

TREES OUTSIDE FOREST(TOF) INVENTORY IN ANDHRA PRADESH

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Introduction

- Tree outside Forest (ToF) means all trees outside notified forest areas.
- ToF contributes to the various wood and non wood requirements of the households and the industries.

Objectives of the assessment of ToF

To estimate

- The total number of trees
- Its volume,
- Carbon estimation,
- Timber production,
- NTFP and
- To maintain tree cover to plan wood production.

The significance of ToF

ECOLOGICAL REASONS:

- Biomass
- Carbon sequestration
- Micro climate
- Biodiversity (Ecosystem, Species, Gene)
- Watershed functions (soil and water conservation)
- Pollution control (Air, Noise)
- Wind break/shelter belts

ECONOMIC REASONS:

- Wood, fuel wood, small timber, poles, bamboo
- NWFP (Food, Medicines, Pesticides, Fruits, Fodder, flower, etc.)
- Services (Ecotourism)

SOCIAL/CULTURAL REASONS

- Religion
- Subsistence
- Aesthetic
- Recreation
- Education
- Employment

Assessment of ToF

Methodology:

- Geo-referencing of Cartosat 1 Satellite data
- Masking of Notified Forest areas
- Interpretation of Satellite Data into various Strata
- Sampling Design for various Strata
- Preparation of Field Manual and Forms for data collection
- Trainings for data collection
- Field data collection by the Inventory Teams
- Data entry and compilation
- Analysis, final results and documentation.

IT IS UNIQUE, FIRST TIME INVOLVING HUGE EFFORT

Classification of ToF - Stratification :

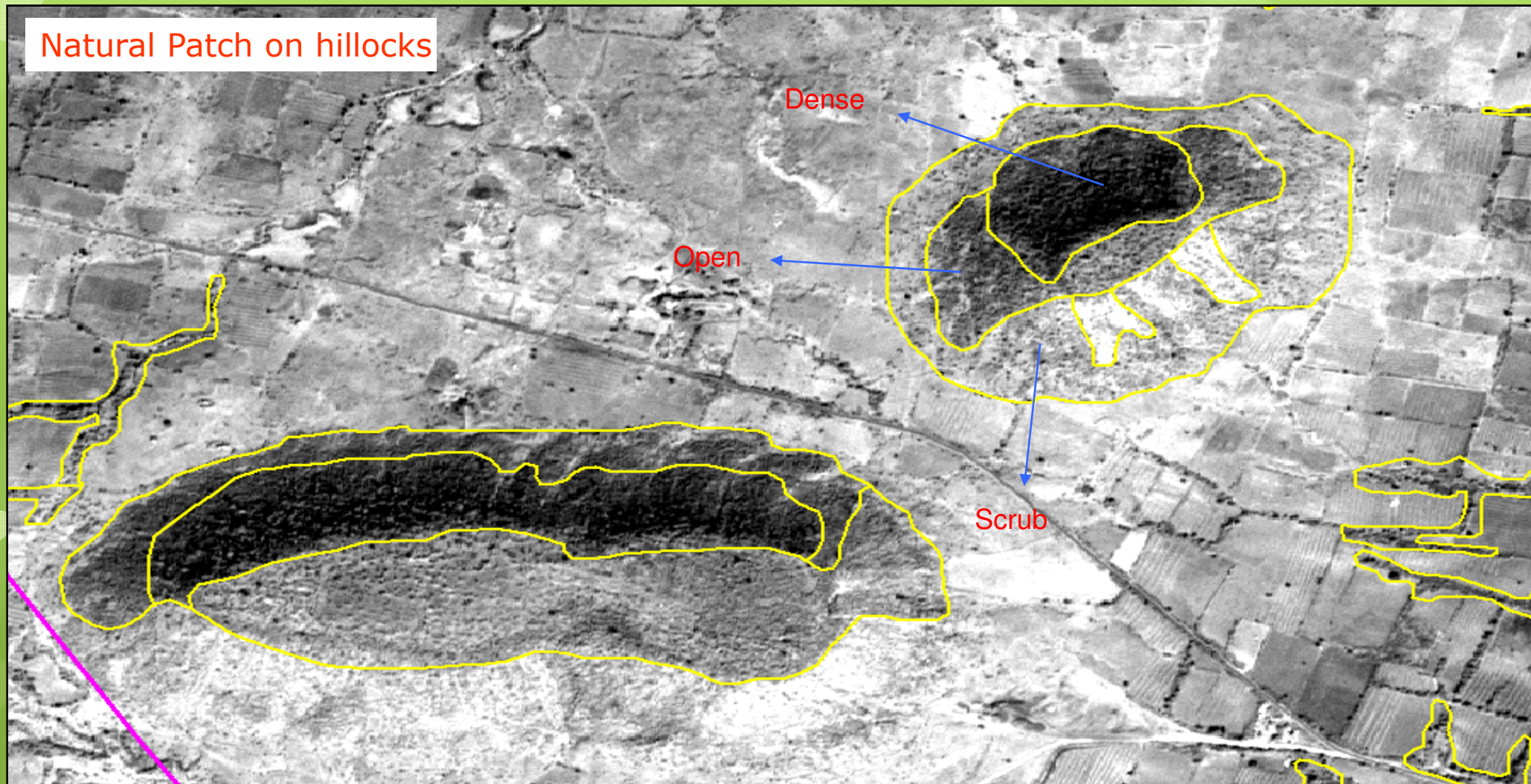
- Natural Forests
- Plantation
- Linear Vegetation
- Urban Habitation
- Rural Habitation
- Scattered

