

Andhra Pradesh
State of Forest Report

2011



Andhra Pradesh Forest Department
Government of Andhra Pradesh
Hyderabad

Andhra Pradesh
State of Forest Report - 2011

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N. KIRAN KUMAR REDDY



HYDERABAD



CHIEF MINISTER
ANDHRA PRADESH

27-06-2011

MESSAGE

I am glad that the Forest Department of Andhra Pradesh is bringing out the State Forest Report 2011 depicting the conditions of Forests including growth and drain between 2008 and 2009. I am also happy that the Geomatics wing of A.P. Forest Department has the capability to monitor the forest cover in near Real Time with Indian Remote Sensing data made available by National Remote Sensing Centre, Hyderabad.

A.P. is the fourth largest State in the country with nearly 23% forest cover and its monitoring is crucial to achieve the goal of "Haritha Andhra Pradesh". The UNO has declared 2011 as the International year of Forests which adds significance to this report. I congratulate the Forest Department for the extensive work.

I am sure this report will be useful and informative.

Kiran Reddy
(N.KIRAN KUMAR REDDY)

SATRUCHARLA VIJAYA RAMA RAJU
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HYDERABAD

Date : 30-06-2011

MESSAGE

We are all noticing vast changes in the climate and global warming is alarming now. This is all due to the depletion of the green cover in the world over.

Earlier there used to be ecological equilibrium and pollution was hardly heard of due to less population as well as industrial evolution. Keeping pace with the increase in population, the pollutant activities are increasing day-by-day. The only solution for this is that every individual should strive for increasing the green cover. Every one should fight against the denudation or degradation of the forest areas with a scientific approach.

Forest Department has been conducting the periodic assessment of the status of forest in Andhra Pradesh since 1996 and in latest they have brought out a comprehensive report in 2010. I am sure that 'Andhra Pradesh State of Forest Report 2011' will help planning and implementation agencies to work in a correct perspective for the protection as well as increase of the tree cover.

I congratulate the Principal Chief Conservator of Forests and his team who have toiled hard in bringing out this publication.

SATRUCHARLA VIJAYA RAMA RAJU

Smt. Janaki R. Kondapi I.A.S.,
Special Chief Secretary to Government



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Dt.30.06.2011

MESSAGE

Forests are renewable natural resource and its availability in a region indicates its prosperity. In Andhra Pradesh the natural forests are confined to remote areas and in other zones the forests are depleting day by day. The planning process and enforcement have to be done in a well coordinated manner to control the degradation.

By bringing “ State of Forest Report 2010”, the A.P. Forest Department has taken a pioneering step in consolidating the natural resource availability in the state. Andhra Pradesh happens to be the only state which has brought out such report and the present publication “ State of Forest Report 2011” is second in the series. The Planning Commission also has appreciated these efforts.

The efforts of Officers and Staff of Geomatics to analyse and compile the data is appreciated. I hope this publication would act as a guide to the field officers to know the priority areas in protection and management of forests in effective manner in the relevant sectors.

I congratulate the A.P. Forest Department for the good work done.


(JANAKI R.KONDAPI)



Foreword



"FORESTS PRECEDE CIVILIZATION AND DESERTS SUCCEED THEM"

The above saying is tested in history and it is true that the many civilizations flourished and vanished depending on the conservation of forests .Wherever the forests were revered the people of that era flourished and they were sustained for many generations .And where they were neglected the people faced starvation and penury .

Forest and wildlife are such natural resources ,which have to be dealt and nurtured carefully so that only incremental growth in forest is utilized leaving the principal (tree growth) intact for future needs Similarly in good forest stands which support diverse flora the fauna (wild animals)survive well .The wildlife and forest can be put to commercial use also by encouraging eco tourism which makes the urban dweller experience the bliss of forest and wildlife habitat .

Forest areas in Andhra Pradesh represent a varied composition consisting of diverse species .Many of the species are not commercially viable but they are present in the forest ecosystem as part of evolution to perform certain unknown role in Nature .To distinguish the species and their availability it is essential to assess their spatial distribution and quantify the availability .For this purpose using latest data from satellites as well as ground verification is essential.

IT wing of Forest Department has brought out a study, the status of Forests in Andhra Pradesh, earlier and the present work "Andhra Pradesh State of Forests 2011" is in continuation of the earlier work ,to keep on record the changes that are taking place in respect of Forest cover in areas under control of Forest Department .

The changes chronicle the positive as well as negative effects that occur due to changes in policy and implementation at ground level. Therefore the present study will also serve as a guide to change and improve upon the practices with a view to increase the forest cover. It would be essential to carry on such periodic study and analysis of the forest cover and published regularly for the betterment of the forests & wildlife of the state.

The efforts made by the Officers & staff of IT wing headed by Sri P K Sharma IFS , APCCF (T)and ably assisted by Dr. H C Mishra IFS, APCCF (GIS)are highly appreciated.

01-07-2011
Hyderabad

C. MADHUKAR RAJ, IFS
Principal Chief Conservator of Forests & HoFF
Andhra Pradesh, Hyderabad



Preface



Andhra Pradesh has 63,814 Km² of recorded forests spread over about 3500 forest blocks. It is very crucial to monitor every Hectare of the forest land, whether it is improving or depleting. The synoptic view of satellites provides an opportunity to do that. The LISS-III images of 23.5 meter pixel size of IRS P6 satellite are very ideal to do it.

Forest Cover monitoring is being done in Andhra Pradesh since 1996, using satellite data. First Comprehensive State of Forest of Andhra Pradesh Report was brought out in 2010. This is the second comprehensive report.

Earlier to 2007, the forest was classified taking canopy of more than 0.4 density as a single class as dense forests. But in 2007, the forest was classified taking an extra class of VDF and 2008 image was compared to localise the changes. Repeated classification is avoided in the process and only changes are vectorised / polygonised. Same procedure is followed for the images of 2008 & 2009 seasons for this report & these changes in forest cover apart from areas of different classes are brought out. The broad contents of the report are as given below :-

Chapter I deals with an Introduction wherein Andhra Pradesh Forests and History of Geomatics is presented.

Chapter II deals with data used, the procedure adopted for determining changes, advice of Technical Advisory Committee, and limitations of the Technology and Accuracy of the classification.

Chapter III deals with state-wide results and their analysis. It gives areas of different density classes in each division and circle.

Chapter IV gives the Division-wise areas under various classes and changes occurring there in between 2008 and 2009. It also gives change matrices for each division.

Chapter V gives an account of changes in Protected Areas between 2008 & 2009

Chapter VI gives an account of the forests of VSS areas and changes between 2008 and 2009.

Chapter VII deals with decadal forest cover changes between 1988, 2000 & 2010 carried out on a pilot basis for Jannaram Forest Division and Kawal and Pakal Wildlife Sanctuaries.

The special team of Forest officials at different levels have worked very hard in putting together this publication. It is hoped that this book will serve the department in managing and protecting the forest & wildlife more effectively.

01-07-2011
Hyderabad

P.K. SHARMA, IFS
Addl. Prl. Chief Conservator of Forests (IT)



Acknowledgments



This State of Forest Report 2011 compares The LISS III images of October to December 2008 with the data of October to December 2009. This is the second such report of the state of A.P. which brings out the changes both positive and negative, almost in near real time. The work has been initiated and entrusted by Sri C. Madhukar Raj, IFS, PCCF, AP. This has resulted in the completion of the book. His upright approach to bring out a real picture of the forest cover change without fear and favour gave tremendous confidence to the Geomatics team. His contribution to this report by way of frequent instructions and guidance is sincerely acknowledged. I sincerely express my deepest regards and gratefulness to Sri Hitesh Malhotra, IFS, PCCF (WL) and Chief Wildlife Warden for his constant guidance, support and encouragement. Sri P.K. Sharma, IFS, APPCF (IT) was the principal driving force behind the entire work. The shape of the report is completely his creation which is sincerely acknowledged.

Sincere thanks are due to the Technical Advisory Committee (TAC)- constituted by GoAP for advising Geomatics centre in Geomatics technology. Contributions of Dr.M.S.R.Murthy, Head of forest division, NSRC; Dr.D.M.Reddy, Director General ,APSRAC; Dr.S.V.Reddy, Addl.Director,(Scientific, Biosphere-reserves), MoEF and Sri R.K.Bajpai ,IFS, Jt.Director from FSI, Dehradun ; are sincerely acknowledged.

Contributions by Sri A. Kishan, IFS, CF (MIS) and Sri B. Saidulu, DCF(RS) in monitoring the work are acknowledged. The technical guidance in Automatic Geo referencing of satellite data, interpretation and identification of change locations, polygonisation of changed areas, groundtruthing etc., by Sri P. Sreenivasa Rao, ACF(GIS), Sri S. Madhava Rao, FRO (GIS), Dr. A.Rama Murthy, FRO (GIS) and their tireless efforts in bringing out this beautiful publication are sincerely acknowledged. Contributions of Sri D.V.Reddy, FRO (GIS) and Smt J.P.Sowjanya, FRO (GIS) in ground truthing & publication are highly appreciated.

