	31 06	20 E 46 N	33	03	20	07	7.850
0401	1	78 25	33 11	40 E 44 N	33	03	10	00	0.000
<u>Map Sheet No. 54 L/1</u>									
0105	2	78 24	14 49	06 E 47 N	33	07	17	00	0.000
<u>Map Sheet No. 54 L/2</u>									
0005	1	78 24	13 33	37 E 43 N	33	02	20	27	19.901
<u>Map Sheet No. 54 L/6</u>									
0001	1	78 24	19 30	29 E 08 N	33	02	10	02	2.553
0001	2	78 24	18 32	01 E 21 N	33	02	20	06	45.453
0100	1	78 24	15 32	37 E 32 N	33	02	20	12	0.000
0301	1	78 24	18 29	29 E 35 N	33	04	-	-	-
<u>Map Sheet No. 54 L/7</u>									
0202	1	78 24	21 21	36 E 36 N	33	03	17	02	4.409
0202	2	78 24	20 20	55 E 55 N	33	03	17	05	4.246
0203	2	78 24	24 20	44 E 29 N	33	02	20	20	54.836
0204	1	78 24	25 22	18 E 15 N	33	02	20	20	8.826
0204	2	78 24	27 20	13 E 13 N	33	02	17	19	5.606
0205	2	78 24	27 21	45 E 03 N	33	-	20	07	4.548

	2	3	4	5	6	7	8		
0302	2	78 24	22 24	06 E 36 N	33	02	20	06	2.732
0303	2	78 24	24 24	22 E 57 N	33	02	20	16	16.429
0304	1	78 24	25 24	30 E 02 N	33	02	20	22	25.061
0304	2	78 24	27 23	01 E 26 N	33	03	20	10	13.344
0400	2	78 24	27 16	02 E 53 N	33	03	20	01	0.348
0402	2	78 24	25 21	31 E 45 N	33	02	20	12	5.732
0403	2	78 24	26 22	20 E 55 N	33	02	20	09	4.808
0404	2	78 24	26 27	23 E 23 N	33	03	20	04	4.069
0405	1	78 24	25 29	23 E 14 N	33	02	20	14	6.295
0501	1	78 24	28 18	06 E 34 N	33	02	20	14	12.583
0501	2	78 24	29 18	23 E 58 N	33	03	20	12	13.495
0502	1	78 24	29 21	08 E 29 N	33	03	20	08	11.126
0502	2	78 24	29 21	18 E 03 N	33	03	20	05	2.161
0503	1	78 24	28 24	16 E 14 N	33	03	20	10	6.537
0301	1	78 24	32 54	55 E 37 N	33	12	-	-	-
0303	1	78 24	39 54	03 E 52 N	33	04	20	00	0.000
0400	2	78 24	31 55	17 E 23 N	33	03	20	00	0.000
0401	1	78 24	33 55	25 E 28 N	33	03	20	01	0.958
0402	1	78 24	36 56	50 E 12 N	33	04	20	00	0.000

Map Sheet No. 54 L/9

1	2	3	4	5	6	7	8		
<u>Map Sheet No. 54 L/11</u>									
0003	2	78 24	27 17	52 E 07 N	33	01	20	08	5.136
0004	1	78 24	41 15	45 E 26 N	33	02	20	07	3.020
0004	2	78 24	40 17	35 E 05 N	33	03	20	03	2.170
0005	1	78 24	41 17	36 E 26 N	33	02	20	10	5.169
0005	2	78 24	42 15	58 E 02 N	33	02	20	07	134.188
0103	1	78 24	38 18	07 E 04 N	33	02	20	13	12.116
0201	2	78 24	32 21	47 E 59 N	33	02	20	17	15.590
0202	1	78 24	36 21	09 E 56 N	33	03	20	04	4.725
0202	2	78 24	36 26	22 E 34 N	33	02	20	04	0.937
0301	1	78 24	33 24	07 E 50 N	33	02	20	14	26.983
<u>Map Sheet No. 54 L/12</u>									
0504	1	79 24	14 41	44 E 16 N	33	01	20	25	28.866
<u>Map Sheet No. 54 L/15</u>									
0000	2	78 24	45 15	30 E 52 N	33	03	20	10	4.612
0001	1	78 24	48 16	12 E 03 N	33	03	17	04	2.118
0001	2	78 24	49 16	07 E 24 N	33	03	20	03	1.192
0002	1	78 24	52 16	01 E 09 N	33	02	10	00	0.000
0002	2	78 24	50 16	26 E 24 N	33	02	10	22	13.009
0003	1	78 24	52 16	41 E 36 N	33	01	10	54	31.108
0101	1	78 24	48 18	34 E 02 N	33	03	20	00	0.000
0102	1	78 24	51 17	29 E 52 N	33	12	-	-	-
0204	1	78 24	56 21	31 E 59 N	33	03	20	03	28.686

1	2	3		4		5	6	7	8
0204	2	78 24	55 20	58 E 32 N	33	03	20	06	5.425
<u>Map Sheet No. 54 L/16</u>									
0401	1	78 24	12 45	39 E 58 N	33	01	20	20	62.848
0500	2	78 24	40 27	31 E 22 N	33	02	20	15	10.892
0501	1	78 24	30 47	37 E 56 N	33	01	20	24	23.284
0501	2	78 24	30 49	54 E 22 N	33	04	20	08	13.221
0502	1	78 24	30 50	52 E 27 N	33	01	20	14	13.763
0502	2	78 24	13 52	38 E 00 N	33	01	10	21	33.264

Total = 62 Plots

District: Hamirpur

Map Sheet coverage: 54 0/5,6,7,8,9,11,13,14
63 C/1 (9 sheets)

1	2	3	4	5	6	7	8
<u>Map Sheet No. 54 0/5</u>							
0003	1	79 25	45 22	52 E 51 N	52	03	20 00 0.000
0003	2	79 25	46 24	17 E 40 N	52	02	20 00 0.000
<u>Map Sheet No. 54 0/6</u>							
0104	2	79 25	25 34	43 E 33 N	52	13	- - -
0204	2	79 25	25 35	09 E 44 N	52	02	17 00 0.000
0302	2	79 25	22 58	06 E 52 N	52	02	20 07 2.147
0303	2	79 25	24 38	52 E 15 N	52	03	18 08 5.409
0304	2	79 25	25 38	27 E 25 N	52	03	18 09 4.817
0403	1	79 25	23 41	46 E 38 N	52	04	- - -
0403	2	79 25	23 40	04 E 54 N	52	03	17 03 2.619
0503	1	79 25	23 42	57 E 27 N	52	12	- - -
<u>Map Sheet No. 54 0/7</u>							
0302	2	79 25	20 24	54 E 43 N	52	03	20 02 3.668
0503	1	79 25	22 29	42 E 40 N	52	03	20 11 5.518
<u>Map Sheet No. 54 0/8</u>							
0203	2	79 25	02 07	15 E 06 N	52	04	- - -
0303	2	79 25	24 09	31 E 32 N	52	03	20 01 0.149
0501	2	79 25	18 14	53 E 05 N	52	03	20 00 0.000

1	2	3	4	5	6	7	8		
<u>Map Sheet No. 54 0/9</u>									
0100	1	79 25	49 30	55 E 09 N	52	03	20	04	1.221
0204	2	79 25	46 41	39 E 50 N	52	12	-	-	-
0303	1	79 25	53 37	33 E 47 N	52	13	-	-	-
0303	2	79 25	54 39	00 E 45 N	52	12	-	-	-
<u>Map Sheet No. 54 0/11</u>									
0004	1	79 25	42 15	03 E 15 N	52	03	20	10	9.161
0004	2	79 25	40 17	28 E 07 N	52	04	-	-	-
0102	1	79 25	36 18	14 E 06 N	52	03	20	00	0.000
<u>Map Sheet No. 54 0/13</u>									
0003	2	79 25	53 46	01 E 05 N	52	03	20	09	31.330
0102	1	79 25	15 29	32 E 19 N	52	07	17	06	13.559
0203	1	79 25	44 50	10 E 52 N	52	03	20	05	1.780
0303	2	79 25	54 53	25 E 27 N	52	03	20	00	0.000
0304	1	79 25	57 53	04 E 56 N	52	03	20	00	0.000
0305	1	79 25	59 54	21 E 27 N	52	04	-	-	-
<u>Map Sheet No. 54 0/14</u>									
0500	1	79 25	45 43	12 E 45 N	52	07	20	00	0.000
<u>Map Sheet No. 63 C/1</u>									
0301	2	80 25	02 44	45 E 33 N	52	07	20	00	0.000
0502	1	80 25	06 58	15 E 14 N	52	03	20	16	10.659
Total = 31 Plots									

District: Banda

Map Sheet coverage: 63 C/6,10,12,15,16
 63 D/5,13
 63 G/4,8,12
 63 H/1 (11 sheets)

1	2	3	4	5	6	7	8
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Map Sheet No. 63 C/6

0100	2	80 25	13 33	53 E 24 N	32	07	-	-	-
0102	1	80 25	22 52	01 E 58 N	32	12	-	-	-

Map Sheet No. 63 C/10

0304	1	80 25	40 39	55 E 11 N	32	02	20	55	37.415
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Map Sheet No. 63 C/12

0101	2	80 25	33 03	15 E 53 N	32	03	20	02	3.258
0104	1	80 25	42 04	27 E 19 N	32	12	-	-	-
0105	2	80 25	42 04	41 E 33 N	32	02	20	17	34.487
0204	2	80 25	41 07	32 E 03 N	32	04	20	27	26.895
0304	2	80 25	42 07	15 E 47 N	32	12	-	-	-
0404	1	80 25	40 11	03 E 36 N	32	04	-	-	-
0405	1	80 25	40 12	42 E 32 N	32	03	18	03	15.568