Regrouped as

- **Block Plantations**
 - Natural Forests
 - Plantation
- **Home Stead**
 - Rural habitations
 - Urban habitations
- **Linear Vegetation**
- **Scattered**

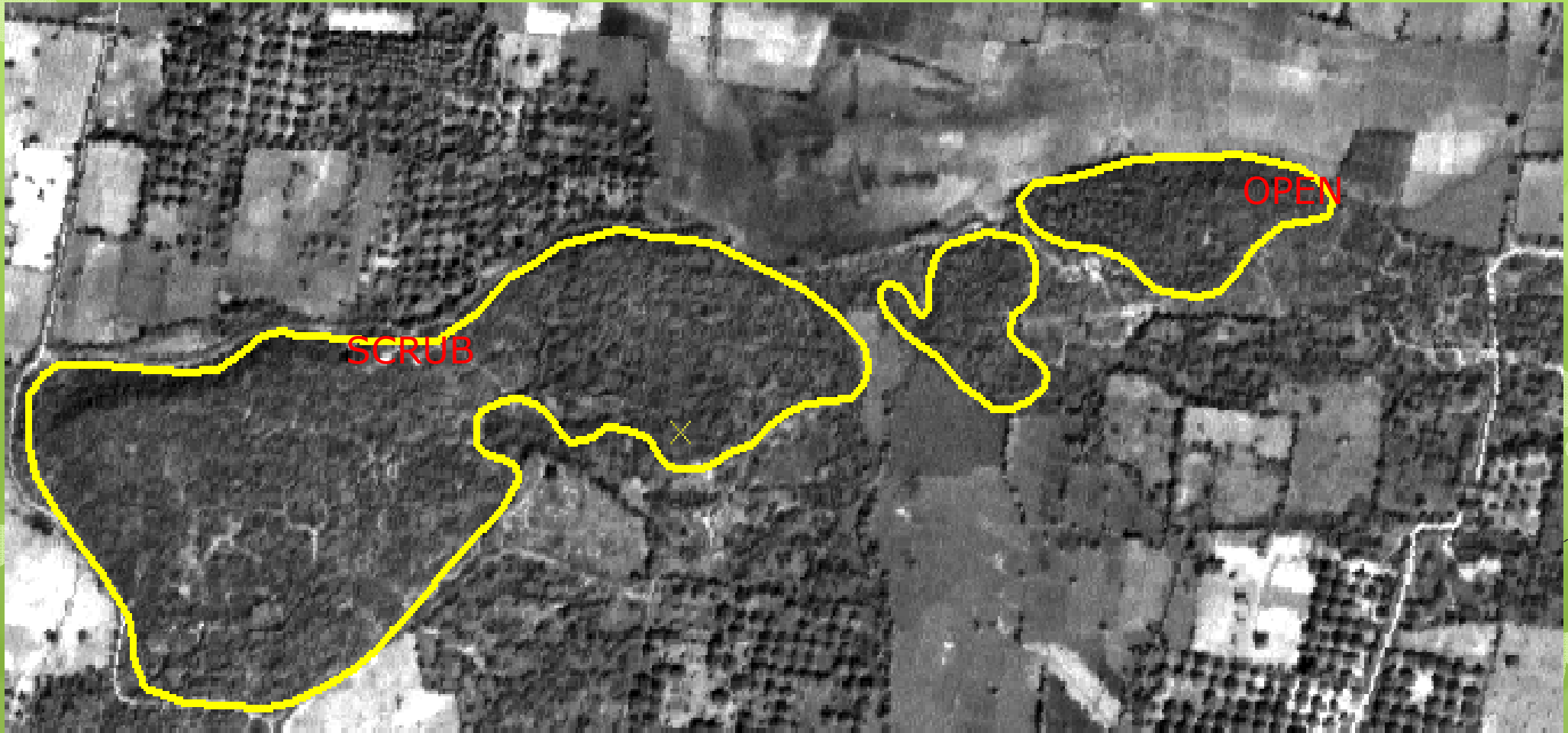
Assessment of ToF

Natural Forests



Assessment of ToF

Natural Forests



Assessment of ToF

Plantations



Assessment of ToF

Plantations



Rural Habitations : Total Enumeration in selected Habitataion / segments

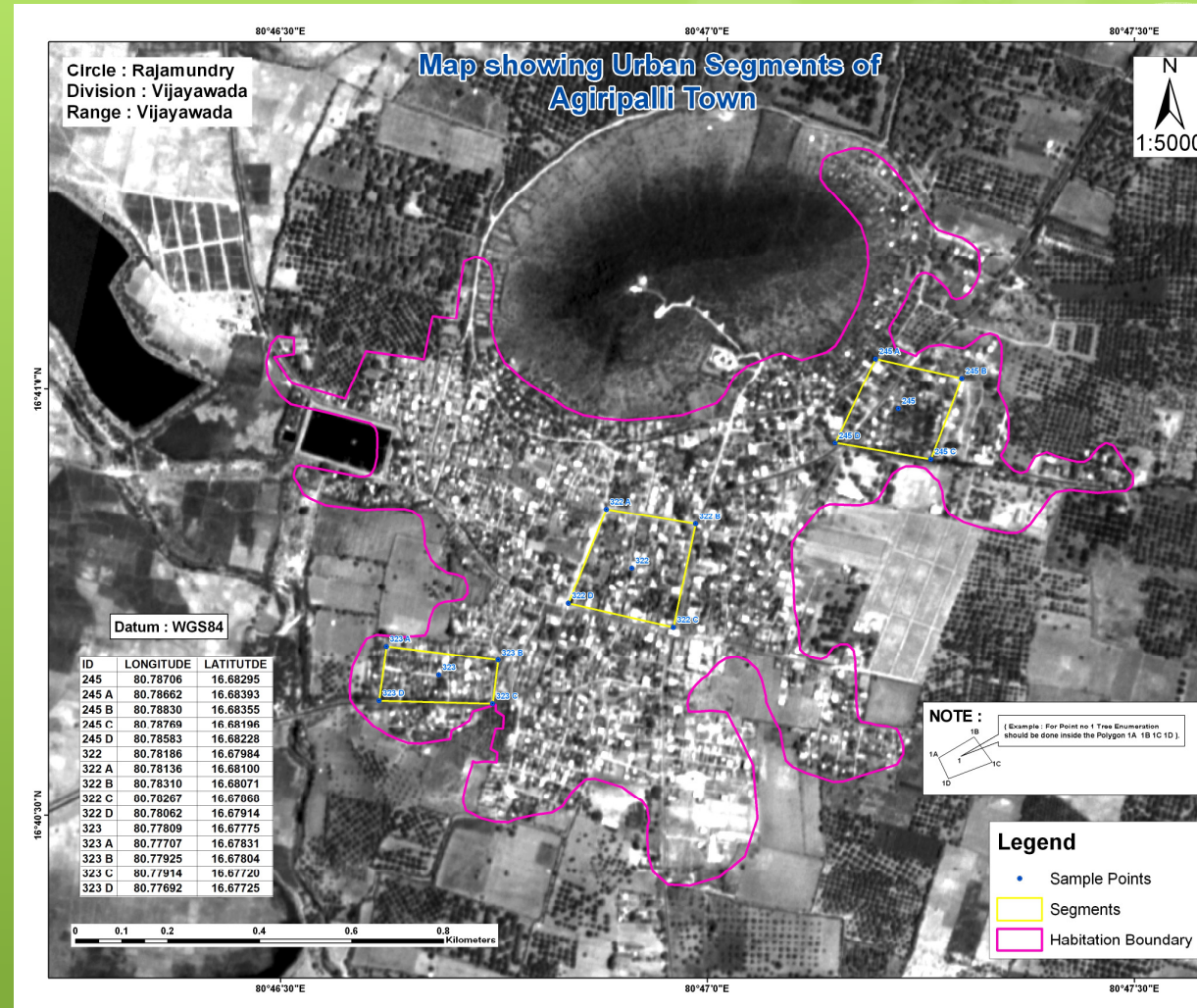


Assessment of ToF

Urban Habitations

Urban segmentation

Enumeration done in given segments



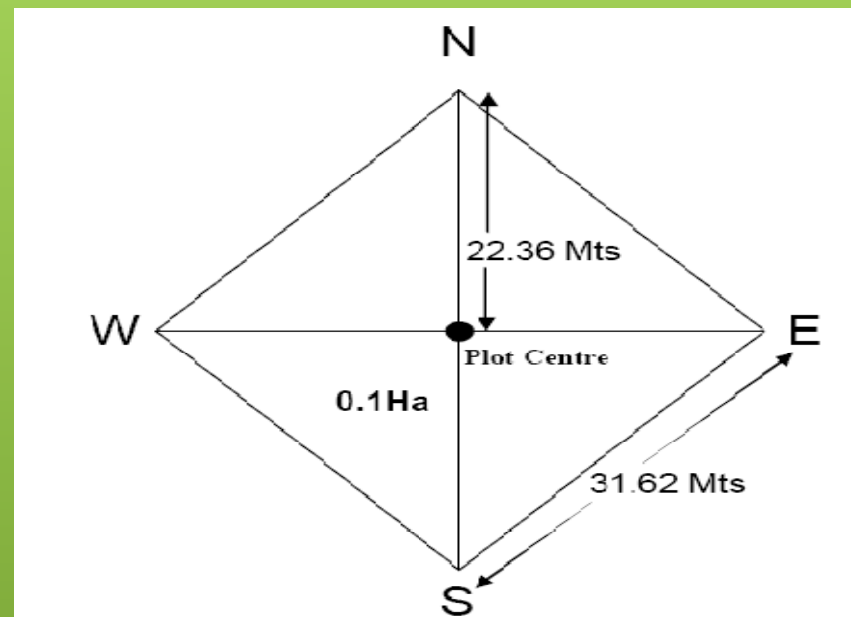
ToF POLYGONS STRATUM WISE (in lakhs)							
S.NO	DISTRICT	Plantation	Linear	Natural	Rural	Urban	Total
1	ANANTHAPUR	16192	12839	3042	3525	21	35619
2	CHITTOOR	22978	20178	8480	7559	8	59203
3	CUDDAPAH	11440	2562	1169	3192	15	18378