The Project Scientists viz., Sri M.Rajeswar Reddy, Sri K.Bhaskara Rao, Sri K.Rajashankar Reddy, Miss Ch.Neeraja, Smt Naga Mallika, Smt Sheeba, Miss Swathi, Smt Kavitha, Sri B.Ramakrishna, Sri Aswin Kumar and Sri A. Srinivasa Rao; have worked hard in the laboratory in image processing and analysis and in the field to check the accuracies of change areas. Their sincere contribution is highly appreciated.

The grass root level officers of the department, i.e., FSOs, FBOs and ABOs who have made their contribution to the process by way of ground truthing of the change points on the ground and given the valuable feedback, is sincerely acknowledged. But for their contribution, high level of accuracy would not have been possible. Last but not the least, I acknowledge all my colleagues in the Head Office and all the APCCFs, CCFs, CFs, DCFs, ACFs & FROs in the field for their valuable contribution & suggestions in bringing out this excellent report.

01-07-2011
Hyderabad

Dr. H.C. MISHRA, IFS
Addl. Prl. Chief Conservator of Forests (GIS)



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Abbreviations

AE	Allowable Error	NAD	North American Datum
AVI	Advanced Vegetation Index	NASA	National Aeronautics and Space Administration (U.S.)
AOI	Area of Interest	NDVI	Normalized Difference Vegetation Index
AWiFS	Advanced Wide Field Sensor	NDWI	Normalized Difference Water Index
CAD	Computer Assisted Design	NF	Non-Forest
CBD	Convention on Biodiversity	NRCAN	Natural Resources Canada
CFM	Community Forest Management	NRSC	National Remote Sensing Centre
CI	Confidence Interval	NIR	Near Infrared
CV	Coefficient of Variation	NSDI	National Spatial Data Infrastructure
DBMS	Database Management System	OF	Open Forest (in terms of Canopy Cover)
DEM	Digital Elevation Model	PDOP	Position Dilution Of Precision
DGPS	Differential Global Positioning System	PA	Protected Area
DIP	Digital Image Processing	PF	Protected Forest
DN	Digital Number	PPS	Precise Positioning Service
DOS	Disk Operating System	PVI	Perpendicular Vegetation Index
DPI	Dots Per Inch	RADAR	Radio-wave Detection and Ranging
DTM	Digital Terrain Model (or Modeling)	RAR	Real Aperture Radar
EMR	Electromagnetic Radiation	RDBMS	Relational Database Management System
ESRI	Environmental Systems Research Institute	RF	Reserved Forest
ERDAS	Earth Resources Data Analysis System	RGB	Red, Green, Blue Colour Space
ETM	Enhanced Thematic Mapper	RS	Remote Sensing
EVI	Enhanced Vegetation Index	RTK	Real-Time Kinematic
FAO	Food & Agriculture Organization	SAR	Synthetic Aperture Radar
FCC	False Color Composite	SAVI	Soil Adjusted Vegetation Index
FOV	Field Of View	SD	Standard Deviation
GCP	Ground Control Points	SLAR	Side-Looking Airborne Radar
GIS	Geographic(al) Information System(s);	SNR	S/N Signal to Noise Ratio
GPS	Global Positioning System(s)	SPS	Standard Positioning Service
GSDI	Global Spatial Data Infrastructure	SRTM	Shuttle Radar Topography Mission
HDOP	Horizontal Dilution of Precision	SWIR	Shortwave Infrared
IFOV	Instantaneous Field Of View	TIR	Thermal Infrared
IRS	Indian Remote Sensing Satellite	TM	Thematic Mapper
JFPC	Joint Forest Protection Committee	TVI	Transformed Vegetation Index
LAI	Leaf Area Index	UTM	Universal Transverse Mercator Projection
LCC	Lambert Conformal Conic (projection)	VDF	Very Dense Forest (in terms of Canopy Cover)
LISS	Linear Imaging Self Scanner	VI	Vegetation Indices
LULC	Landuse / Landcover	VSS	Vana Samrakshana Samithi(es)
MDF	Moderately Dense Forest (In terms of Canopy Cover)	WGS	World Geodetic System
MODIS	Moderate Resolution Imaging Spectroradiometer (or Spectrometer)	WHS	Water Harvesting Structures
MSS	Multi-Spectral Scanner		



Executive Summary

Back ground

Preservation of existing forest & expansion of forest cover by greening non forest areas is national and global concern. Acknowledging this the United Nations Origination has declared 2011 as "**The International Year of Forests**". Growing population and increasing demand on the forests has resulted in its depletion causing global warming, climate change, loss of important flora and fauna etc. Thus it is the duty of every one of us to protect the existing flora and fauna and expand the green cover. Attaining 33% forest cover against the existing 23% as contained in National Forest Policy 1988 is a stupendous task.

In this context scientific monitoring of the Nation's forest wealth acquires utmost priority. Use of Remote Sensing to monitor the forest cover was first thought of at the Stockholm conference of the UNO in 1972. Using this technology the Forest Survey of India brought out the first State of Forest Report of India in 1987 and there after doing so on a biennial basis. The Geomatics wing of AP Forest Department is carrying out forest cover mapping within the notified forest areas since 1996 using RS & GIS technologies. Till 2000 it brought out results biennially. Subsequently it is doing so on annual basis. However the first comprehensive report on the State of Forests in the state, upto beat level, was brought out in 2010. Now it is bringing out second such report depicting forest cover changes at Beat level between October - December 2008 and October - December 2009. However, data is being supplied to field officers for changes at compartment level.

The decadal changes in the forest cover for the years 1988 to 2000 and 2000 to 2010 have been brought out in three selected areas, viz., Jannaram Forest Division, Kawal Wildlife Sanctuary and Pakhal Wildlife Sanctuary.



Key Results:

Based upon the interpretation of LISS III data of IRS P6 of October to December 2008 and October to December 2009 following are the key results of the state of forest report 2011:-

1. The state had 950.14 Km² of Very Dense forest, 18,651.72 km² Moderately dense forest & 22645.41 km² open forest in 2008 and corresponding figures in 2009 are 950.14 km² of VDF, 18629.05 km² MDF, 22583.99 km² open forest.
2. There is a reduction of 22.67 km² in MDF and 61.77 km² in open forest resulting in a loss of 84.44 km² in one year.
3. There is degradation of forests from higher canopy density class to lower canopy density class to an extent 130.95 km² in one year.
4. Similarly positive change is seen in an extent of 23.64 km² in the same period. There is a loss of forest cover in an area of 104.97 km² during one year. 14.83 km² of MDF, 53.69 km² of open forest and 36.45 km² of scrub forest is converted in to non forest during the year.
5. Of the above, 56.73 km² of forest cover is lost due to fresh encroachments and balance 48.24 km² due to plantations, harvesting of matured plantations and to some extent diversion of forest land for non-forestry purposes
6. As negative change in forest cover due to raising of plantations and harvesting of plantations is only a management intervention, the same is not considered as loss of forest cover. Hence, the net loss of forest cover during one year is 56.73 km², which is on account of encroachments.
7. **VSS** areas account for 18.56 km² of encroachments during one year.
8. **Protected Areas** account for 3.2 km² of encroachments during one year.
9. **Encroachments** are found in 41 divisions of the state.
10. No changes were found in 03 divisions, viz., Atmakur, Achampet and Medak (WLM)
11. Net positive change was found only in one division, i.e., Nandyal.
12. The Divisions contributing maximum to negative changes are Khammam (12.75 km²), Eluru (11.82km²), Paloncha (8.12 km²), Kothagudem (8.06 km²) and Warangal South (6.06 km²).
13. The Paderu Division was not interpreted due to non availability of cloud free data.
14. Most negative change of 31.94 km² was found in Khammam Circle followed by Rajahmundry Circle with 14.62 km² and Warangal Circle with 12.94 km²
15. Ananthapur Circle showed the least negative change of 0.45 km².
16. The **decadal forest cover change** was carried out on a pilot basis for Jannaram Forest Division and Kawal and Pakhal Wildlife Sanctuaries.
 - (a) In **Jannaram Division** between 1988 and 2000, there was a loss of 22.03 km² of Moderately dense forest and 2.48 km² of open forest. And, between 2000 & 2010 the loss of MDF and open forest was 14.41 km² and 2.08 km² respectively. Thus there is a loss of 36.44 km² of MDF and 4.56 km² of Open Forest between 1988 & 2010.
 - (b) In **Kawal Wildlife Sanctuary** between 1988 and 2000, there was a loss of 25.68 km² of Moderately dense forest and 10.15 km² of open forest. And, between 2000 & 2010 the loss of MDF and open forest 16.74 km² and 10.20 km² respectively. Thus there is a loss of 42.42 km² of MDF and 20.35 km² of Open Forest between 1988 & 2010.
 - (c) In **Pakhal Wildlife Sanctuary** between 1988 and 2000, there was a loss of 3.70 km² of Moderately dense forest and 39.57 km² of open forest. And, between 2000 & 2010 the loss of MDF and open forest was 4.96 km² and 11.67 km² respectively. Thus there is a loss of 8.66 km² of MDF and 51.24 km² of Open Forest between 1988 & 2010.