Map Sheet No. 63 C/15

0201	1	80 25	49 20	26 E 10 N	32	07	-	-	-
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Map Sheet No. 63 C/16

0002	2	80 25	52 00	13 E 06 N	32	03	20	14	5.235
0003	2	80 25	54 00	35 E 36 N	32	04	20	00	0.000
0102	1	80 25	52 02	26 E 38 N	32	02	20	31	45.469
0103	1	80 25	52 03	52 E 51 N	32	03	12	14	27.682

1	2	3	4	5	6	7	8		
0103	2	80 25	54 03	39 E 57 N	32	02	20	19	26.809
0104	2	80 25	55 02	32 E 59 N	32	01	20	21	7.781
0105	1	80 25	58 04	37 E 09 N	32	03	20	00	0.009
0105	2	80 25	58 03	51 E 24 N	32	03	20	12	6.614
0304	1	80 25	57 08	08 E 54 N	32	03	20	03	60.559
0304	2	80 25	55 08	22 E 35 N	32	02	20	10	2.895
0305	2	80 25	59 09	34 E 34 N	32	03	20	03	7.360
0405	1	80 25	59 11	45 E 02 N	32	02	20	21	13.268
<u>Map Sheet No. 63 D/5</u>									
0505	1	80 24	28 58	34 E 44 N	32	04	-	-	-
<u>Map Sheet No. 63 D/13</u>									
0401	2	80 24	48 56	43 E 56 N	32	03	20	02	0.639
0402	1	80 24	52 57	12 E 16 N	32	12	-	-	-
0402	2	80 24	50 55	21 E 15 N	32	02	20	23	8.091
0403	1	80 24	53 57	15 E 24 N	32	02	20	21	6.672
0405	1	80 24	57 57	34 E 14 N	32	02	20	33	25.797
0502	1	80 24	51 57	15 E 47 N	32	03	20	02	0.988
0502	2	80 24	51 59	18 E 45 N	32	16	-	-	-
0503	2	80 24	54 57	05 E 49 N	32	02	20	36	12.796
0504	1	80 24	56 58	51 E 22 N	32	01	20	20	10.391
0504	2	80 24	55 59	38 E 08 N	32	02	20	20	6.831
0505	1	80 24	59 58	42 E 22 N	32	02	20	20	17.606

1.	2	3	4.	5.	6.	7.	8		
0505	2	80 24	57 59	48 E 10 N	32	03	20	05	3.193
<u>Map Sheet No. 63 G/4</u>									
0003	1	81 25	08 01	16 E 44 N	32	02	17	14	3.502
0005	1	81 25	14 01	14 E 18 N	32	02	20	07	5.100
0005	2	81 25	13 01	14 E 12 N	32	16	-	-	-
0100	1	81 25	01 03	48 E 58 N	32	01	20	02	12.404
0100	2	81 25	00 03	41 E 30 N	32	01	20	13	4.594
0101	2	81 25	02 04	49 E 14 N	32	02	20	12	4.907
0103	1	81 25	09 04	23 E 04 N	32	02	20	05	1.263
0104	1	81 25	11 04	47 E 37 N	32	03	20	00	0.000
0105	1	81 25	13 03	14 E 03 N	32	02	17	11	1.806
0105	2	81 25	14 04	13 E 21 N	32	02	17	00	0.000
0200	1	81 25	01 05	36 E 59 N	32	02	20	06	2.311
0200	2	81 25	00 06	55 E 33 N	32	02	20	04	1.923
0201	1	81 25	02 05	40 E 07 N	32	02	20	11	15.711
0202	1	81 25	07 06	22 E 48 N	32	02	20	16	17.288
0202	2	81 25	05 05	09 E 44 N	32	02	20	00	0.000
0203	1	81 25	07 05	40 E 57 N	32	02	20	02	1.023
0203	2	81 25	09 06	48 E 30 N	32	02	20	08	11.470
0204	1	81 25	11 05	56 E 28 N	32	04	-	-	-
0204	2	81 25	10 07	34 E 01 N	32	02	20	08	6.866
0302	1	81 25	06 09	50 E 45 N	32	07	20	01	0.291

1	2	3	4	5	6	7	8		
0304	2	81 25	12 08	26 E 43 N	32	07	20	12	3.987
0305	1	81 25	14 07	38 E 56 N	32	04	-	-	-
0400	1	81 25	00 10	18 E 07 N	32	01	20	17	19.372
0402	1	81 25	05 10	50 E 02 N	32	03	20	04	40.919
<u>Map Sheet No. 63 G/8</u>									
0100	2	81 25	15 04	50 E 59 N	32	03	20	03	1.141
0200	2	81 25	15 06	23 E 31 N	32	03	20	02	1.223
0300	1	81 25	15 09	51 E 31 N	32	02	20	03	1.225
0305	2	81 25	28 09	58 E 45 N	32	04	-	-	-
0402	1	81 25	21 10	41 E 13 N	32	07	-	-	-
0403	1	81 25	24 12	06 E 04 N	32	07	20	01	1.299
0403	2	81 25	23 10	16 E 21 N	32	04	-	-	-
0404	2	81 25	25 12	30 E 15 N	32	03	20	02	0.773
0405	1	81 25	28 10	08 E 38 N	32	03	20	00	0.000
0503	2	81 25	24 13	44 E 05 N	32	17	-	-	-
0504	1	81 25	25 13	48 E 27 N	32	04	-	-	-
0505	1	81 25	27 13	55 E 03 N	32	03	20	00	0.000
0505	2	81 25	29 14	53 E 27 N	32	04	-	-	-
<u>Map Sheet No. 63 G/12</u>									
0500	2	81 25	30 14	25 E 37 N	32	03	20	10	11.088

1	2	3	4	5	6	7	8
Map Sheet No. 63 H/1							
0302	1	81 24	07 54	04 E 53 N	32	02	24.938
0303	2	81 24	07 53	55 E 58 N	32	03	22.001
0400	1	81 24	00 55	33 E 46 N	32	01	3.971
0402	1	81 24	06 56	08 E 25 N	32	02	-
0402	2	81 24	06 56	22 E 04 N	32	02	22.070
0403	1	81 24	09 55	27 E 57 N	32	02	24.406
0403	2	81 24	08 57	04 E 20 N	32	03	8.469
0405	1	81 24	12 57	39 E 18 N	32	02	17.371
0500	1	81 24	01 59	36 E 44 N	32	03	0.348
0500	2	81 24	00 57	58 E 45 N	32	02	14.936
0501	2	81 24	04 57	48 E 43 N	32	03	2.636
0502	1	81 24	00 57	36 E 32 N	32	01	17.723
0503	2	81 24	08 57	16 E 58 N	32	02	13.546
0504	1	81 24	11 58	51 E 46 N	32	01	7.232
0504	2	81 24	10 58	39 E 45 N	32	12	-
0505	2	81 24	12 58	48 E 11 N	32	03	34.179

Total = 90 Plots

District: Allahabad

Map Sheet coverage: 63 G/12,16
63 H/13
63 K/4,8
63 L/1 (6 sheets)

1	2	3	4	5	6	7	8
<u>Map Sheet No. 63 G/12</u>							
0405	1	81 25	42 11	40 E 08 N	29	04	-
0501	1	81 25	34 30	33 E 49 N	29	04	-
0502	1	81 25	36 13	39 E 04 N	29	07	20 00 0.000
<u>Map Sheet No. 63 G/16</u>							
0205	2	81 25	57 07	34 E 09 N	29	12	-
0305	1	81 25	59 07	40 E 32 N	29	10	-
<u>Map Sheet No. 63 H/13</u>							
0205	2	81 25	58 56	15 E 54 N	29	12	-
0305	2	81 25	57 53	34 E 07 N	29	03	20 04 21.114
<u>Map Sheet No. 63 K/4</u>							
0004	1	82 25	10 00	59 E 21 N	29	02	10 00 0.000
0105	1	82 25	14 04	24 E 06 N	29	04	-
0105	2	82 25	13 03	06 E 25 N	29	02	20 00 0.000
0201	1	82 25	02 06	33 E 48 N	29	12	-
0202	2	82 25	05 07	19 E 11 N	29	03	20 00 0.000
0203	2	82 25	07 06	04 E 45 N	29	03	20 05 9.236
0301	2	82 25	04 07	58 E 41 N	29	11	-
0303	1	82 25	08 07	51 E 49 N	29	04	-

1	2	3	4	5	6	7	8
<u>Map Sheet No. 63 K/2</u>							
0100	2	82 25	16 04	33 E 48 N	29	12	- - -
0101	1	82 25	19 04	25 E 03 N	29	03	20 00 0.000
0101	2	82 25	18 03	04 E 27 N	29	04	20 00 0.000
0200	1	82 25	16 05	47 E 33 N	29	04	20 00 0.000
0201	1	82 25	18 06	22 E 03 N	29	03	20 00 0.000
<u>Map Sheet No. 63 L/1</u>							
0201	1	82 25	04 52	07EE 14 N	29	02	20 03 11.206
0202	2	82 25	05 51	41 E 28 N	29	02	20 06 6.704
0301	1	82 25	04 54	42 E 03 N	29	02	20 01 34.717
0302	2	82 25	05 53	55 E 58 N	29	12	- - -
Total = 24 Plots							

District: Mirzapur

Map Sheet coverage: 63 K/8, 12, 16
 63 L/1, 2, 5, 6, 9, 10, 11, 12, 13, 14, 15, 16
 63 P/1, 2, 3, 4, 5, 6, 7, 8, 10
 64 I/13
 64 M/1 (26 sheets)