4	EAST GODAVARI	27219	82879	8328	2841	27	121294
5	GUNTUR	4137	17558	905	1762	40	24402
6	KRISHNA	13377	23042	1374	2000	36	39829
7	KURNOOL	2369	25119	7997	1565	24	37074
8	NELLORE	17509	40914	5236	3085	22	66766
9	PRAKASHAM	19383	32392	8776	2255	14	62820
10	SRIKAKULAM	18028	35883	3276	3211	11	60409
11	VISHAKHAPATNAM	23750	47759	10789	5031	21	87350
12	VIZIANAGARAM	19261	44750	5327	3260	10	72608
13	WEST GODAVARI	16216	40085	1648	2304	29	60282
	TOTAL	211859	425960	66347	41590	278	746034

- Block Plan
- Natural
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Assessment of ToF

Natural Forests

The size of the sample point will be 0.1 Ha and it will be laid as per the measurements shown in the diagram.

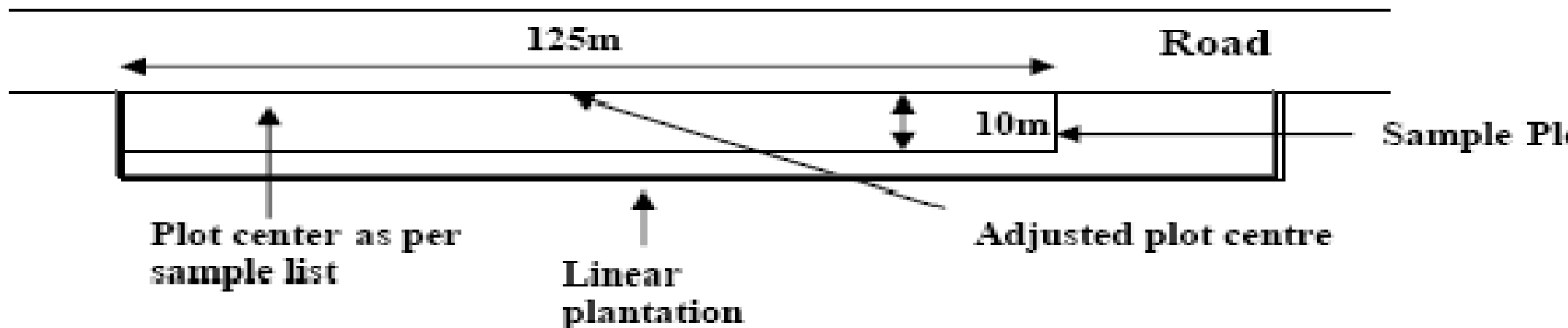


0.1 Ha. Sample Plot

Assessment of ToF

Linear Vegetation

Sample plot for linear vegetation