Chapter-I

INTRODUCTION

1.1 About the state

Andhra Pradesh is the fourth largest state in India, geographical area wise; with an area of 2,75,068 Km². It is bounded by Maharastra, Chhattisgarh and Orissa in the north, Bay of Bengal in the east, Tamil nadu in the south and Karnataka & Maharastra in the west. The state was formed on 1st November 1956, when states were reorganised on linguistic basis by Government of India.

The state of Andhra Pradesh has a population of 84.66 million (2011 census) which is 7.41% of country's population. Nearly 73% of the population of the state is rural, which primarily depend on agriculture for their livelihoods. Scheduled castes constitute about 16% and Scheduled tribes about 6% of the population. Hyderabad, Visakhapatnam and Vijayawada are the principal cities in the state with over a million population. Traditionally, the state is divided into three regions called Coastal region consisting of the nine coastal districts, Telengana region consisting of 10 erstwhile Hyderabad districts and Rayalseema region consisting of 4 districts.

1.2 History of Geomatics in AP Forest Department-

A small GIS Unit was set up in the year 1994 under the World Bank funded Andhra Pradesh Forestry Project. FAO was given a consultancy for this item of work and Dr KD Singh was the principal consultant. Initially, the Geomatics activity was started on 386 Personal Computers with 80 Mb Hard disk and 1 MB RAM in a small room in the old Aranya Bhavan. The first package installed, was the IDRISI package gifted by the FAO. Very soon, in the same year, one PC Arc/Info (version 3.4.2) running on DOS operating system, was also gifted by FAO, for creating state vector data base on 1:250 K scale. The state database was ordered for digitisation by a tender process in November- December 1994 and work was allotted to a company called "Remote Sensing Instruments" for digitising forest block layer, administrative boundary layer, river and water body layer, Village and road layer and vegetation density layer (FSI interpreted) with attributes. The layers were generated by the end of 1995 and later ERDAS packages and PC Arc Info version 3.4.2 were procured. Later in 1996, the Geomatics centre was moved into a larger room on the ground floor of PCCF's office, where it functioned till 2000. The APFD had procured ERDAS 8.2 version, Arc/Info NT 7.2.1 & Unix 7.1.2 Versions. The plotters for large format printing were also procured. The Centre was later shifted to the premises of Andhra Pradesh Forest Academy, Dullapalli on the outskirts of Hyderabad. Meanwhile, 3 Regional Geomatics centers were established at Rajahmundry, Warangal and Kurnool in 1998-99, to cater to the needs of the three regions of the state. Later 3 more regional Geomatics centres were set up at Tirupati, Visakhapatnam and Adilabad, taking the total number to 6. In 2007, the Geomatics Centre was brought back to the newly constructed PCCF's office, "Aranya Bhavan", where it is located now.

In the beginning 7 themes were created on 1:250K scale on outsourcing basis gradually, about 50 basic and derived themes have been created/generated on 1:50K scale, mostly in-house. This data is distributed to Divisions for verification and use. This data is being used in several applications like Site Suitability Analysis for WHS (awarded with Golden Icon in 2005 by Government of India), Forest Fire Risk Mapping (awarded with Silver Icon in 2004 by Government of India), Selection of Suitable sites for relocation of Blackbucks, etc.

Initially, one handheld GPS of 6 channels was procured in 1996 and later single frequency Trimble DGPS were procured in 1998 with 3 fixed stations and 12 rovers for the whole state. When these machines became old and outdated, 11 new DGPS of SX Blue II model were procured with new PDAs in 2008 and used for DGPS survey using internet corrections available from NRCAN. The APFD has now 10 ERDAS packages, 6 Arc GIS packages, 60 Arc View packages apart from packages like Map Info, e-Cognition etc. The APFD now has also about 1000 handheld GPS instruments of different make which are extensively used in the Surveying & Mapping and Navigating to the locations in the field. The APFD has been continuously upgrading its hardware and software in tune with the advancements in the Technology. Consistent with emergence of high resolution stereo pairs and Enterprise GIS, the APFD has procured a couple of LPS-10 software and one Arc GIS advanced enterprise version - 10 for use.



1.3 Forest cover Monitoring in AP

It was FAO which first initiated the forest cover monitoring in Andhra Pradesh during 1995. Mr Rudi Drigo, FAO consultant, first demonstrated forest cover change assessment of Adilabad district taking IRS 1A/1B LISS II images of 1988 and 1994. He employed a method called “Interdependent Visual Interpretation” which the FAO had used for various countries in the world. The results were published for all the six divisions of Adilabad district in 1995-1996. Later, forest cover monitoring was undertaken regularly from 1999 when IRS 1C and IRS 1D LISS III data of 1996 and 1998 were used. The task was given to private companies, who digitally interpreted the densities of the forests and submitted the results to the forest department. The notified forests were classified into Water bodies, Blanks/Others, Scrub (0 to 10% canopy), Open forests (10 to 40% canopy) and Dense forests (>40% canopy) in line with FSI classification. After this forest cover was classified regularly by the Geomatics wing every year using digital interpretation methods of LISS III data from 2000 to 2006, the classified data has been communicated to field for validation, statistics were generated by eliminating 0.5 ha area and results were published. A tabular statement of the work done is as follows:-

(Area in Ha)								
SI No.	Year of data used	Data used	Method used	Dense Forest (> 40% canopy)	Open forest (40 to 10% canopy)	Scrub (10 to 0% canopy)	Blanks/ Others	Total
1	1996*	IRS 1C/1D LISS-III, 23.5 m	Supervised Classification	10,30,270	18,03,331	25,68,480	93,47,70	6336851
2	1998*	IRS 1C/1D LISS-III, 23.5 m	Supervised Classification	11,37,087	21,08,254	23,62,395	7,29,225	6336961
3	2000	IRS 1C/1D LISS-III, 23.5 m	Un supervised Classification	13,18,321	22,46,780	22,44,668	5,23,418	6333187
4	2002	IRS 1C/1D LISS-III, 23.5 m	Unsupervised / Supervised Classification	14,06,841	24,41,978	20,32,320	4,55,126	6336265
5	2003	IRS 1C/1D, AWIFS, 56 m	Unsupervised / Supervised Classification	14,91,966	24,43,691	19,98,885	4,00,248	6334790
6	2004	IRS P6, LISS III, 23.5 m	Unsupervised / Supervised Classification	15,39,656	24,12,933	20,11,362	3,74,162	6338113
7	2005	IRS P6, LISS III, 23.5 m	Un supervised Classification	16,00,064	24,333,66	19,88,498	3,13,246	6335174
8	2006	IRS P6, LISS III, 23.5 m	Un supervised Classification	16,12,188	24,43,067	19,69,374	3,08,110	6332739

*Done on out sourcing basis

The work of vegetation classification has also been concurrently undertaken by FSI Dehradun on a biennial basis from 1987 onwards for the entire country. The techniques adopted by FSI and the results pertaining to the State of AP are summarized further below:

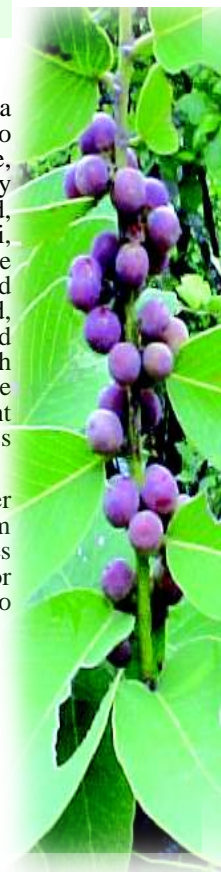


SI No.	Year of SFR	Data used (Period, Sensor, Resolution)	Method used	Forest Cover (>10% Canopy) in Km ²		Accuracy achieved
				including outside notified forest	only notified forest area	
1	1987	1981-83, Landsat MSS, 80 m	Visual (1:250K scale)	49573*		–
2	1989	1985-87, Landsat TM, 30 m	Visual (1:250K scale)	47290*		–
3	1991	1987-89, Landsat – TM, 30 m	Visual (1:250K scale)	47290*		–
4	1993	1989-91, Landsat – TM, 30 m	Visual (1:250K scale)	47256*		–
5	1995	1991-93, IRS-1B LISS-II , 36.25 m	Visual and Digital (1:250K scale)	47112*		–
6	1997	1993-95, IRS-1B LISS-II , 36.25 m	Visual and Digital (1:250K scale)	43290*		–
7	1999	1996-98, IRS -1C/1D LISS-III, 23.5 m	Visual and Digital (NDVI) (1:50K scale)	44229*		–
8	2001	1998-2000, IRS -1C/1D LISS-III, 23.5 m	Digital(NDVI) with visual editing (1:50K scale)	44637		95.9%
9	2003	2000-2002, IRS-1D LISS-III, 23.5 m	Digital (NDVI) with Visual editing (1:50K scale)	44419		–
10	2005	2002-2004, IRS P6, LISS –III, 23.5 m	NDVI plus Unsupervised classification aided On screen interpretation (1:50K scale)	44372	38189	92.1%
11	2009	2004 -2006, IRS P6, LISS-III, 23.5 m	Visual (comparison of latest image with previous classification) (1:50K scale)	45102		95%