1	2	3	4	5	6	7	8
Map Sheet No. 63 K/8							
0003	2	82 24 44 E 25 00 06 N	29	03	20	01	0.425
0004	1	82 25 13 E 25 00 50 N	29	03	20	00	0.000
0005	2	82 29 56 E 25 00 06 N	29	03	20	00	0.000
0102	1	82 20 24 E 25 04 22 N	29	03	20	00	0.000
0103	1	82 24 56 E 25 03 26 N	29	03	20	00	0.000
0103	2	82 22 34 E 25 04 04 N	29	03	20	00	0.000
0104	2	82 25 19 E 25 04 15 N	29	02	20	01	4.818
0105	1	82 29 55 E 25 02 52 N	29	12	-	-	-
0105	2	82 27 35 E 25 04 20 N	29	03	20	00	0.000
0201	2	82 19 07 E 25 06 24 N	29	03	20	01	0.291
0202	1	82 20 45 E 25 06 33 N	29	12	-	-	-
0202	2	82 21 45 E 25 05 57 N	29	03	20	00	0.000
0203	1	82 22 33 E 25 05 02 N	29	03	20	01	0.291
0203	2	82 09 56 E 25 51 45 N	29	02	20	00	0.000
0204	1	82 25 07 E 25 05 52 N	29	12	-	-	-
0205	1	82 27 43 E 25 05 43 N	29	03	20	00	0.000
0205	2	82 29 44 E 25 06 47 N	29	11	-	-	-
0304	1	82 27 17 E 25 08 10 N	29	12	-	-	-

1	2	3		4.		5	6	7	8
0305	1	82 25	28 08	05 E 37 N	29	12	-	-	-
0305	2	82 25	28 08	39 E 53 N	29	12	-	-	-
0503	2	82 25	23 13	03 E 09 N	29	14	-	-	-

Map Sheet No. 63 K/12

0001	2	82 25	33 00	08 E 18 N	29	04	-	-	-
0003	1	82 25	38 00	12 E 26 N	29	03	17	07	9.179
0003	2	82 25	39 02	08 E 02 N	29	04	-	-	-
0004	1	82 25	41 00	47 E 47 N	29	04	-	-	-
0005	1	82 25	41 00	52 E 18 N	29	04	-	-	-
0100	1	82 25	31 02	58 E 41 N	29	13	-	-	-
0101	1	82 25	33 03	08 E 04 N	29	04	-	-	-
0101	2	82 25	34 04	18 E 42 N	29	04	-	-	-
0102	1	82 25	35 03	43 E 18 N	29	04	-	-	-
0102	2	82 25	36 04	48 E 11 N	29	15	-	-	-
0105	1	82 25	44 03	44 E 49 N	29	04	-	-	-
0202	2	82 25	35 06	15 E 06 N	29	11	-	-	-
0203	1	82 25	39 05	20 E 24 N	29	04	-	-	-
0204	1	82 25	41 05	25 E 35 N	29	11	-	-	-

Map Sheet No. 63 K/16

0100	1	82 25	46 03	36 E 07 N	51	11	-	-	-
0100	2	82 25	45 04	50 E 24 N	51	11	-	-	-
0103	1	82 25	53 03	17 E 50 N	51	11	-	-	-

1	2	3		4		5	6	7	8
0103	2	82 25	54 03	12 E 31 N	51	04	-	-	-
0203	2	82 25	52 05	54 E 39 N	51	11	-	-	-
<u>Map Sheet No. 63 L/1</u>									
0005	1	82 24	14 46	58 E 28 N	29	02	18	05	23.117
0005	2	82 24	12 46	42 E 01 N	29	02	20	07	2.799
0103	2	82 24	09 47	46 E 58 N	29	03	20	04	34.532
0202	1	82 24	06 51	49 E 10 N	29	12	-	-	-
0203	1	82 24	07 50	32 E 44 N	29	03	20	00	0.000
0203	2	82 24	09 51	56 E 44 N	29	02	20	03	7.208
0204	2	82 24	11 51	02 E 44 N	29	12	-	-	-
<u>Map Sheet No. 63 L/2</u>									
0505	1	82 24	44 12	54 E 36 N	29	02	18	00	0.000
<u>Map Sheet No. 63 L/5</u>									
0002	1	82 24	21 45	52 E 24 N	29	03	20	00	0.000
0003	1	82 24	23 47	15 E 03 N	29	03	20	01	0.348
0003	2	82 24	24 45	15 E 26 N	29	02	20	04	2.084
0005	1	82 24	29 45	52 E 37 N	29	02	17	10	7.676
0005	2	82 24	27 46	36 E 52 N	29	03	20	00	0.000
0102	1	82 24	22 49	25 E 42 N	29	02	17	01	0.932
0103	1	82 24	23 49	05 E 31 N	29	03	20	02	0.639
0103	2	82 24	24 47	25 E 57 N	29	02	12	06	7.990
0104	1	82 24	25 49	57 E 46 N	29	03	20	00	0.000

1	2	3		4		5	6	7	8
0105	1	82 24	28 48	05 E 33 N	29	02	17	00	0.000
0105	2	82 24	29 48	26 E 54 N	29	02	17	05	0.833
0202	1	82 24	22 51	04 E 57 N	29	03	20	00	0.000
0202	2	82 24	20 50	26 E 32 N	29	03	20	00	0.000
0203	2	82 24	22 51	43 E 05 N	29	02	17	01	0.383
0204	1	82 24	27 51	18 E 07 N	29	03	20	02	1.709
0205	1	82 24	29 52	04 E 02 N	29	03	20	00	0.000
0205	2	82 24	28 50	26 E 27 N	29	02	17	01	0.149
0304	2	82 24	26 54	43 E 21 N	29	03	20	01	0.291
0305	1	82 24	27 52	51 E 43 N	29	03	20	11	6.521
0404	1	82 24	26 55	11 E 22 N	29	03	20	02	2.277
0404	2	82 24	26 57	20 E 07 N	29	12	-	-	-
0405	1	82 24	28 55	45 E 25 N	29	03	20	01	0.348
0502	1	82 24	21 59	40 E 12 N	29	04	-	-	-
0505	1	82 24	29 59	39 E 45 N	29	03	20	00	0.000

Map Sheet No. 63 L/6

0203	2	82 24	36 24	10 E 08 N	29	03	20	07	3.023
0302	1	82 24	39 22	20 E 03 N	29	03	20	01	41.428
0303	2	82 24	38 23	51 E 22 N	29	03	20	02	1.227
0400	2	82 24	41 16	46 E 36 N	29	03	17	01	1.669
0401	1	82 24	41 18	15 E 40 N	29	03	20	00	0.000
0401	2	82 24	41 18	14 E 54 N	29	04	-	-	-

1	2	3	4	5	6	7	8		
0403	1	82 24	41 24	48 E 40 N	29	03	20	02	2.542
0405	1	82 24	40 29	49 E 37 N	29	03	20	01	0.348
0500	1	82 24	42 15	57 E 09 N	29	03	20	18	51.256
0501	1	82 24	42 19	36 E 01 N	29	03	20	16	33.105
0503	1	82 24	43 23	09 E 39 N	29	03	20	07	2.189
0504	2	82 24	43 25	12 E 05 N	29	03	20	02	1.286
Map Sheet No. 63 L/9									
0000	1	82 24	30 45	17 E 24 N	29	03	20	03	7.022
0000	2	82 24	32 47	15 E 05 N	29	03	20	06	8.305
0001	1	82 24	33 46	38 E 37 N	29	03	20	01	0.383
0001	2	82 24	33 45	52 E 49 N	29	02	17	13	8.086
0002	2	82 24	37 45	04 E 19 N	29	03	17	01	3.150
0003	1	82 24	38 46	08 E 36 N	29	03	17	09	23.034
0003	2	82 24	39 46	19 E 04 N	29	04	17	01	0.000
0004	1	82 24	41 47	20 E 22 N	29	02	12	01	0.425
0100	2	82 24	32 47	13 E 34 N	29	03	20	03	6.649
0101	1	82 24	32 49	43 E 00 N	29	02	20	05	1.874
0102	1	82 24	36 49	02 E 43 N	29	03	20	01	0.640
0103	2	82 24	36 48	14 E 56 N	29	04	-	-	-
0103	1	82 24	39 48	08 E 36 N	29	04	-	-	-
0104	2	82 24	40 48	42 E 05 N	29	04	-	-	-
0105	1	82 24	44 27	10 E 57 N	29	03	20	05	3.827

1	2	3	4	5	6	7	8
0200	2	82 24	31 50	55 E 14 N	29	03	20 00 0.000
0203	2	82 24	39 50	35 E 27 N	29	03	20 00 0.000
0205	2	82 24	44 50	35 E 49 N	29	07	20 00 0.000
0300	1	82 24	32 54	22 E 01 N	29	04	- - -
0301	1	82 24	32 53	36 E 57 N	29	04	- - -
0402	2	82 25	36 56	23 E 26 N	51	03	20 00 0.000
0403	1	82 25	37 55	59 E 54 N	51	02	12 00 0.000
0404	2	82 24	40 56	51 E 34 N	51	03	20 01 34.717
0405	1	82 24	42 56	55 E 31 N	51	04	- - -
0500	1	82 24	32 58	11 E 56 N	29	04	- - -
0500	2	82 24	30 58	19 E 31 N	29	03	20 01 1.510
0501	2	82 24	44 34	57 E 05 N	29	04	20 00 0.000
0502	2	82 24	36 57	03 E 54 N	51	03	20 00 0.000
0503	1	82 24	38 58	00 E 41 N	51	03	17 00 0.000
0503	2	82 24	39 58	28 E 48 N	51	01	12 01 0.313
0504	1	82 24	41 59	51 E 33 N	51	03	20 01 1.299
0504	2	82 24	40 57	39 E 47 N	51	02	17 03 0.788
0505	1	82 24	43 59	31 E 02 N	51	03	20 01 0.348