Size of the plot = 10m x 125m

Assessment of ToF

Tree growth along the Roads



Assessment of ToF

Rural Habitations

In rural areas it is proposed to conduct enumeration in selected segments in sample village.

It will give the status of habitation in rural areas exclusively.

Reports can be generated Mandal wise ,Division and District wise.

It is very useful in planning and monitoring of green cover in rural habitations.

Assessment of ToF

Urban Habitations

Delineation of Urban habitation areas based on the size of the habitations.

Classes

1. Area more than 50 Km².
2. Area between 50 to 25 Km².
3. Area between 25 to 10 Km².
4. Area between 10 to 5 Km².
5. Area more than 3 to 5 Km².

Assessment of ToF

Scattered trees

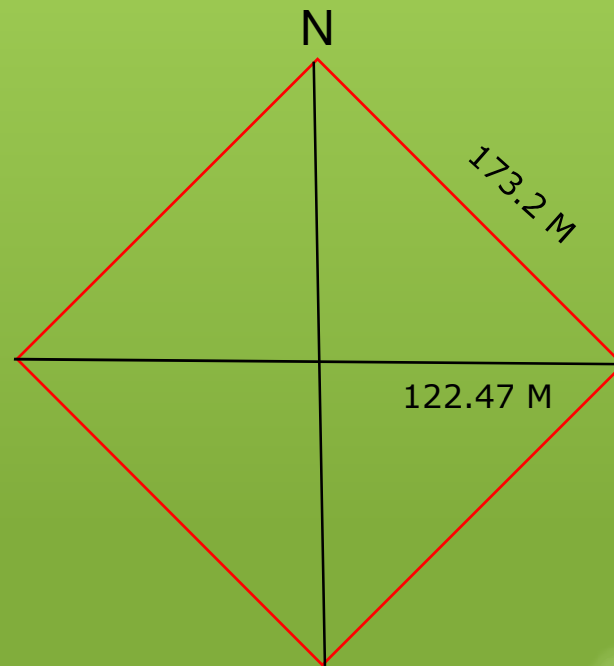
- In a district 60 - 80 square plots of 3.0-ha size in scattered strata were surveyed.