1.4 Refinement of methodology of Forest Cover & change Assessment:

Experience has shown that complete digital interpretation, without input from visual editing, doesn't give a satisfactory level of accuracy. Further, it was noticed that repeated digital classification in deciduous forests was prone to interpretational errors and overlaying two classified images didn't give proper change image, at times. It was therefore, decided to use visual editing after classifying the image of 2007 to get a correct interpretation of areas not properly classified by the digital methods. NDVI slicing cum limited visual editing was resorted to for Adilabad, Nizamabad, Medak, Warangal, Karimnagar, Khamam, Nalgonda, Srikakulam, Vijayanagaram, Visakhapatnam, East Godavari, West Godavari, Krishna, Guntur, Prakasham, Nellore, Chittoor, Anantpur and Kurnool districts. However to check the relative accuracies of various methods, other methods apart from NDVI slicing cum visual editing like Unsupervised classification cum Supervised classification were also attempted in Mahbubnagar, Cuddapah and Hyderabad, RangaReddy and better method in terms of final accuracy was taken. The 2008 image was compared with 2007 classified image & FCC to discern the changes apart from using the Erdas matrix tool. Similarly the 2009 image was compared with 2007 classified image using Erdas Matrix tool keeping 2008 changed polygons in the background. This gave us the changes between 2008 and 2009. Further 2008 and 2009 FCCs were visually compared compartment after compartment and all positive and negative changes were polygonised. The changes were to some extent ground truthed by Geomatics wing and kept in Arc GIS server for field staff for total verification.

Over the years the digital interpretation of Satellite data had been done independently, as a result changes in Forest cover were prone to interpretational errors. Therefore, APFD has switched over to Vector based approach like the FSI from 2007 in which forest cover is mapped in polygons (Vector) by defining clusters of pixels with boundaries. This improves the cartographic presentation of the output, helps map the changes more accurately and makes the output available for use by protection staff. Both positive and negative changes were captured for about 1500 locations and communicated to field staff for verification & feedback.





Chapter –II METHODOLOGY

2.1 Satellite data and its period

The Satellite data for the entire State was procured from the National Remote Sensing Centre (NRSC), Hyderabad in digital form. It was multi spectral (LISS- III Sensor) data of IRS P6 satellite with a resolution of 23.5m.

One scene of LISS – III covers an area of about 20,000 km² (140 km * 140 km); there are considerable overlaps (15 to 20 percent) among adjacent scenes. Also at the borders of the country or for islands, the whole scene has to be procured even though the Area of Interest (AOI) may be small. Thus a total of 29 scenes covering the entire state were procured. The scene wise details of data procured are as follows:-

S.No.	Path/Row (P/R)	Date of pass 2009	Date of pass 2008	Remarks
1.	99/58	02-11-2009	7-11-2008	Cloud free
2.	99/59	02-11-2009	7-11-2008	..
3.	99/60	02-11-2009	7-11-2008	..
4.	99/61	02-11-2009	7-11-2008	..
5.	99/62	02-11-2009	7-11-2008	..
6.	99/63	02-11-2009	7-11-2008	..
7.	100/59	01-12-2009	30-12-2008	..
8.	100/60	01-12-2009	30-12-2008	..
9.	100/61	01-12-2009	30-12-2008	..
10.	100/62	01-12-2009	30-12-2008	..
11.	100/63	18-01-2010	30-12-2008	..
12.	101/59	19-10-2009	11-12-2008	..
13.	101/60	19-10-2009	11-12-2008	Partly Cloudy
14.	101/61	19-10-2009	11-12-2008	Cloud free
15.	101/62	19-10-2009	11-12-2008	..
16.	101/63	19-10-2009	11-12-2008	..
17.	101/64	19-10-2009	11-12-2008	..
18.	102/60	24-10-2009	29-10-2008	..
19.	102/61	24-10-2009	29-10-2008	..
20.	102/62	24-10-2009	26-2-2009	..
21.	102/63	04-01-2010	26-2-2009	..
22.	102/64	24-10-2009	26-2-2009	..
23.	103/59	22-11-2009	21-12-2008	..
24.	103/60	22-03-2010	14-1-2009	..
25.	103/61	22-03-2010	03-3-2009	..
26.	104/59	27-11-2009	26-12-2008	..
27.	104/60	27-11-2009	8-11-2008	..
28.	105/59	26-12-2009	31-12-2008	..
29.	105/60	15-10-2009	31-12-2008	..

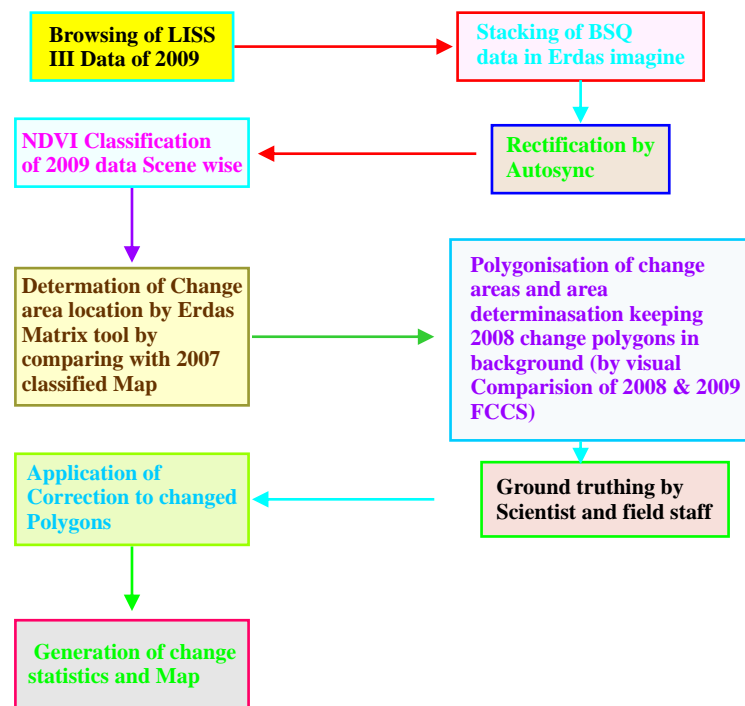


2.2. Image Processing Technique Adopted:

The 2007 image has been previously classified as Very Dense Forest, Moderately Dense Forest, Open Forest, Scrub, Non-Forests and water and accuracy of 85% was achieved. This Classified image is taken as the basis for future changes. Simultaneously 2008 changed polygons are also taken into account to determine the changes between 2008 and 2009.

The Erdas Autosync module is used to register the 2009 image taking 2007 image as master image. It takes only 15 minutes to Geo-reference one scene of 2009 image. After this, the 2009 image is roughly classified into various classes and the Erdas matrix tool is used to determine various changes from each class of 2007 to classes of 2009. The 2008 changed polygons are overlaid on the 2008 FCC and changes between 2008 and 2009 are determined by manual Polygonisation.

The lat-long of the changed Polygons as well as change classes both (from class & to class) and areas in Hectare in Arc GIS Server Advanced Enterprise version -10 available in URL <http://apfdgis.com> and field officer were asked to visit the site and submit remarks. The Scientists of Geomatic wing also visited some areas of changes to determine accuracy of their works. Finally the results of the changes are tabulated and results published correcting our interpretations whenever required. The flow diagram of the work is as follows.



NDVI slicing demarcating water, Non-Forest, Scrub, Open Forest, Moderately Dense Forest and Very Dense Forest was done in the ground. All the negative NDVI pixels were treated as Water, whereas low NDVI values were treated as Non-Forest. It was noticed that December & January have low NDVI values than that of October & November Scenes. Therefore normalization of scenes was done when the scenes were of different months. Normalization of the scenes refers to changing the histogram of a slave image taking another image as a master. It is used for temporally different and spatially coincident images.

The matrix method, sometimes does not give the location of all the change points. To verify other possible change points, The 2009 FCC was overlaid by swiping over the 2008 FCC and few more change points were detected.

All the change points were communicated to the Field officers for verification. The change points were kept in the Arc GIS Server with their attributes for easy verification. About 100 points were checked by the officers of Geomatics Wing and Vigilance Wing. There was good Correlation between the points shown in the lab and the situation on ground.