Map Sheet No. 63 L/10

0005	2	82 24	30 44	51 E 12 N	31	01	11 28 26.023
0301	2	82 24	33 33	13 E 47 N	29	01	20 15 7.054
0304	1	82 24	36 42	53 E 19 N	29	03	20 00 0.000

1*	2	3	4	5	6	7	8	
0305	1	82 24	38 42	17 E 28 N	29	02	18 00	0.000
0400	1	82 24	41 32	46 E 14 N	29	03	20 11	5.767
0400	2	82 24	40 30	44 E 16 N	29	03	20 06	2.217
0401	1	82 24	42 33	24 E 47 N	29	03	17 07	1.825
0402	2	82 24	40 35	44 E 32 N	29	02	20 07	1.680
0403	2	82 24	42 37	04 E 57 N	29	12	- -	-
0404	2	82 24	41 41	36 E 22 N	29	04	- -	-
0500	1	82 24	44 30	48 E 30 N	29	03	20 00	0.000
0500	2	82 24	42 32	40 E 00 N	29	02	17 05	2.824
0501	1	82 24	42 33	32 E 25 N	29	03	20 06	1.902
0502	2	82 24	43 37	52 E 28 N	29	04	- -	-
0504	2	82 24	43 42	33 E 25 N	29	05	20 01	0.348
0505	1	82 24	43 43	19 E 13 N	29	04	- -	-
<u>Map Sheet No. 63 L/11</u>								
0305	1	82 24	44 23	16 E 03 N	31	03	20 24	24.589
<u>Map Sheet No. 63 L/12</u>								
0205	2	82 24	43 06	19 E 54 N	30	12	- -	-
0304	2	82 24	40 07	11 E 34 N	30	03	20 02	1.490
0305	2	82 24	44 08	39 E 39 N	30	02	20 01	0.149

1	2	3	4	5	6	7	8
Map Sheet No. 63 L/13							
0100	2	82 24	47 47	54 E 20 N	29	02	12 00 0.000
0101	2	82 24	49 47	48 E 48 N	29	02	12 00 0.000
0300	1	82 24	47 54	18 E 01 N	51	04	- - -
0301	1	82 24	48 54	31 E 11 N	51	04	- - -
0302	1	82 24	50 54	57 E 39 N	51	03	20 00 0.000
0303	1	82 24	54 54	23 E 21 N	51	03	20 02 22.622
0304	1	82 24	55 54	37 E 32 N	51	03	20 00 0.000
0305	1	82 24	58 54	33 E 22 N	51	03	20 01 0.198
0305	2	82 24	58 53	54 F 06 N	51	04	- - -
0400	1	82 24	45 56	23 E 41 N	51	03	20 00 0.000
0400	2	82 24	47 55	07 E 44 N	51	03	20 00 0.000
0401	1	82 24	48 57	38 E 43 N	51	03	20 00 0.000
0401	2	82 24	47 57	13 E 28 N	51	07	20 00 0.000
0402	1	82 24	50 55	41 E 07 N	51	03	20 00 0.000
0402	2	82 24	57 57	50 E 21 N	51	03	20 00 0.000
0403	1	82 24	52 57	37 E 43 N	51	03	20 00 0.000
0403	2	82 24	54 47	47 E 12 N	51	02	20 10 5.102
0404	1	82 24	55 56	58 E 29 N	51	03	20 02 4.506
0404	2	82 24	56 55	31 E 57 N	51	03	20 03 0.874
0405	1	82 24	57 56	56 E 12 N	51	03	20 00 0.000
0405	2	82 24	57 57	33 E 17 N	51	03	20 00 0.000
0500	2	82 24	45 59	32 E 43 N	51	05	12 00 0.000

1	2	3			4	5	6	7	8
0501	2	82 24	49 57	07 E 50 N	51	03	20	00	0.000
0502	1	82 24	52 57	00 E 39 N	51	03	20	01	0.236
0503	1	82 24	54 57	28 E 56 N	51	03	20	04	2.356
0504	2	82 24	56 57	59 E 30 N	51	03	20	00	0.000
0505	1	82 24	57 58	48 E 38 N	51	03	20	02	0.546
0505	2	82 24	57 58	59 E 47 N	51	03	20	17	8.200

Map Sheet No. 63 L/14

0000	1	82 24	30 45	42 E 57 N	31	01	20	27	51.151
0001	1	82 24	30 48	26 E 49 N	31	12	-	-	-
0001	2	82 24	32 48	02 E 47 N	31	01	20	11	24.151
0002	1	82 24	31 50	30 E 13 N	31	01	20	38	93.735
0003	1	82 24	31 53	30 E 45 N	31	03	11	04	18.671
0004	2	82 24	30 55	57 E 46 N	31	03	20	04	6.311
0102	1	82 24	32 51	48 E 24 N	31	01	20	28	76.336
0103	1	82 24	32 53	41 E 13 N	31	01	18	17	49.174
0104	2	82 24	33 55	29 E 21 N	31	01	18	21	40.042
0204	2	82 24	36 56	39 E 33 N	31	03	18	02	8.475
0205	2	82 24	36 59	36 E 05 N	31	02	17	08	5.924
0301	1	82 24	37 49	19 E 35 N	31	12	-	-	-
0302	2	82 24	38 50	25 E 07 N	31	02	20	15	9.378
0303	1	82 24	37 53	38 E 36 N	31	03	20	03	22.907
0304	2	82 24	38 57	25 E 03 N	51	03	20	00	0.000
0305	2	82 24	38 59	04 E 23 N	51	11	-	-	-

1	2	3	4	5	6	7	8	9
<u>Map Sheet No. 63 L/15</u>								
0000	2	82 24	47 15	23 E 47 N	30	12	-	-
0001	1	82 24	48 15	00 E 41 N	30	03	20	13 15.463
0002	2	82 24	52 15	05 E 43 N	30	03	20	23 32.325
0003	1	82 24	54 15	09 E 54 N	30	02	20	30 43.462
0003	2	82 24	53 15	21 E 37 N	30	03	20	02 0.639
0004	2	82 24	56 16	48 E 18 N	30	02	17	12 10.040
0005	1	82 24	59 15	21 E 26 N	30	02	20	27 35.987
0005	2	82 24	58 17	09 E 03 N	30	01	17	23 27.344
0100	2	82 24	46 19	23 E 11 N	30	02	20	15 6.639
0101	2	82 24	46 18	16 E 16 N	30	02	20	10 6.172
0102	1	82 24	50 19	34 E 05 N	30	03	20	00 0.000
0102	2	82 24	51 18	56 E 23 N	30	03	20	01 6.851
0103	2	82 24	53 18	52 E 41 N	30	02	20	00 0.000
0104	1	82 24	55 19	42 E 00 N	31	02	20	17 25.308
0104	2	82 24	56 18	49 E 29 N	30	01	20	33 42.121
0105	1	82 24	59 18	05 E 16 N	31	01	20	27 33.780
0105	2	82 24	58 19	18 E 13 N	30	02	20	07 11.769
0200	2	82 24	46 21	21 E 34 N	31	03	20	03 3.005
0201	1	82 24	48 21	37 E 37 N	31	12	-	-
0202	1	82 24	51 22	39 E 08 N	31	02	20	23 14.759
0202	2	82 24	50 20	51 E 19 N	31	03	20	17 19.190

1	2	3		4		5	6	7	8
0203	1	82 24	52 20	58 E 39 N	31	03	20	14	53.710
0203	2	82 24	54 21	30 E 50 N	31	02	20	04	2.530
0204	1	82 24	55 20	56 E 58 N	31	02	20	13	17.592
0205	1	82 24	59 20	30 E 10 N	31	01	20	54	36.252
0300	1	82 24	47 24	11 E 18 N	31	02	20	16	33.747
0300	2	82 24	45 23	19 E 11 N	31	04	20	00	0.000
0301	1	82 24	53 23	19 E 26 N	31	02	20	11	19.985
0302	1	82 24	50 22	04 E 57 N	31	03	20	01	2.178
0303	1	82 24	53 27	05 E 45 N	31	02	17	12	18.624
0303	2	82 24	54 23	07 E 45 N	31	12	-	-	-
0305	1	82 24	57 22	51 E 34 N	31	02	20	24	21.248
0400	2	82 24	47 25	26 E 13 N	31	02	20	30	32.385
0401	2	82 24	48 25	49 E 19 N	31	02	20	03	2.817
0402	1	82 24	50 26	58 E 16 N	31	02	20	13	11.935
0402	2	82 24	51 26	32 E 15 N	31	02	20	03	24.003
0403	1	82 24	54 25	07 E 19 N	31	03	20	00	0.000
0403	2	82 24	53 27	19 E 00 N	31	02	20	32	49.255
0404	1	82 24	55 25	26 E 05 N	31	02	20	01	0.348
0405	1	82 24	59 25	32 E 16 N	31	02	20	04	3.555
0500	2	82 24	46 29	51 E 56 N	31	02	20	26	20.022
0501	1	82 24	49 28	23 E 21 N	31	02	20	18	40.019
0501	2	82 24	48 29	05 E 08 N	31	02	20	25	27.530

1	2	3			4	5	6	7	8
0502	1	82 24	50 29	09 E 21 N	31	02	20	26	34.754
0502	2	82 24	52 22	18 E 28 N	31	03	20	07	22.776
0503	1	82 24	52 28	44 E 29 N	31	03	20	05	12.785
0503	2	82 24	54 29	44 E 00 N	31	03	20	10	9.210
0504	1	82 24	57 29	04 E 06 N	31	02	20	14	12.618
0504	2	82 24	55 27	28 E 24 N	31	02	18	18	52.155