Assessment of ToF

Scattered trees

After reaching the plot center with the help of lat. & long. a square plot of 3.0 ha will be laid out.

After fixing the plot centre fix the N,E,S,W corners of the plot by measuring 122.47 m. horizontal distance i.e. half of the diagonal by Steel tape in all four directions



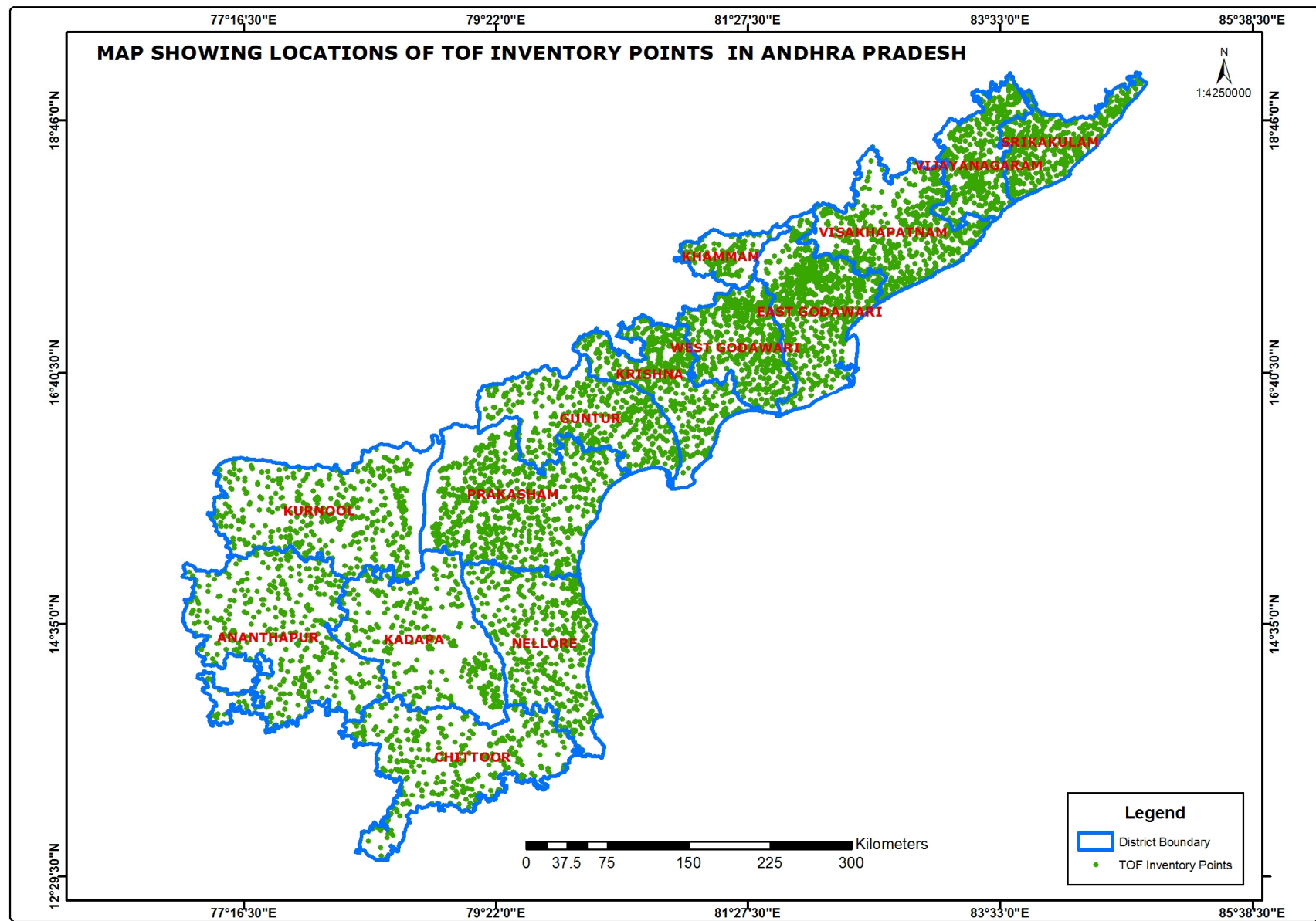
Size of the plot is 3.0 Ha.