2.3 Limitations of Technology

The following are the limitations of the technology:

- Since resolution of data from LISS-III is 23.5m, smaller areas below 1 ha cannot be captured.
- Young plantations and species having less chlorophyll content in their crown, do not give proper reflectance and as a result correct interpretation of such areas become difficult.
- Considerable details on ground could be obscured in areas having clouds and shadows. It is difficult to interpret such areas without the help of collateral data.
- Variation in spectral response pattern during leafless period poses problems in interpretation.
- Gregarious occurrence of bushy vegetation like Lantana and certain agricultural crops, such as sugarcane, cotton, etc often pose problems in delineation of forest cover changed as their spectral response pattern is similar to that of tree canopy.

2.4 Advice of Technical Advisory Committee on change detection:

Government of Andhra Pradesh constituted a Technical Advisory Committee Vide GOMs No.121 EFS & T- (For-III) Deptt. Dated:- 04.12.2009 consisting of following members to aid and advise Andhra Pradesh Forest Department in matters of Remote Sensing & GIS application:-

- | | |
|---|---------------------------|
| 1. Addl. Prl. Chief Conservator of Forests (IT) : | Sri P.K.Sharma, IFS |
| 2. Deputy Director, FSI : | Sri Raj Kumar Bajpai, IFS |
| 3. Additional Director, MoEF : | Dr.S.V.Reddy |
| 4. Head Forestry and Ecology Division NRSC. : | Dr.MSR Murthy |
| 5. Director General, APSRAC : | Dr.Mruthyunjay Reddy |
| 6. Chief Conservator of Forests (GIS) : | Dr.H.C.Mishra, IFS |

Accordingly, the Committee met on 11.2.2010 and took the following decisions:-

- a) To address the encroachments & greening changes on annual basis using vegetation index methods.
- b) To use FSI data for biennial monitoring of Crown density.
- c) To use LISS-IV & Cartosat merged data for Working plan preparation, Trees outside Forests estimation etc.

Pursuant to this Andhra Pradesh Forest Department has produced this report by Vegetation Index (NDVI) method.

2.5 Accuracy Assessment

Accuracy is estimated in the monitoring activity restricting to the changed polygons only. It is found that the changed polygons given by Geomatics wing is correct in extent, location, shape. The accuracy is extremely high of about 95% in the polygons. Occasional errors are found in interpretations showing loss of vegetation sometimes because of interploughing of plantations and weeding of dense weeds in some plantations. Rarely we commit mistakes in some areas because of deciduous nature of our forests.





Chapter - III

STATEWISE RESULTS AND ANALYSIS

3.1. Introduction:

Andhra Pradesh State lies between latitudes 12.6230 & 19.9170 N and longitudes 76.7610 & 84.7660 E. The Geographical Area of the State is 2,75,068 km² which is 8.37 % of the landmass of the country and the state has 974 Kilometers of coastline. The State has three physiographic zones, the hilly region having Nallamalais and Erramalais hills and the Eastern Ghats having an altitude of 500 to 1400 m; the plateau having an altitude of 100 m to 1000 m and the deltas of rivers between the Eastern Ghats and the Sea Coast. Godavari, Krishna and Pennar are the 3 principal rivers of the State which drains into the Bay of Bengal. The River Godavari with its tributaries Pranahita, Manjeera, Maneru, Indravati, Kinnerasani, Pamuleru and Sileru drains through the northern parts of the State into Bay of Bengal. The River Krishna with its tributaries Tungabhadra, Vadhavati, Hundri, Musi, Paleru and Munneru flows through the central parts of the State. The River Pennar, the third biggest river, with its tributaries Chitravati, Papagani, Cheyyeru and Pincha drains Rayalaseema region and Nellore district.

Land use pattern of the State is given in Table 3.1.

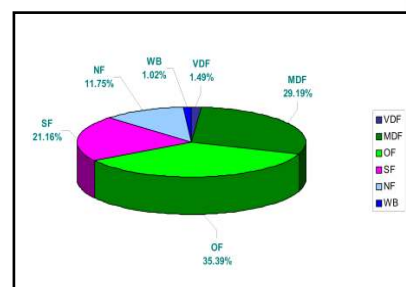
The climate of this State is generally dry with temperature ranging from 8°C to 52°C and the annual rainfall is about 500-1300 mm, received mainly from Southwest and Northeast monsoons. The geological formations of the State are: (1) The unclassified Archaean crystalline rocks mainly the granitic, but in eastern ghats comprising granulite suites (khondalites and kodurites), (2) The Middle–Upper Proterozoic the Cuddapahs and its equivalents; (3) The Mesozoic the coal bearing Gondwana strata, (4) Eocene lava flows (the Deccan traps) and (5) The semi-consolidated or unconsolidated tertiary and recent rocks. The soils of the State are Red, Black, Alluvial, Laterite and Saline/Alkaline. The population of the State is 84.7 million (2011 Census). The male population is 42.5 million and female 42.1 million. The Per capita forest area is 0.07 ha. The population density is 308 persons per Km². The livestock population is 150.5 million.

Table 3.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	275068.00	100.00
Forest including Scrub	55664.31	20.23
Agriculture	168821.46	61.37
Land with Scrub	17137.66	6.23
Fallow Lands	10333.94	3.76
Grasslands	652.17	0.24
Settlements	2633.41	0.96
Vegetation outside Forest	9132.87	3.32
Water bodies	10343.00	3.76

3.2. Recorded Forest Area:

The total notified forest area of the State is 63,814 Km², which is 23.2 % of the geographical area. Reserved-, Protected- and Un-classed forests constitute 50,478.63 Km² (79.10%), 12,365.34 Km² (19.38%) and 969.76 Km² (1.52%) of the total forest area respectively. The Khammam District has the highest notified forest area – 8,436.94 Km² and the Krishna has the lowest notified forest area – 664.28 Km² only. However, as regards notified forest to geographical area ratio Khammam District has highest – 52.64 % and Nalgonda has lowest - 5.9 %. As per Champion and Seth's classification, the Forests of State fall under Southern Moist Mixed Deciduous Forest, Littoral Swamp Forest, Dry Teak Forest, Dry Red Sanders Bearing Forest, Southern Dry Mixed Deciduous Forest, Dry Deciduous Scrub, Dry Savannah Forest, Hardwickia Forest, Dry Bamboo Brakes, Southern Thorn Forest, Dry Scrub Forest, Tropical Dry Evergreen Forest types. By the RoFR Act individual rights over 4.5 lakh acres of forest is recognised and right of enjoyment given to the people.



3.3. Protected Area:

The State has 27 Protected Areas – 21 Wildlife Sanctuaries, 6 National Parks and 1 Tiger Reserve i.e. Nagarjuna Sagar–Srisaillam Tiger Reserve (NSTR), which is the biggest Tiger Reserve of India. Out of 63814 Km² of notified forest area, 15280.92 Km² is included in the PA network.

3.4. Community Forest Management:

There are 7,718 Vana Samrakshana Samities (VSSs) or JFPCs in the State. 15,199.8 Km² forest area, which constitutes 23.8 % of forest area, is under CFM. 1539 thousand members are involved in CFM which includes 465 thousand members belonging to Scheduled Tribes(S.Ts) and 323 thousand members belonging to Scheduled castes(S.Cs)

3.5. Forest Cover:

The forest cover in the State based on the interpretation of IRS P6 LISS-III 2009 data (October 2009 to March 2010), is 42163.18 Km², which is 15.32% of the Geographical area. In terms of the forest canopy density classes the State has 950.14 Km² of Very Dense Forest, 18629.05 Km² of Moderately Dense Forest and 22583.99 Km² of Open Forest. The area of the Scrub is 13504.00 Km², Non-Forest 7496.04 Km² and Water Bodies 651.33 Km². The distribution of the forest cover of the State is shown in **Figure 3.1**

The distribution of Forest Cover in the CFM areas is 76.78 Km² in Very Dense Forest, 3776.60 Km² in Moderately Dense Forest and 5411.74 Km² in Open Forest. The area of Scrub is 3792.80 Km², Non-Forest 2094.10 Km² and Water bodies 47.97 Km².