Map Sheet No. 53 L/16

0000	1	82 24	47 00	14 E 24 N	30	12	-	-	-
0001	2	82 24	49 00	16 E 24 N	30	02	20	39	55.641
0002	1	82 24	50 00	28 E 11 N	30	02	20	19	11.827
0003	1	82 24	53 01	58 E 08 N	30	03	20	02	10.897
0003	2	82 24	53 01	35 E 21 N	30	03	20	02	19.433
0004	1	82 24	56 01	51 E 31 N	30	03	20	07	74.589
0004	2	82 24	55 00	37 E 58 N	30	02	20	07	6.968
0005	1	82 24	57 01	51 E 02 N	30	02	20	26	104.617
0104	2	82 24	56 03	49 E 27 N	30	02	20	08	30.107
0105	1	82 24	58 04	33 E 55 N	30	01	20	20	37.155
0105	2	82 24	58 02	55 E 36 N	30	01	20	30	127.871
0204	2	82 24	56 05	49 E 29 N	30	03	20	00	0.000
0205	1	82 24	58 05	28 E 51 N	30	02	20	18	16.589
0205	2	82 24	58 06	59 E 52 N	30	02	20	10	71.119
0300	1	82 24	45 07	19 E 44 N	30	02	11	04	2.440

1	2	3			4	5	6	7	8
0305	1	82 24	59 07	46 E 38 N	30	01	20	22	60.681
0305	2	82 24	57 09	44 E 52 N	30	12	-	-	-
0402	2	82 24	51 12	53 E 11 N	30	03	20	02	0.788
0500	2	82 24	45 14	48 E 42 N	30	03	20	08	5.466
0501	1	82 24	47 12	55 E 56 N	30	03	11	01	29.571
0502	1	82 24	51 13	35 E 14 N	30	02	20	27	27.511
0502	2	82 24	50 14	55 E 16 N	30	12	-	-	-
0503	1	82 24	53 14	12 E 11 N	30	02	20	23	51.890
0503	2	82 24	54 13	19 E 19 N	30	02	17	09	2.124
0504	1	82 24	56 12	56 E 56 N	30	12	-	-	-
0504	2	82 24	55 14	34 E 34 N	30	02	20	14	13.609
0505	1	82 24	57 14	56 E 05 N	30	02	20	36	30.449
0505	2	82 24	59 13	35 E 16 N	30	02	11	32	42.151

Map Sheet No. 63 P/1

0300	1	83 24	01 53	43 E 56 N	29	05	12	00	0.000
0301	2	83 24	04 54	39 E 46 N	29	03	20	02	2.509
0400	1	83 24	00 56	33 E 39 N	29	07	20	06	1.387
0400	2	83 24	01 55	57 E 49 N	29	02	20	05	1.625
0401	1	83 24	03 55	40 E 57 N	29	03	20	00	0.000
0401	2	83 24	03 57	51 E 03 N	29	02	20	00	0.000
0500	1	83 24	01 59	08 E 38 N	29	04	20	00	0.000
0501	1	83 24	03 59	26 E 44 N	29	04	20	00	0.000

1	2	3	4	5	6	7	8
<u>Map Sheet No. 63 P/2</u>							
0001	1	83 24	30 04	23 E 15 N	31	01	20 15 29.099
0002	1	83 24	31 06	12 E 53 N	51	03	11 09 16.589
0002	2	83 24	31 05	15 E 38 N	51	02	20 11 9.062
0003	1	83 24	30 08	11 E 27 N	31	02	20 00 0.000
0003	2	83 24	32 08	15 E 56 N	51	03	20 03 8.450
0004	1	83 24	30 12	23 E 21 N	31	03	17 04 0.825
0004	2	83 24	32 10	04 E 11 N	51	01	20 00 0.000
0005	1	83 24	30 14	39 E 40 N	31	01	20 12 31.124
0005	2	83 24	31 12	46 E 51 N	51	03	20 03 7.949
0101	1	83 24	34 04	31 E 42 N	31	12	- - -
0102	2	83 24	34 05	45 E 59 N	51	12	- - -
0103	1	83 24	34 07	24 E 43 N	51	12	- - -
0103	2	83 24	33 09	00 E 24 N	51	03	18 00 0.000
0104	1	83 24	32 11	33 E 22 N	51	02	20 08 12.763
0104	2	83 24	34 11	52 E 06 N	51	02	20 03 1.789
0105	1	83 24	34 14	09 E 40 N	51	03	20 01 0.362
0105	2	83 24	33 12	17 E 53 N	51	01	20 00 0.000
0200	1	83 24	36 01	59 E 22 N	31	03	20 00 0.000
0202	1	83 24	35 07	34 E 19 N	51	03	20 03 4.523
0202	2	83 24	36 05	54 E 13 N	51	03	20 07 7.187
0203	2	83 24	35 09	13 E 24 N	51	01	20 08 34.257

1	2	3		4		5	6	7	8
0204	2	83 24	36 11	02 E 00 N	51	02	20	00	0.000
<u>Map Sheet No. 63 P/3</u>									
0000	1	83 24	15 07	24 E 12 N	30	01	20	14	15.047
0000	2	83 24	17 00	02 E 18 N	30	01	20	19	16.647
0001	1	83 24	17 02	01 E 58 N	30	01	20	09	3.795
0001	2	83 24	15 04	31 E 32 N	30	02	20	14	17.902
0002	1	83 24	17 06	15 E 52 N	30	02	11	16	14.368
0002	2	83 24	15 05	13 E 41 N	30	02	20	24	13.482
0003	1	83 24	15 09	50 E 39 N	30	02	20	14	14.970
0003	2	83 24	16 08	38 E 42 N	30	02	17	01	1.510
0004	1	83 24	16 10	01 E 32 N	30	01	11	42	62.253
0004	2	83 24	16 11	26 E 58 N	30	02	20	10	12.533
0005	2	83 24	15 12	26 E 51 N	30	03	20	03	3.795
0100	1	83 24	18 02	04 E 04 N	30	01	11	27	15.902
0100	2	83 24	18 00	33 E 26 N	31	04	20	21	37.826
0101	1	83 24	18 03	50 E 02 N	30	02	11	17	38.897
0101	2	83 24	18 04	42 E 25 N	30	02	20	14	20.732
0102	1	83 24	18 07	06 E 03 N	30	01	11	11	16.094
0102	2	83 25	19 05	24 E 30 N	31	02	20	21	22.594
0103	1	83 24	18 05	37 E 46 N	30	02	20	16	14.017
0103	2	83 24	18 08	53 E 15 N	30	02	11	31	46.338
0104	1	83 24	17 10	53 E 35 N	30	01	20	24	30.165

1	2	3	4	5	6	7	8		
0105	1	83 24	19 14	24 E 12 N	30	12	-	-	-
0105	2	83 24	18 13	09 E 21 N	30	01	20	09	17.455
0200	1	83 24	22 02	06 E 21 N	31	02	20	01	2.251
0200	2	83 24	20 00	26 E 16 N	31	01	20	27	34.082
0201	1	83 24	20 02	57 E 41 N	31	02	20	01	0.777
0201	2	83 24	21 04	33 E 49 N	31	02	11	23	18.805
0202	1	83 24	21 07	38 E 11 N	31	02	20	23	42.331
0202	2	83 24	15 05	50 E 23 N	31	13	-	-	-
0203	1	83 24	22 08	16 E 42 N	31	02	20	04	13.296
0203	2	83 24	20 08	11 E 50 N	31	02	20	17	17.451
0204	1	83 24	21 12	08 E 16 N	31	02	20	27	22.045
0204	2	83 24	21 10	22 E 14 N	31	02	20	11	11.765
0205	1	83 24	22 10	04 E 02 N	31	07	20	00	0.000
0205	2	83 24	20 14	31 E 25 N	30	02	20	03	1.852
0301	1	83 24	23 09	24 E 13 N	31	02	11	34	38.455
0302	2	83 24	24 06	06 E 54 N	31	02	17	09	8.332
0303	1	83 24	22 07	59 E 42 N	31	02	20	24	33.567
0303	2	83 24	29 09	54 E 49 N	31	02	20	35	41.964
0304	1	83 24	23 10	37 E 57 N	31	02	20	07	9.235
0304	2	83 24	23 11	53 E 38 N	31	02	20	29	24.964
0305	1	83 24	23 13	53 E 09 N	31	02	17	13	4.448
0405	1	83 24	26 14	22 E 53 N	31	03	20	02	0.988

1	2	3			4	5	6	7	8
0405	2	83 24	26 12	08 E 36 N	31	02	20	15	31.014
0502	1	83 24	29 07	16 E 15 N	31	02	20	00	0.000
0503	1	83 24	29 09	11 E 12 N	31	02	20	20	28.058
0504	1	83 24	29 10	44 E 18 N	31	02	20	30	30.683
0505	2	83 24	28 14	25 E 25 N	31	02	20	10	20.083
Map Sheet No. 63 P/4									
0001	1	83 24	04 02	12 E 16 N	30	02	20	07	24.779
0002	1	83 24	07 02	02 E 25 N	30	02	20	17	66.730
0004	1	83 24	12 02	07 E 16 N	30	12	-	-	-
0100	2	83 24	00 04	53 E 45 N	30	03	20	01	1.986
0104	2	83 24	12 02	30 E 56 N	30	02	20	17	169.240
0200	1	83 24	00 05	01 E 03 N	30	02	20	16	33.626
0200	2	83 24	02 07	30 E 26 N	30	02	11	08	30.818
0201	1	83 24	03 05	09 E 30 N	30	03	20	03	37.760
0204	1	83 24	12 06	12 E 26 N	30	02	18	22	49.731
0204	2	83 24	10 06	22 E 08 N	30	12	-	-	-
0205	1	83 24	14 05	32 E 22 N	30	03	20	02	3.110
0205	2	83 24	13 07	06 E 06 N	30	02	20	26	67.757
0300	1	83 24	00 09	48 E 46 N	30	02	20	02	3.309
0300	2	83 24	01 07	42 E 46 N	30	02	11	05	11.860
0302	1	83 24	06 09	36 E 02 N	30	02	20	15	38.029
0302	2	83 24	05 08	56 E 28 N	30	01	20	33	38.571
0303	1	83 24	09 08	50 E 32 N	30	02	20	16	10.451