Stratum wise Distribution of Inventory Points

S.No	District	Natural	Plantation	Linear	Urban	Rural	Scattered	Total
1	ANANTHAPUR	65	80	80	47	60	80	412
2	CHITTOOR	90	60	60	46	50	60	366
3	CUDDAPAH	25	60	60	51	60	60	316
4	EAST GODAVARI	436	89	84	88	65	88	850
5	GUNTUR	50	80	80	60	60	80	410
6	KRISHNA	70	80	80	110	60	80	480
7	KURNOOL	173	60	60	81	60	60	494
8	NELLORE	70	80	80	41	60	80	411
9	PRAKASHAM	400	90	60	62	60	60	732
10	SRIKAKULAM	120	80	80	28	60	80	448
11	VISHAKHAPATNAM	252	80	80	46	60	80	598
12	VIZIANAGARAM	100	80	80	26	60	80	426
13	WEST GODAVARI	130	82	86	103	63	85	549
	Total	1981	1001	970	789	778	973	6492

- Block Plantation
 - Natural Forest
 - Plantation
- Home Stead
 - Rural habitation
 - Urban habitation
- Linear Vegetation
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LOCATIONS MAP OF ToF INVENTROY POINTS

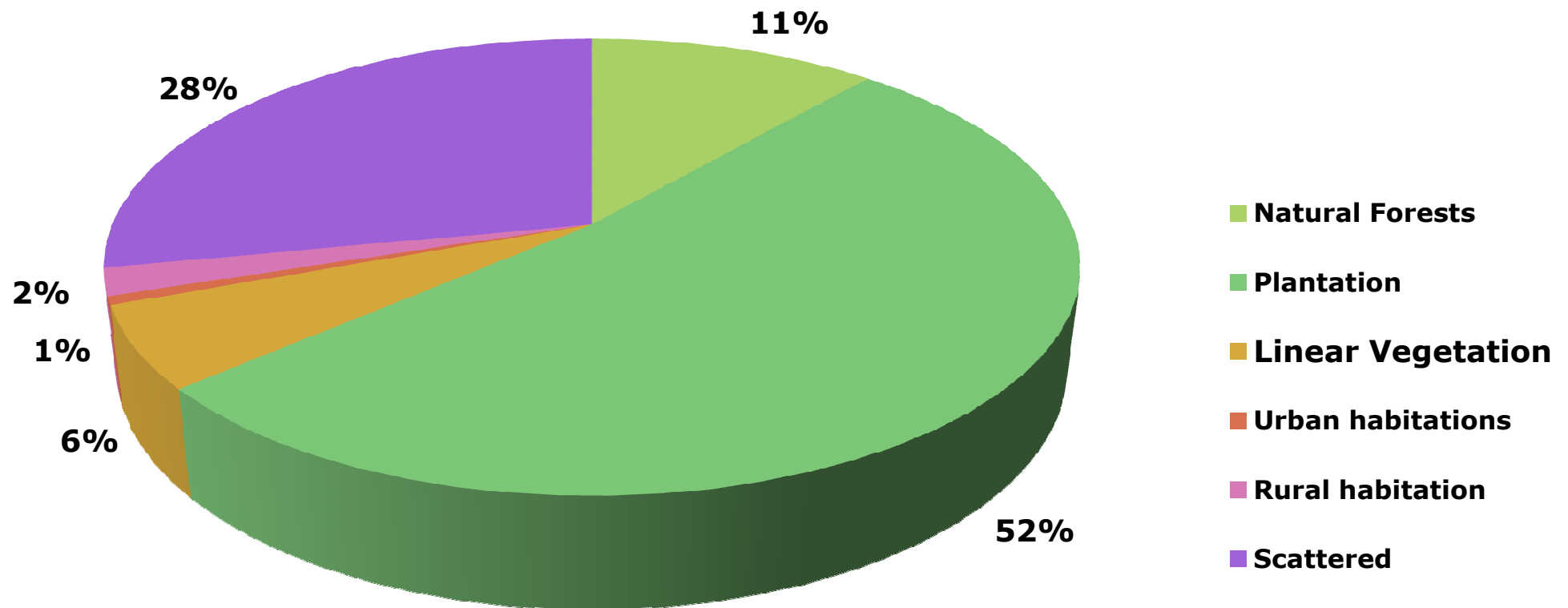


Stratum wise Estimated Volume and Trees in Andhra Pradesh

No	Stratum	Area (Ha)	Estimated Vol (Mcum)	Estimated Trees (Millions)
1	Natural Forests	254053	7.76	30.33
2	Plantation	820084	35.49	100.36
3	Linear Vegetation	56482	3.96	7.40
4	Urban habitations	124962	0.41	0.83
5	Rural habitation	299595	1.30	2.55
6	Scattered	11030754	19.07	34.20
Total		12585929	67.98	175.67