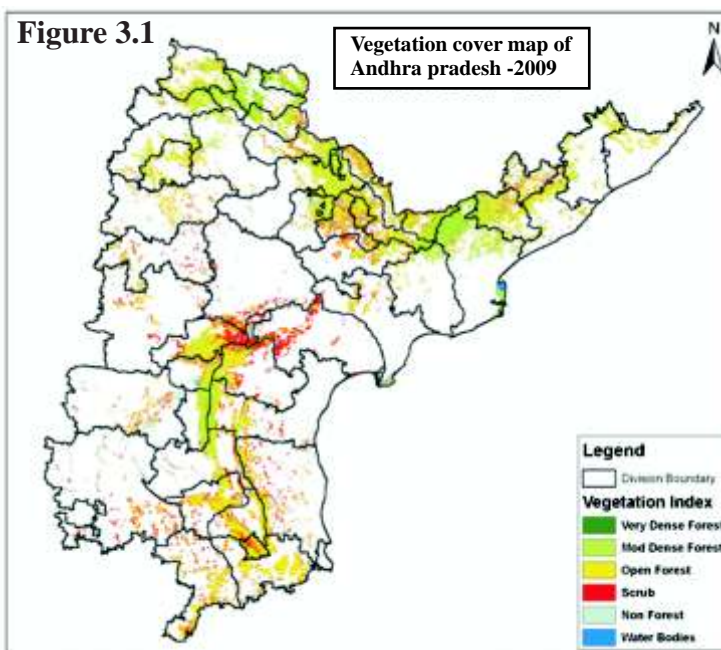
The distribution of Forest Cover in the PA areas is 208.37 Km² in Very Dense Forest, 3928.51 Km² in Moderately Dense Forest, 5911.07 Km² in Open Forest, The area of Scrub is 2918.57 Km² Non-Forest 1368.93 Km² & Water bodies 945.47 Km².

Change in Forest (Including Scrub and Non-Forest): An analysis of the total extent of Forests between 2008 and 2009 shows that degradation is seen in an area of 130.95 km² and a positive change in 23.64 km².

Thus in an area of 104.97 km² of forests (14.83 km² of MDF, 53.69 km² of open forests and 36.45 km² of scrub) is converted to Non forest during the year. On further analysis it is seen that out of this 104.97 km² of loss forest only an area of 56.73 Km² is due to encroachment attempts in the State and balance 48.24 Km² is due to diversion under FC Act and management interventions like harvesting of plantations and raising of plantations, which is not considered as loss of forest. Out of the encroachments an area of 18.56 Km² is inside VSS areas and 3.2 Km² inside Protected Areas.

Encroachments were found in 41 Divisions and positive changes were noticed in 01 Division (Nandyal) and no changes in 03 Divisions (Atmakur, Achampet, WLM Medak). Paderu could not be interpreted due to non availability of cloud free data.

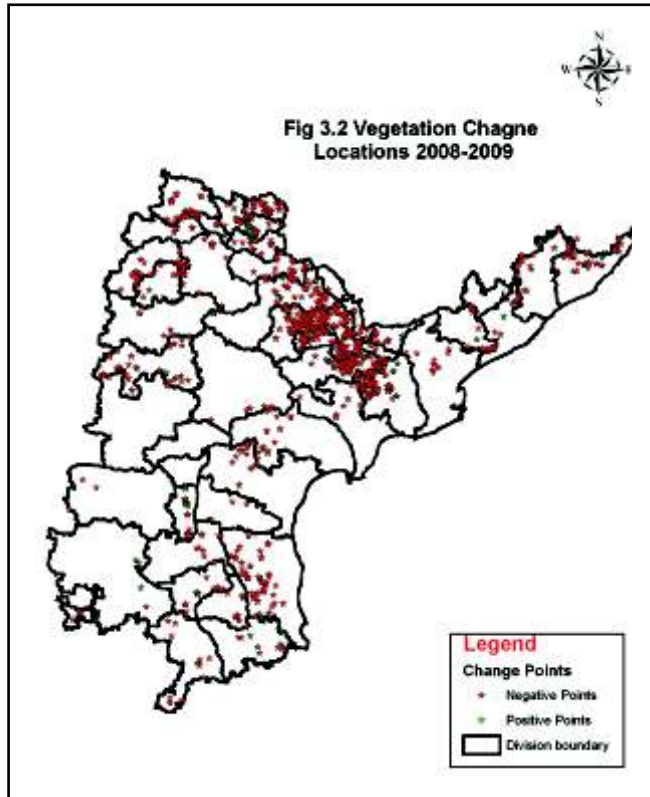
Change in Forest Cover (Excluding Scrub and Non-Forest): The forest cover in VDF, MDF and OF in 2008 was 950.14 Km², 18651.72 Km² and 22645.76 Km² respectively. However in 2009 it is 950.14 Km², 18629.05 Km² and 22583.99 Km² respectively. Thus there was a reduction of 22.67 Km² in MDF and 61.77 Km² in OF. The net loss of forest cover in MDF and OF put together is 84.44 Km² in the State during the year.



Divisions with most loss of Forest Cover due to encroachments are Khammam, Eluru, Paloncha, Warangal south, Kothagudem, and Nizamabad

In VSS areas, there is a net loss of 26.23 Km² of forest cover. In PA areas, there is a net loss of 7.45 Km² of forest cover. The change locations are shown in **Figure 3.2**

The forest cover change matrix, showing changes from one class to other, is given in **Table 3.2**. It reveals that there has been a decrease of 22.67 Km² of moderately dense forest and 61.77 Km² of open forest.



Further the VDF, MDF & OF classes are merged into Good forest, and Non forest and Scrub into Degraded forest and a matrix prepared (Table 3.3). Also VDF, MDF, OF & Scrub classes are merged into Green, and Non forest into Barren and a matrix prepared (Table 3.4).

On the basis of ground truthing conducted by the officers of the Geomatics Center and the field officers, the main reasons for decrease in the forest cover are management interventions like harvesting (clear felling) of matured plantations, clearance of bush growth and preparation of land for raising of plantations and fresh attempts on encroachments triggered by recognition of rights of occupation.

The abstract of total number of positive and negative points for entire forest areas, VSS areas and Protected Areas in all classes, VD/MDF/OF to NF/SF, DF to OF, SF to NF are shown in Table 3.5 to 3.8 respectively

Division wise forest cover in different forest canopy density classes along with the changes compared to

2008 assessment is given in **Table 3.9**.

Table 3.2 Forest cover change matrix (Area in km²)

2008 (Data of Oct 2008 – Dec 2008)	2009 (Data of Oct 2009 - Mar 2010)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	950.14	0.00	0.00	0.00	0.00	0.00	950.14
Moderately Dense Forest	0.00	18628.78	1.62	6.49	14.83	0.00	18651.72
Open Forest	0.00	0.05	22574.14	17.88	53.69	0.00	22645.76
Scrub	0.00	0.08	1.14	13464.47	36.45	0.00	13502.14
Non-Forest	0.00	0.14	7.09	15.16	7391.07	0.00	7413.46
Water	0.00	0.00	0.00	0.00	0.00	651.33	651.33
Total of 2009	950.14	18629.05	22583.99	13504.00	7496.04	651.33	63814.55
Net Change	0.00	-22.67	-61.77	1.86	82.58		



2008 (Data of Oct 2008 – Dec 2008)	2009 (Data of Oct 2009 - Mar 2010)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	42154.73	92.89	0.00	42247.62
Degraded Forest	8.45	20907.15	0.00	20915.60
Water	0.00	0.00	651.33	651.33
Total of 2009	42163.18	21000.04	651.33	63814.55
Net Change	-84.44	84.44	0.00	

2008 (Data of Oct 2008 – Dec 2008)	2009 (Data of Oct 2009 – Mar 2010)			Total of 2008
	Green	Barren	Water	
Green	55644.79	104.97	0.00	55749.76
Barren	22.39	7391.07	0.00	7413.46
Water	0.00	0.00	651.33	651.33
Total of 2009	55667.18	7496.04	651.33	63814.55
Net Change	-82.58	82.58	0.00	

Change	Entire Notified Forest Areas		VSS Areas		Protected Area	
	No. of Points	Area_ha	No. of Points	Area_ha	No. of Points	Area_ha
Negative	1288	-13095.62	380	-4843.90	115	-948.40
Positive	136	2364.98	55	872.92	6	31.14
Net change	1424	-10730.64	435	-3970.98	121	-917.26

Change	Entire Notified Forest Areas		VSS Areas		Protected Area	
	No. of Points	Area_ha	No. of Points	Area_ha	No. of Points	Area_ha
Negative	978	-9288.77	266	-3115.55	103	-773.41
Positive	69	844.32	24	457.70	5	27.99
Net change	1047	-8444.45	290	-2657.85	108	-745.42

Change	Entire Notified Forest Areas		VSS Areas		Protected Area	
	No. of Points	Area_ha	No. of Points	Area_ha	No. of Points	Area_ha
Negative	13	-161.87	3	24.60	2	-4.90
Positive	1	5.07	0	0.00	0	0.00
Net change	14	-156.8	3	24.60	2	-4.90

Change	Entire Notified Forest Areas		VSS Areas		Protected Area	
	No. of Points	Area_ha	No. of Points	Area_ha	No. of Points	Area_ha
Negative	297	-3644.98	111	-1703.75	12	-170.09
Positive	66	1515.59	31	415.22	1	3.15
Net change	363	-2129.39	142	-1288.53	13	-166.94