1	2	3				4	5	6	7	8
0303	2	83 24	07 08	44 E 56 N		30	02	20	21	21.954
0304	1	83 24	11 08	02 E 54 N		30	02	21	11	26.636
0304	2	83 24	11 08	33 E 35 N		30	13	-	-	-
0400	1	83 24	01 12	58 E 16 N		30	03	18	07	60.662
0400	2	83 24	00 10	36 E 10 N		30	02	20	05	15.354
0402	1	83 24	06 10	05 E 30 N		30	02	17	05	10.646
0402	2	83 24	06 12	30 E 00 N		30	12	-	-	-
0405	1	83 24	12 10	32 E 24 N		30	12	-	-	-
0500	1	83 24	00 14	02 E 15 N		30	01	11	19	19.920
0500	2	83 24	02 13	30 E 15 N		30	15	-	-	-
0501	1	83 24	03 14	28 E 00 N		30	15	-	-	-
0501	2	83 24	04 13	06 E 32 N		30	02	11	32	52.489
0502	1	83 24	05 14	28 E 28 N		30	01	20	11	13.550
0502	2	83 24	07 13	07 E 04 N		30	02	20	08	11.657
0503	1	83 24	09 13	26 E 38 N		30	02	20	01	3.320
0503	2	83 24	08 13	04 E 54 N		30	02	20	06	10.338
0504	1	83 24	10 14	52 E 28 N		30	01	11	28	21.992
0505	2	83 24	13 14	06 E 38 N		30	01	11	21	24.371
<u>Map Sheet No. 63 P/5</u>										
0004	1	83 24	26 45	05 E 34 N		51	02	11	17	32.359

1	2	3	4	5	6	7	8
Map Sheet No. 63 P/6							
0000	1	83 24	16 30	20 E 49 N	31	02	20 18 21.638
0000	2	83 24	15 31	12 E 35 N	51	04	- - -
0001	1	83 24	19 30	34 E 59 N	31	13	- - -
0001	2	83 24	17 31	36 E 30 N	51	03	20 12 18.930
0002	1	83 24	20 31	58 E 38 N	31	03	20 18 9.225
0002	2	83 24	21 30	33 E 52 N	31	03	20 00 0.000
0004	1	83 24	26 31	40 E 27 N	31	03	20 32 36.638
0005	2	83 24	29 32	22 E 16 N	31	03	20 00 0.000
0100	1	83 24	15 33	41 E 20 N	53	03	20 05 4.219
0102	1	83 24	21 33	37 E 43 N	51	02	20 06 7.228
0102	2	83 24	20 33	53 E 44 N	51	03	20 04 9.001
0103	1	83 24	23 34	10 E 20 N	51	03	20 14 24.807
0103	2	83 24	24 33	12 E 00 N	51	03	20 27 24.007
0104	1	83 24	26 33	53 E 00 N	51	03	20 01 0.958
0105	1	83 24	23 32	42 E 52 N	51	03	20 00 0.000
0105	2	83 24	28 34	35 E 38 N	51	03	20 14 29.034
0200	1	83 24	16 35	46 E 49 N	51	03	20 00 0.000
0201	1	83 24	19 35	08 E 02 N	51	05	12 01 1.423
0201	2	83 24	18 27	20 E 28 N	51	04	- - -
0202	1	83 24	21 36	21 E 30 N	51	03	20 07 20.808
0202	2	83 24	21 36	12 E 05 N	51	03	20 24 10.024
0203	2	83 24	23 35	36 E 49 N	51	03	20 19 38.399

1	2	3	4	5	6	7	8
0204	1	83 24	26 36	24 E 44 N	51	03	20 07 26.049
0204	2	83 24	26 35	07 E 44 N	51	02	20 26 29.978
0205	1	83 24	29 35	59 E 25 N	51	03	20 08 9.939
0205	2	83 24	27 37	15 E 11 N	51	03	20 02 0.931
0301	1	83 24	19 39	00 E 17 N	51	03	20 04 9.918
0301	2	83 24	18 38	20 E 12 N	51	04	- - -
0302	1	83 24	21 39	31 E 39 N	51	03	20 11 7.118
0303	1	83 24	23 38	18 E 17 N	51	05	12 02 7.116
0303	2	83 24	24 39	12 E 20 N	51	03	20 02 4.644
0304	1	83 24	25 36	18 E 36 N	51	02	11 36 51.014
0304	2	83 24	27 37	15 E 55 N	51	05	12 06 19.696
0305	1	83 24	29 37	48 E 06 N	51	02	20 06 3.161
0401	1	83 24	18 40	59 E 33 N	51	03	11 10 15.558
0401	2	83 24	18 41	18 E 53 N	51	13	- - -
0402	1	83 24	21 40	02 E 03 N	51	02	20 09 8.298
0403	1	83 24	29 40	30 E 04 N	51	02	11 20 31.788
0405	1	83 24	29 40	33 E 33 N	51	03	20 05 4.954
0504	1	83 24	26 44	02 E 16 N	51	04	20 03 1.549

Map Sheet No. 63 F/7

0000	1	83 24	16 16	05 E 45 N	30	03	20 14 7.379
0000	2	83 24	16 15	25 E 44 N	30	03	20 23 41.266
0001	1	83 24	18 15	00 E 41 N	30	03	20 04 8.380
0001	2	83 24	19 16	30 E 50 N	30	03	20 12 5.587

1	2	3			4	5	6	7	8
0002	1	83 24	20 16	32 E 47 N	30	03	11	01	2.424
0003	1	83 24	24 16	07 E 54 N	30	04	-	-	-
0100	1	83 24	16 19	00 E 43 N	30	03	20	20	15.027
0100	2	83 24	16 17	28 E 46 N	30	03	20	22	28.229
0101	1	83 24	19 18	13 E 38 N	31	03	20	09	21.143
0101	2	83 24	18 18	19 E 41 N	30	03	20	03	8.938
0200	1	83 24	16 20	09 E 46 N	30	03	20	07	2.976
0201	2	83 24	17 21	53 E 34 N	31	03	20	01	1.154
0203	2	83 24	24 20	30 E 21 N	31	03	20	04	21.589
0204	1	83 24	25 20	56 E 41 N	31	03	11	08	10.238
0204	2	83 24	26 21	35 E 49 N	31	13	-	-	-
0300	1	83 24	17 23	12 E 49 N	31	03	20	11	38.035
0300	2	83 24	15 23	18 E 38 N	31	03	20	04	10.842
0301	1	83 24	18 24	20 E 16 N	31	03	20	01	0.727
0303	2	83 24	24 24	07 E 32 N	31	04	-	-	-
0402	1	83 24	20 27	57 E 10 N	31	03	20	02	3.668
0403	2	83 24	23 26	18 E 13 N	31	04	-	-	-
0500	2	83 24	16 29	51 E 43 N	31	03	20	12	18.329
0501	1	83 24	19 29	55 E 56 N	31	04	-	-	-
0501	2	83 24	18 27	05 E 33 N	31	04	-	-	-
0502	1	83 24	21 23	28 E 02 N	31	03	20	06	10.948
0503	1	83 24	22 28	30 E 18 N	31	03	20	05	10.807

1	2	3	4	5	6	7	8
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M
Map Sheet No. 63 P/8

0100	2	83 24	15 02	19 E 47 N	30	03	20	05	34.403
0200	1	83 24	15 06	30 E 19 N	30	03	20	02	0.773
0201	2	83 24	19 07	57 E 03 N	30	03	20	02	22.297
0301	1	83 24	19 08	10 E 15 N	30	03	20	01	67.992
0301	2	83 24	18 09	15 E 16 N	30	12	-	-	-
0400	1	83 24	17 11	09 E 02 N	30	04	-	-	-
0400	2	83 24	15 24	21 E 30 N	30	07	20	00	0.000
0401	2	83 24	19 11	15 E 08 N	30	03	20	00	0.000
0402	1	83 24	21 11	29 E 43 N	30	12	-	-	-
0500	1	83 24	15 13	56 E 43 N	30	13	-	-	-

Map Sheet No. 63 P/10

0100	1	83 24	30 33	16 E 22 N	51	03	20	09	26.072
0200	1	83 24	30 35	52 E 27 N	51	03	20	07	10.012
0200	2	83 24	31 37	39 E 05 N	51	04	-	-	-

Map Sheet No. 64 I/13

0304	1	82 24	56 52	54 E 54 N	30	02	20	20	28.006
0403	1	82 24	52 55	51 E 57 N	30	13	-	-	-
0404	1	82 24	56 56	05 E 38 N	30	12	-	-	-
0501	2	82 24	49 59	51 E 50 N	30	02	20	15	22.596
0502	1	82 24	50 58	56 E 38 N	30	02	20	08	3.710
0503	2	82 24	54 57	32 E 51 N	30	02	20	18	24.097