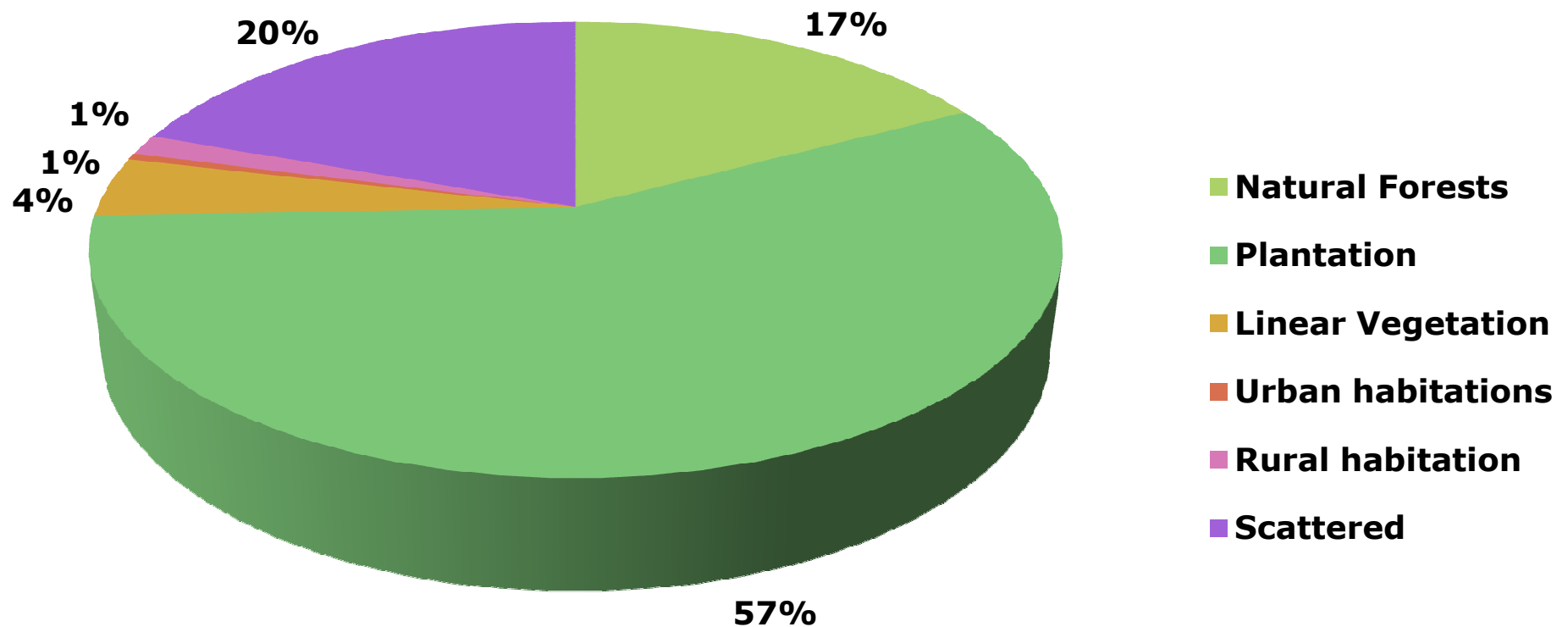
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Distribution of Growing Stock in different strata