Table 3.9 Division wise Forest Cover Changes

Sl.No. & Division	VDF	MDF	OF	SF	NF	WB	TOTAL	Encroachment
I. ADILABAD								
1. ADILABAD	52.31	925.29	338.41	381.61	194.00	7.33	1898.95	1.97
2. BELLAMPALLY	172.82	867.33	242.00	107.48	129.27	5.88	1524.79	0.91
3. JANNARAM	59.60	433.18	125.77	12.57	8.97	3.63	643.73	0.38
4. KAGAZNAGAR	159.17	377.69	162.69	75.11	116.04	2.59	893.29	1.32
5. MANCHERIAL	50.23	577.14	280.54	115.41	81.64	10.41	1115.37	0.68
6. NIRMAL	7.18	650.77	200.59	67.92	92.34	6.37	1025.17	0.25
TOTAL	501.31	3831.41	1350.01	760.10	622.27	36.21	7101.30	5.51
II. ANANTHAPUR								
7. ANANTHAPUR	0.00	0.87	348.95	710.50	884.78	0.50	1945.60	0.15
8. CHITTOOR WEST	0.03	197.72	962.71	646.34	281.00	2.37	2090.17	0.31
TOTAL	0.03	198.59	1311.66	1356.84	1165.78	2.87	4035.77	0.46
III. FDPT SRISAILAM								
9. ACHAMPET	0.33	479.11	1032.14	782.23	69.60	59.96	2423.37	0.00
10. ATMAKUR	5.53	229.08	374.45	259.74	346.94	70.03	1285.77	0.00
11. MARKAPUR	1.93	372.31	951.45	687.26	245.41	14.50	2272.86	0.37
12. NAGARJUNASAGAR	0.00	8.49	181.98	441.71	133.29	29.50	794.97	0.00
TOTAL	7.79	1088.99	2540.02	2170.94	795.24	173.99	6776.97	0.37
IV. GUNTUR								
13. GIDDALUR	22.10	746.57	729.43	445.10	260.06	5.31	2208.57	0.00
14. GUNTUR	0.00	0.08	315.30	889.33	233.94	38.26	1476.91	0.00
15. NELLORE	0.00	191.55	955.40	726.30	476.75	29.95	2379.96	1.26
TOTAL	22.10	938.20	2000.13	2060.73	970.76	73.52	6065.44	1.26
V. HYDERABAD								
16. HYDERABAD	0.00	122.07	214.67	387.19	32.18	2.75	758.87	0.84
17. MAHABUBNAGAR	0.00	16.20	291.26	309.20	2.66	0.16	619.48	0.05
18. NALGONDA	0.00	1.57	38.35	241.39	158.33	2.36	442.00	0.11
TOTAL	0.00	139.84	544.28	937.79	193.17	5.27	1820.35	1.01
VI. KHAMMAM								
19. BHADRACHALAM_N	9.26	377.17	547.07	366.89	131.43	3.74	1435.57	0.59
20. BHADRACHALAM S	83.57	619.90	372.94	177.13	37.11	3.00	1293.66	0.90
21. KHAMMAM	0.41	351.05	512.29	355.85	100.17	2.58	1322.34	4.86
22. KOTHAGUDEM	0.04	354.41	588.41	451.22	286.29	3.51	1683.88	5.05
23. PALVONCHA	38.77	416.97	644.38	290.76	128.62	4.02	1523.52	5.98
24. PALVONCHA W LM	1.43	220.88	272.75	125.32	53.24	12.75	686.38	0.80
TOTAL	133.48	2340.39	2937.84	1767.18	736.86	29.60	7945.35	18.19
VII. KURNOOL								
25. KADAPA	0.03	164.84	973.50	485.19	90.65	2.32	1716.53	0.44
26. KURNOOL	0.00	0.56	269.09	364.11	565.90	2.89	1202.55	0.14
27. NANDYAL	40.71	595.10	293.78	67.88	65.57	3.43	1066.46	0.60
28. PRODDATUR	3.58	426.38	552.15	302.07	281.97	8.95	1575.11	0.40
TOTAL	44.32	1186.88	2088.53	1219.25	1004.08	17.59	5560.65	1.58



Statewise Results and Analysis

VIII. NIZAMABAD								
29. KAMAREDDY	0.00	327.47	489.65	84.83	75.34	4.00	981.29	1.21
30. MEDAK	0.00	92.58	497.22	281.01	43.06	2.68	916.55	0.33
31. MEDAK WLM	0.00	20.56	21.68	3.59	0.70	0.02	46.55	0.00
32. NIZAMABAD	0.00	309.80	310.64	80.02	81.34	5.32	787.12	4.04
TOTAL	0.00	750.41	1319.19	449.45	200.45	12.02	2731.51	5.59
IX. RAJAHMUNDRY								
33. ELURU	0.00	512.15	158.92	53.42	47.95	0.59	773.03	4.15
34. KAKINADA	203.04	2356.05	220.71	185.97	100.56	169.06	3235.39	0.33
35. VIJAYAWADA	0.00	1.18	286.49	211.72	71.67	73.46	644.52	0.97
TOTAL	203.04	2869.38	666.12	451.11	220.18	243.11	4652.94	5.45
X. VISHAKAPATNAM								
36. NARSIPATNAM	32.80	1084.21	756.15	244.94	235.33	0.33	2353.75	1.74
37. PADERU	1.91	140.21	399.20	234.77	235.32	0.11	1011.52	0.00
38. SRIKAKULAM	0.00	134.62	440.32	102.02	34.41	10.35	721.72	0.75
39. VISHAKAPATNAM	0.15	432.35	527.93	199.54	104.90	1.23	1266.10	0.42
40. VIZIANAGARAM	0.03	596.76	524.77	62.85	34.44	0.44	1219.29	1.62
TOTAL	34.89	2388.15	2648.37	844.11	644.40	12.46	6572.38	4.54
XI. WARANGAL								
41. KARIMNAGAR EAST	0.00	657.97	413.50	259.48	49.60	6.26	1386.81	0.68
42. KARIMNAGAR WEST	0.00	501.42	336.27	120.30	14.72	1.78	974.49	0.35
43. WARANGA_NORTH	0.00	953.10	1014.75	91.36	244.31	6.73	2310.25	2.65
44. WARANGAL SOUTH	0.00	308.22	426.92	77.80	339.43	22.29	1174.66	7.40
45. WARANGAL_WLM	0.00	219.07	277.22	15.26	25.23	1.77	538.55	0.77
TOTAL	0.00	2639.79	2468.66	564.20	673.29	38.83	6384.76	11.85
XII. WLM-TIRUPATI								
46. CHITTOOR EAST	0.02	114.71	1328.72	364.82	192.59	0.45	2001.31	0.31
47. WLM -TIRUPATI	3.16	86.64	404.44	194.31	23.36	2.41	714.32	0.39
48. RAJAMPET	0.00	55.71	976.03	363.20	54.10	2.91	1451.94	0.23
TOTAL	3.18	257.06	2709.18	922.33	270.04	5.77	4167.57	0.93
GRAND TOTAL	950.14	18629.07	22583.99	13504.03	7496.53	651.24	63814.99	56.73





Chapter IV
FOREST DIVISION - WISE RESULTS



Forest Wealth of Andhra Pradesh



Forest in Kadapa



Coringa Wildlife Sanctuary



Natural Forest Vijayanagaram





Chapter-IV

4.1 ADILABAD DIVISION

4.1.1 Introduction:

Adilabad Forest Division lies in Northern Part of Adilabad District, between latitudes 19° 9' 50" and 19° 54' 59" N and longitudes 78° 7' 28" and 79° 5' 37" E. The Geographical Area of the Division is 4409.41 Km², which constitutes 27.34 % of the total area of the District. The highest hill ranges are situated in the southeast corner of the Division. They are Kuchanpally 646m above MSL, Tummidipally gutta 634m. The important rivers of the Division are Kadam River, Penganga and Peddavagu which are tributaries of Godavari.

Land use pattern of the Division is given in Table

4.1.1

The climate of the Division is characterized by hot summer and is generally dry; except during the south-west monsoon season. The temperature varies from 8°C to 47°C. The average annual rainfall of the Division is 1051mm, received mainly from south-west monsoons.

The soils vary with underlying rock formation like Black cotton soils, Cahlka and Red soils, Sandy loams, Saline and Alkaline soils. The District is well endowed with rich reserves of coal, iron ore, lime stone and clays.

The total population of the Division is 0.70 million (2011 Census). The Per capita forest area is 0.27 ha. The population density is 159 persons per Km².

Table 4.1.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	4409.41	
Forest including Scrub	1699.55	38.54
Agriculture	2153.17	48.83
Land with Scrub	293.57	6.66
Fallow Lands	84.42	1.91
Grasslands	0	0.00
Settlements	20.03	0.46
Vegetation outside Forest	108.2	2.46
Water body	50.47	1.14

4.1.2 Recorded Forest Area:

The total notified forest area of the Division is 1830.35 Km², which is 41.51 % of the total geographical area. Reserved, Protected and Unclassed Forests Constitute 996.47 Km² (54.45 %), 820.32 Km² (44.8%) and 13.56 Km² (0.7%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous & Bamboo Mixed Forests (Dry Teak bearing Forests, Dry Mixed Forests).