1	2	3		4		5	6	7	8
0504	2	82 24	55 58	35 E 24 N	30	02	20	15	40.639
0505	2	82 24	59 59	07 E 06 N	30	04	-	-	-
Map Sheet No. 64 M/1									
0300	1	83 23	02 53	16 E 10 N	30	02	20	34	103.086
0300	2	83 23	00 54	13 E 20 N	30	02	11	29	36.546
0301	1	83 23	03 53	43 E 02 N	30	02	20	47	94.682
0301	2	83 23	03 54	43 E 39 N	30	12	-	-	-
0302	1	83 23	05 53	24 E 49 N	30	02	20	39	82.832
0302	2	83 23	07 53	05 E 41 N	30	02	20	07	63.772
0303	2	83 23	08 53	26 E 31 N	30	02	20	12	16.685
0304	2	83 23	10 54	02 E 49 N	30	12	-	-	-
0400	1	83 23	01 56	02 E 45 N	30	12	-	-	-
0400	2	83 23	01 55	25 E 45 N	30	12	-	-	-
0401	1	83 23	03 56	19 E 53 N	30	12	-	-	-
0401	2	83 23	04 55	10 E 57 N	30	12	-	-	-
0402	1	83 23	05 56	38 E 53 N	30	12	-	-	-
0402	2	83 23	06 55	51 E 39 N	30	12	-	-	-
0403	1	83 23	07 55	54 E 51 N	30	12	-	-	-
0403	2	83 23	09 56	35 E 39 N	30	03	20	10	14.637
0404	1	83 23	10 57	20 E 12 N	30	12	-	-	-
0404	2	83 23	12 55	09 E 18 N	30	12	-	-	-

1	2	3	4	5	6	7	8		
0500	1	83 23	00 58	56 E 04 N	30	12	-	-	-
0501	1	83 23	04 58	53 E 04 N	30	12	-	-	-
0502	1	83 23	07 58	14 E 49 N	30	12	-	-	-
0502	2	83 23	05 58	17 E 41 N	30	02	11	15	14.488
0503	1	83 23	06 58	21 E 39 N	30	12	-	-	-
0503	2	83 23	09 58	10 E 05 N	30	02	11	25	23.149
0504	1	83 23	11 58	38 E 57 N	30	12	-	-	-
0504	2	83 23	10 58	51 E 31 N	30	12	-	-	-

Total = 484 Plots

District: Varanasi

Map Sheet coverage: 63 O/4,8
63 P/1,5,6 (-5 sheets)

1	2	3	4	5	6	7	8		
<u>Map Sheet No. 63 O/4</u>									
0004	2	83 25	12 02	10 E 00 N	28	04	-	-	-
0105	1	83 25	14 02	09 E 51 N	28	01	10	35	101.379
<u>Map Sheet No. 63 O/8</u>									
0001	1	83 25	19 00	03 E 51 N	28	04	-	-	-
0002	1	83 25	20 00	35 E 16 N	28	11	-	-	-
<u>Map Sheet No. 63 P/1</u>									
0003	1	83 24	03 47	10 E 18 N	28	03	20	11	16.069
0004	1	83 24	10 46	27 E 54 N	28	12	-	-	-
0005	1	83 24	14 46	44 E 48 N	28	12	-	-	-
0005	2	83 24	12 55	40 E 26 N	28	13	-	-	-
0102	1	83 24	07 40	25 E 48 N	28	03	20	02	0.931
0103	1	83 24	08 59	03 E 03 N	28	03	20	05	2.155
0103	2	83 24	09 48	27 E 24 N	28	03	20	08	8.005
0104	1	83 24	10 49	07 E 47 N	28	02	20	19	41.658
0104	2	83 24	12 47	14 E 47 N	28	12	-	-	-
0105	1	83 24	13 49	53 E 40 N	28	10	20	05	20.155
0105	2	83 24	13 47	38 E 48 N	28	10	20	01	18.377
0202	1	83 24	05 51	28 E 29 N	28	03	20	02	2.623
0202	2	83 24	07 51	04 E 07 N	28	03	20	03	2.123
0203	1	83 24	07 50	46 E 26 N	28	03	20	14	12.317
0203	2	83 24	09 52	42 E 03 N	28	03	20	02	0.935

1	2	3	4	5	6	7	8		
0204	1	83 24	10 50	55 E 42 N	28	03	20	03	2.597
0204	2	83 24	11 51	32 E 48 N	28	03	20	02	2.846
0205	1	83 24	06 58	45 E 32 N	28	12	-	-	-
0205	2	83 24	05 58	47 E 54 N	28	03	20	00	0.000
0302	1	83 24	07 53	28 E 54 N	28	02	20	26	55.261
0302	2	83 24	05 53	08 E 35 N	28	03	20	09	2.707
0303	1	83 24	08 54	05 E 09 N	28	03	20	14	22.825
0304	1	83 24	10 53	13 E 27 N	28	02	20	28	15.142
0304	2	83 24	12 54	17 E 01 N	28	02	20	16	17.802
0305	1	83 24	13 52	03 E 40 N	28	03	20	02	2.715
0305	2	83 24	14 34	26 E 50 N	28	03	20	10	17.757
0402	1	83 24	06 55	08 E 46 N	28	03	20	11	18.786
0402	2	83 24	06 56	22 E 44 N	28	03	20	06	9.549
0403	1	83 24	08 56	50 E 14 N	28	02	20	12	10.114
0403	2	83 24	08 56	34 E 19 N	28	03	20	12	8.706
0404	1	83 24	10 53	06 E 47 N	28	02	20	12	16.846
0404	2	83 24	12 56	23 E 46 N	28	03	20	02	14.120
0405	1	83 24	14 57	14 E 02 N	28	02	20	15	26.440
0405	2	83 24	13 55	13 E 26 N	28	03	20	03	7.927
0501	2	83 24	04 37	01 E 27 N	28	02	20	16	9.605
0502	1	83 24	06 58	45 E 32 N	28	03	20	06	2.985
0502	2	83 24	05 58	47 E 54 N	28	03	20	06	8.446

1	2	3		4	5	6	7	8	
0503	1	83 24	09 59	27 E 47 N	28	03	20	00	0.000
0503	2	83 24	08 57	02 E 45 N	28	03	20	04	7.316
0504	2	83 24	11 57	02 E 59 N	28	03	20	12	47.514
0505	1	83 24	04 58	01 E 11 N	28	03	20	08	6.038
0505	2	83 24	14 59	37 E 19 N	28	03	20	06	20.560
Map Sheet No. 63 P/5									
0000	1	83 24	16 40	20 E 57 N	28	03	20	08	11.667
0000	2	83 24	16 45	14 E 31 N	28	03	20	01	1.299
0001	2	83 24	17 46	49 E 24 N	28	03	20	03	4.793
0002	2	83 24	22 47	08 E 24 N	28	03	20	03	1.077
0003	1	83 24	22 47	43 E 00 N	28	03	20	00	0.000
0100	1	83 24	15 48	05 E 31 N	28	03	20	09	4.107
0100	2	83 24	17 48	27 E 58 N	28	03	20	01	0.149
0101	1	83 24	18 49	15 E 52 N	28	16	-	-	-
0101	2	83 24	18 47	17 E 36 N	28	03	20	04	4.344
0102	1	83 24	21 59	47 E 30 N	28	02	20	19	14.317
0102	2	83 24	20 47	48 E 57 N	28	03	20	03	5.041
0103	1	83 24	22 47	53 E 40 N	28	03	20	05	3.539
0200	1	83 24	16 52	48 E 02 N	28	03	20	11	49.878
0200	2	83 24	15 50	44 E 29 N	28	03	20	00	0.000
0201	1	83 24	16 52	24 E 08 N	28	03	20	00	0.000
0201	2	83 24	19 50	05 E 21 N	28	03	20	05	8.550

1	2	3	4	5	6	7	8		
0202	2	83 24	21 50	47 E 12 N	28	02	20	24	19.348
0300	1	83 24	15 54	14 E 52 N	28	02	20	21	22.441
0300	2	83 24	17 52	22 E 37 N	28	02	20	10	8.474
0301	1	83 24	17 52	34 E 45 N	28	03	20	12	18.909
0301	2	83 24	19 54	58 E 44 N	28	02	20	39	40.204
0302	1	83 24	21 53	22 E 02 N	28	02	20	15	16.915
0302	2	83 24	21 54	07 E 29 N	28	02	20	18	6.461
0400	1	83 24	15 55	41 E 49 N	28	02	20	09	19.918
0400	2	83 24	16 56	54 E 40 N	28	03	20	18	28.242
0401	1	83 24	18 55	42 E 25 N	28	03	20	04	2.814
0401	2	83 24	18 57	47 E 08 N	28	03	20	00	0.000
0402	1	83 24	21 55	25 E 24 N	28	03	20	02	3.121
0402	2	83 24	21 57	04 E 05 N	28	02	20	17	7.442
0501	1	83 24	19 57	24 E 50 N	28	03	20	09	11.500
0502	2	83 24	20 59	30 E 15 N	28	03	20	04	16.273
Map Sheet No. 63 F/6									
0500	2	83 24	16 44	26 E 13 N	28	05	12	00	0.000
0501	2	83 24	18 44	11 E 53 N	28	03	20	02	3.124

Total = 79 Plots

Grand Total = 905 Plots

Description of Codes for Forest Divisions i.e.
Col. 4 of Appendix - II

<u>Code</u>	<u>Name of Forest Division</u>
28	Varanasi
29	Mirzapur West
30	Dudhi
31	Agori Vijayagarh
32	Banda
33	Bundelkhand
34	Bundelkhand Soil Conservation
51	East Mirzapur
90	Agra
57	Etawah

Description of codes for land use i.e. col. 5 of appendix II

<u>Code</u>	<u>Item</u>	<u>Description</u>
01	Dense tree forests	All lands with a forest cover of trees with canopy density 70% and above (canopy density is defined as the relative completeness of Canopy expressed as percentage taking closed Canopy as 100. Standing in a plot or in area around it observe the tree growth and assess the percentage of the space covered).
02	Moderately Dense-tree Forests.	All lands with a forest cover of trees. With Canopy density 30% to 69%.
03	Open tree Forests	All lands with a Forest cover of trees with Canopy density 5% to 29%
04	Scrub Forests	Inferior tree growth chiefly of small or stunted trees. With Canopy density less than 5%.
05	Bamboo brakes	Areas completely covered with Bamboo growth.
06	Shifting cultivation (Kumri)	Areas under current as well as last years shifting cultivation will come under this class. The agriculture crop may be standing or may have been harvested.
07	Young plantations of forestry species	This will include young plantations of forestry species in which average stems are above 10 cm. diameter at B.H. and the extent of such plantation is more than 0.5 ha. This will include Farm Forests, Social forestry plantations, Parts of conversion to uniform areas, plantations raised by Forest Development Corporation etc.
08	Trees in line	This will include trees planted along canal banks, along road sides, along railway lines, wind brakes and shelter belts planted under various Social Forestry Schemes.
09	Forest roads etc.	This class will include areas under forest roads, depots, colonies, nurseries and such other forest land used in connection with forest administration.
10	Govt. Grass lands	This will include areas under natural or planted grass lands pastures etc. which are owned by Government.
11	Barren lands	This will include areas with exposed surfaces like rock sheets, sand dunes, swamps and areas without any vegetation.