Total Growing Stock : 67.9 million Cum

Distribution of estimated Trees in different strata

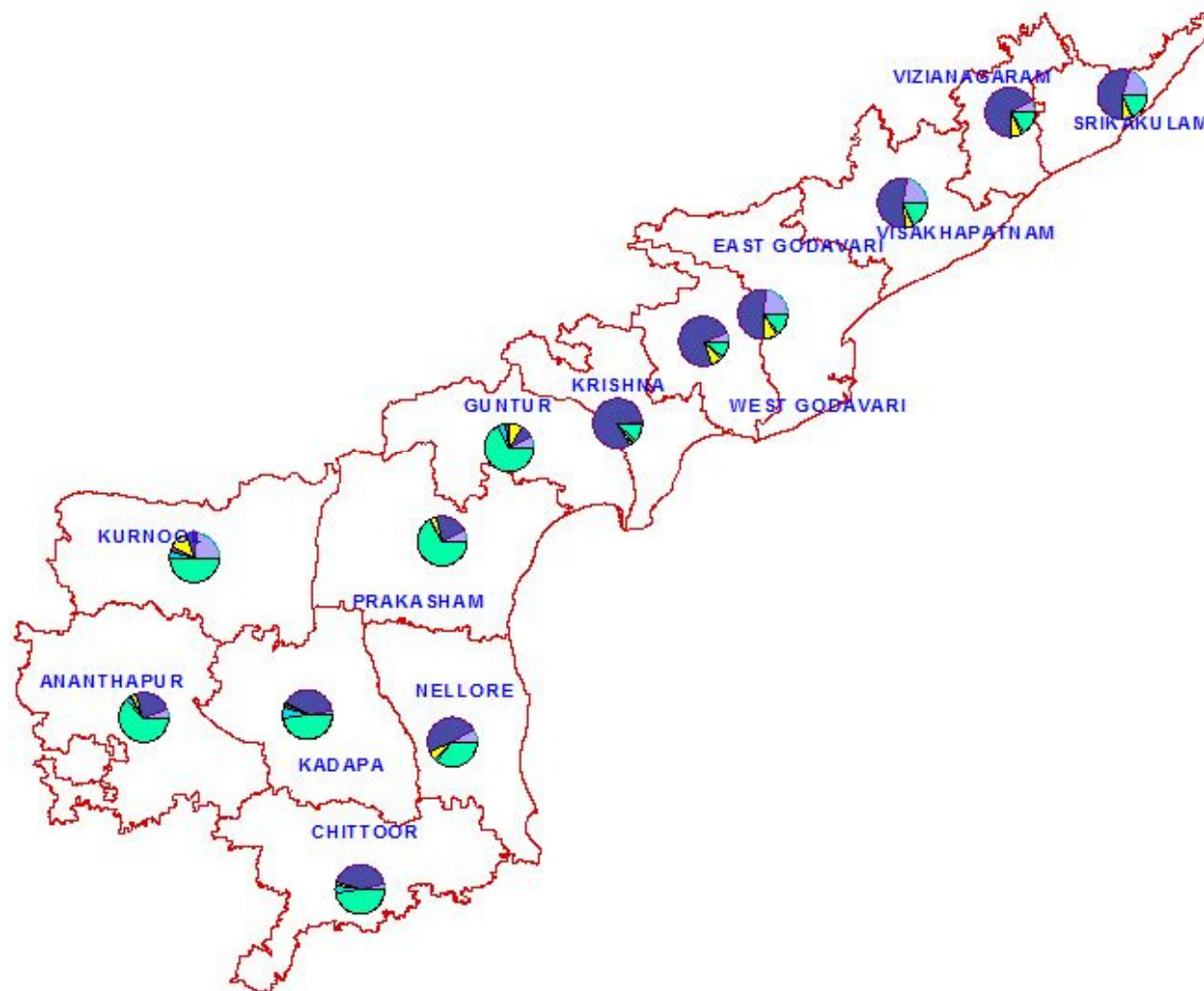


Total No. of Trees : 175.6 million

District wise Growing Stock in different Stratum

District	Natural Vol (MCum)	Plantation Vol (MCum)	Linear- Vegetation Vol (MCum)	Urban Vol (MCum)	Rural Vol (MCum)	Scattered Vol (MCum)	Total Vol (MCum)
Ananthapur	0.12	0.54	0.06	0.02	0.09	1.34	2.18
Chittoor	0.18	3.00	0.19	0.02	0.36	3.34	7.09
East Godavari	2.92	6.85	1.19	0.03	0.12	1.83	12.95
Guntur	0.14	0.17	0.18	0.06	0.10	1.26	1.92
Kadapa	0.06	0.82	0.02	0.04	0.15	1.04	2.14
Krishna	0.11	5.92	0.13	0.04	0.08	0.94	7.22
Kurnool	0.38	0.12	0.22	0.06	0.06	0.81	1.66
Nellore	0.18	1.00	0.13	0.01	0.03	0.75	2.09
Prakasam	0.46	1.35	0.20	0.06	0.07	4.11	6.25
Srikakulam	1.03	2.88	0.29	0.01	0.05	0.95	5.22
Visakhapatnam	1.18	2.99	0.27	0.02	0.04	0.96	5.46
Vizianagaram	0.45	3.72	0.40	0.01	0.04	0.87	5.49
West Godavari	0.54	6.14	0.67	0.02	0.09	0.86	8.31
Total	7.76	35.49	3.96	0.41	1.30	19.07	67.98

Distribution of TOF Growing Stock in Andhra Pradesh

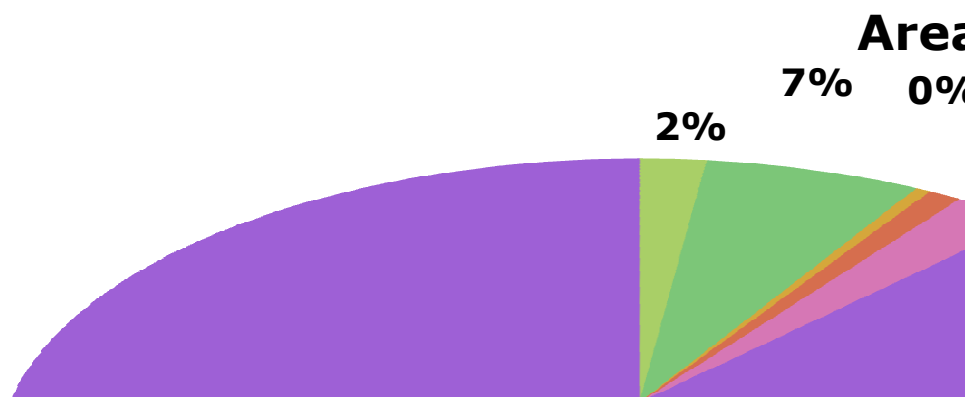


Legend

- District Boundary
- Natural
- Plantation
- Linear vegetation
- Urban
- Rural
- Scattered

300 0 300 600 Kilometers

The distribution of Andhra



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