<u>Code</u>	<u>Item</u>	<u>Description</u>
12	Agricultural land without trees in surround	All lands under cultivation including fallow lands will come under this category. These lands will not have any tree growth along bands or in their vicinity of 2 ha.
13	Agricultural land with trees in surround	This will include all lands under cultivation including fallow lands which are covered with trees along 1 and in their surround within 2 ha.
14	Non forestry plantations	All lands with tree growth planted primarily for purposes other than forestry such as Cashew, Coffee, gardens, parks, zoos, private grass lands etc.
15	Habitation	This will include village City sites, industrial area, grave yards, grounds, houses, Colonies etc.
16	Water bodies	Land under lakes, water courses etc.
17	Other lands	Lands which cannot be classed under any of the above categories.

Description of codes for Forest type i.e. col. 6 of appendix II

Code	Crop composition (Forest type)	Description
01	Fir	When Fir constitute more than 50%
02	Spruce	Where Spruce constitute more than 50%
03	Fir-spruce	Where Fir & Spruce both taken together constitute more than 50%
04	Blue-pine (Kail)	Where Blue pine constitute more than 50%
05	Deodar	Where Deodar constitute more than 50%
06	Chir-pine	Where Chir-pine constitute more than 50%
07	Mixed conifers	Where all conifers taken together constitute more than 50%
08	Hardwoods mixed with conifers or Conifers mixed with hardwoods	Where the conifers & broad leaved species occur in more or less in same proportions.
09	Up-land hardwoods	Broad leaved species constitute more than 50% in the Upper Chir zone above 1500 metre altitude.
10	Teak	Where Teak constitute more than 20%
11	Sal	Where Sal constitute more than 20% (If Sal and Teak are both more than 20% preference to be given to teak)
12	Bamboo forest	Where the crop is of almost pure bamboo.
13	Mangrove	Mangrove forests.
14	Depterocarpus (Gurjan)	Where Gurjan constitute more than 50% in the top canopy.
15	Hollong Mekai Hollong (Depterocarpus macro carpus) Shorea assamica (Mekai)	Where Hollong and Mekai individual or both taken together constitute more than 50%.
16	Khasi pine	Where Khasi pine constitute more than 50%
17	Khair forest	Where Khair trees constitute more than 50%
18	Salai forest	Where Salai constitute more than 50%.
19	Alpine pastures	Alpine pastures.
20	Miscellaneous forest	Forest which could not be classified in any of the above classes.

APPENDIX III

(Field Forms)

F. S. I.

Field Form 1

PLOT APPROACH FORM

- 1) Plot Approach Form must be filled in while the journey is in progress.
- 2) While recording date, it is essential to record month and year also.
- 3) If a plot is visited on more than one day, a separate form for each visit shall be filled up.

1. State and Code
2. Division and Code
3. District and Code
4. Map-sheet and Code
5. Grid Code
5. (a) Plot No.
6. Crew Leader (name)
7. Name of Camp
8. Time (hrs.) at which Left the camp
9. Distance covered by vehicle (km.)
10. Time taken in journey by vehicle Hours Minute
11. Name of the place up to which journey was performed by vehicle.
(describe in brief)
12. Conspicuous features observed during the journey by vehicle (describe in brief)
13. Time at which started on foot
14. Direction and distance covered on foot up to the reference point (km.)
15. Conspicuous features observed during the journey on foot (describe in brief)
16. Time (hrs.) at which arrived at the reference point.
17. Description of the reference point
(Describe in details)
18. Compass bearing from reference point to the plot approached for commencing survey (please give the Plot No. also) if any
19. Distance of the plot Centre from reference point (Mtr)

- | | | |
|---|-----------|-----------|
| 20. Date and time at which arrived at the Plot | 1st Plot* | 2nd Plot* |
| 21. Time (hrs) of Leaving the Plot | 1st Plot* | 2nd Plot* |
| 22. Time (hrs) at which returned to the Camp. | | |
| 23. Compassing done by | | |
| 24. Distance measured by | | |
| 25. Plots laid out by | | |
| 26. Tree Enumeration done by | | |
| 27. Height measurements taken by | | |
| 28. B T and other measurements taken by | | |
| 29. Bamboo enumeration done by | | |
| 30. Bamboo Weight taken by | | |
| 31. References in the field written by | | |
| 32. Remarks | | |

Dated :

Signature of the Crew Leader

	Diagrams etc.	
<u>A</u>		<u>B</u>

N. B. *Strike out unwanted one.

PLOT DESCRIPTION FORM

Field Form 2

Job No.	Card design	Zone	State	District	Forest Division	Map Sheet No.	Grid No.	Plot No.	Legal Status	Land Use
1-3	4-5	6	7-8	9-10	11-12	13-18	19-22	23	24	25-26

Terrain Data		Soil Data		Crop Data										Bamboo Data					River distance to market outlet					Obstacles		Plot Status		Status of Forest																																																					
General Topography	SLOPE	Position on Slope	Altitude	Aspect	Rockiness	Humus	Soil Colour	Soil Consistency	Soil Texture	Coarse Fragments	Soil Depth	Soil Erosion	Origin of Stand	Crop. Composition	Canopy Layer or Storey	Top Height	Size Class	Intensity of regeneration	Important Species under registration	Injuries to Crop	Fire Incidence	Grazing Incidence	Presence of weeds	Presence of Grass	Bamboo density	Bamboo quality	Bamboo flowering	Bamboo regeneration	Plantation Potential	Distance to road	Distance to Mule Path	Distance to River/stream	Kacha road Distance	Pucca road Distance	River distance to market outlet	Obstacles	Plot Status	Status of Forest																																											
																																							27-28-30	31	32	36	37	38	39	40	41	42	43	44	45	46-47	48-49	50	51	52	53	54-56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79

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Signature of Crew Leader

Name of crew Leader

Dated

Field Form No..3

Job No.	Card design	Map Sheet No.	Grid No.	Plot No.
1-3	4-5	6-11	12-15	16

Total No. of bamboo clums	Total No. of trees
71-73	74-76

[illegible]

Date _____

Signature of Crew Leader..... 22

Name of Crew Leader

SAMPLE TREE FORM

Job No.	Card design	Map Sheet No.	Grid No.	Plot N .
1-3	4-5	6-11	12-15	16

Total No. of trees
55-56

SPECIES	Tree Serial No.	Species Code	Dominance	DBH OR (cm)	DBH (mm)	Tree Height (m)	Clear Bole (m)	Condition	Form		SPECIES	Tree Serial No.	Species Code	Dominance	DBH OR (cm)	DBH (mm)	Tree Height (m)	Clear Bole (m)	Condition	Form	
									Longitudinal	Sectional										Longitudinal	Sectional
	17-18	19-21	22	23-25	26-28	29-30	31-32	33	34	35		36-37	38-40	41	42-44	45-47	48-49	50-51	52	53	54

-1A9-

Date

Signature of Crew Leader.....

Name of Crew Leader.....

Job No.	Card Design	Map Sheet No.	Grid No. Inter Sectional No.	Plot No.
1-3	4-5	6-71	12-15	16

Average culm height (in cm)		Bamboo quality
Upto 1cm top dia	Upto 2cm 100 dia	78
72-74	75-77	

[illegible]

Date

Signature of Crew Leader

Name of Crew Leader:

Job No.	Card Des. No.	Map Sheet No.	Grid No.	Plot No.
1-3	4-5	6-11	12-15	16

[illegible]

Date.....

Signature of the Crew Leader.....

Name of the Crew Leader

BAMBOO WEIGHT FORM

Field Form No. 7

Job Number	Card Design
1-3	4-5

Mapsheet Number	Grid No.	Plot Number
6-11	12-16	16

Species Code	Green Weight of culm												Green weight of sub-sample for co-relation with dry weight																																																		
	DIAMETER CLASS																																																														
	2 to under 5 cm						5 to under 8 cm						8 cm and over																																																		
	Sample No.	Total length in dmt	Utilizable length in dmt	Weight in Grams	Total length in dmt	Utilizable length in dmt	Weight in Grams	Total length in dmt	Utilizable length in dmt	Weight in Grams	Total length in dmt	Utilizable length in dmt	Weight in Grams	Sub-sample culm 2cm & under 5cm dia	Sub-sample culm 5cm & under 8cm dia	Sub-sample culm 8cm and over																																															
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Date Signature of Crew Leader
 Name of Crew Leader

Field Form No. 8

Plot No.....

Date.....

Name of the Crew Leader

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