4.1.3 Protected Area:

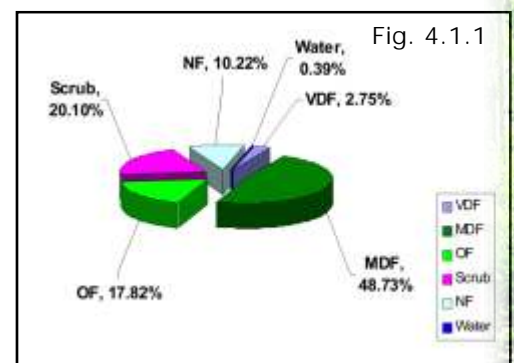
There is no Protected Area in the Division.

4.1.4 Community Forest Management:

There are 390 Vana Samrakshana Samities (VSSs) in the Division. An area of 359.34 Km² forests, which is 21.06 % of the notified forests, is under the management of the VSSs.

4.1.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Nov2009-Dec2009), is 1316.01 Km², which is 29.84% of the total Geographical area. In terms of the forest canopy density classes, the Division has 52.31Km² of Very Dense Forests, 925.29Km² of Moderately Dense Forests, and 338.41Km² of Open Forests. The area of the Scrub is 381.61Km², Non-Forest 194.00Km² and Water Bodies 7.33Km². The distribution of the forest cover of the division is shown in Fig 4.1.1



4.1.6 Change in Forest Cover :-

The Satellite images of 2008 and 2009 are shown in Fig (4.1.2 & 4.1.3) and the changes during this period have show on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov/Dec 2009) with that of previous assessment year (Satellite data of Dec 2008), shows a positive change of 6.98 Ha and negative change of 234.88 Ha. The forest cover change matrix, given in Table 4.1.2 reveals that there has been a decrease of 57 Ha of moderately dense forest and 136 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 37.98 Ha on account of Raising of Plantations and 196.90 on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 196.60 Ha only.

The simplified forest cover change matrix is given in Table 4.1.3 and Table 4.1.4

There are 75 Beats in the Division. Negative change in Forest Cover is noticed in only **12 Beats**, and positive change in 1 Beat. There is no change in remaining 62 Beats.

Details of forest cover changes in the 13 Beats where forest cover is changed is shown in Table 4.1.5

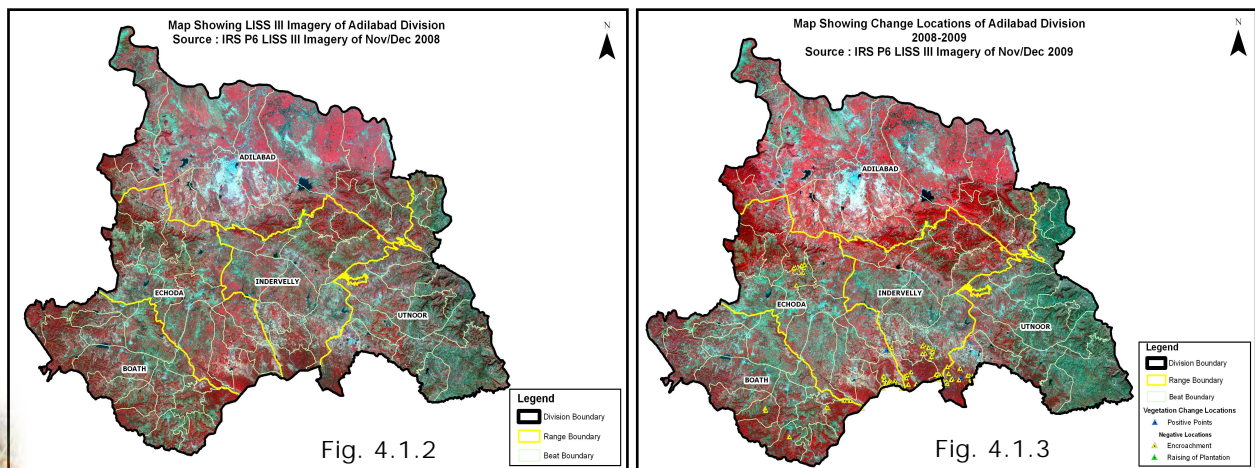


Table 4.1.2: Forest Cover change matrix

(Area in Km²)

2008 (Data of Nov/Dec 2008)	2009 (Data of Nov/Dec. 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	52.31	0.00	0.00	0.00	0.00	0.00	52.31
Moderately Dense Forest	0.00	925.27	0.00	0.00	0.59	0.00	925.86
Open Forest	0.00	0.00	338.36	0.40	1.01	0.00	339.77
Scrub	0.00	0.00	0.05	381.21	0.35	0.00	381.61
Non-Forest	0.00	0.02	0.00	0.00	192.05	0.00	192.07
Water	0.00	0.00	0.00	0.00	0.00	7.33	7.33
Total of 2009	52.31	925.29	338.41	381.61	194.00	7.33	1898.95
Net Change	0.00	-0.57	-1.36	0.00	1.93	0.00	

2008 (Data of Nov/Dec 2008)	2009 (Data of Nov/Dec. 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1315.94	2.00	0.00	1317.94
Degraded Forest	0.07	573.61	0.00	573.68
Water	0.00	0.00	7.33	7.33
Total of 2009	1316.01	575.61	7.33	1898.95
Net Change	-1.93	1.93	0.00	

2008 (Data of Nov/Dec 2008)	2009 (Data of Nov/Dec. 2009)			Total of 2008
	Green	Barren	Water	
Green	1697.60	1.95	0.00	1699.55
Barren	0.02	192.05	0.00	192.07
Water	0.00	0.00	7.33	7.33
Total of 2009	1697.62	194.00	7.33	1898.95
Net Change	-1.93	1.93	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
ADILABAD Range								
Ankoli	301.09	2,051.37	406.60	327.84	52.65	3,149.04	0.00	0.00
Arjuni	70.20	1,181.82	445.16	491.65	34.69	2,239.95	3.93	0.00
Arli(N)	0.00	34.95	197.28	179.03	743.62	1,154.89	0.00	0.00
Arli(S)	0.00	217.63	303.63	257.12	411.08	1,189.46	0.00	0.00
Bhadi	1.24	1,520.17	219.93	462.87	189.67	2,516.76	0.00	0.00
Devapur	0.00	317.39	129.23	91.05	6.41	544.08	0.00	0.00
Dhaba	15.89	1,128.50	502.60	330.70	39.29	2,019.36	0.00	0.00
Downa	189.62	2,076.43	414.88	153.73	22.41	2,857.07	0.00	0.00
Khandu	61.46	1,685.79	54.13	1,068.10	312.35	3,492.40	0.00	0.00
Kosai	0.00	1,752.96	488.70	251.92	464.34	2,970.60	0.00	0.00
Kuchlapur	0.00	1,358.44	448.92	205.07	170.02	2,182.45	0.00	0.00
Masala	90.85	1,676.57	272.83	231.14	35.90	2,307.29	0.00	0.00
Mavala	0.00	633.61	390.58	283.57	164.22	1,471.98	34.05	0.00
Tamsi	0.00	228.58	317.79	183.87	650.62	1,380.86	0.00	0.00
Tantoli	0.00	384.79	329.65	582.52	613.81	1,911.81	0.00	0.00
Toyaguda	306.50	1,735.30	500.56	306.80	95.63	2,947.71	0.00	0.00
Yapalguda	28.06	371.73	350.91	699.9	310.46	1,768.10	0.00	0.00
TOTAL	1,187.78	18,356.03	6,073.39	6,106.67	4,317.17	36,103.81	- 37.98	0.00
BOATH Range								
Arepally	1.12	1,414.23	612.25	726.67	560.52	3,314.79	0.00	0.00
Boath	0.00	1,850.16	679.65	244.48	172.55	2,946.83	0.00	0.00
Bondidi	0.00	379.37	488.86	341.60	350.88	2,560.71	0.00	0.00
Boregaon	0.00	651.25	651.05	1,107.73	821.66	3,232.94	0.00	0.00
Jeedipally	0.00	601.77	252.55	126.05	250.04	1,230.41	0.00	0.00
Kowta	0.00	540.78	351.45	800.99	786.99	2,499.89	0.00	0.00
Kuntala	0.00	183.58	179.37	108.92	32.71	521.30	0.00	0.00
Marlapally	0.00	3,221.21	1,539.22	489.41	606.12	5,859.16	0.00	0.00
Neradigonda	0.00	647.94	386.61	681.02	452.94	2,168.51	0.00	0.00



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Pardi	0.00	391.33	458.08	227.75	340.37	1,418.24	0.00	0.00
Pisra	18.32	2,028.89	420.29	241.85	169.76	2,916.19	-16.47	16.47
Sonala	0.00	2,141.79	1,206.56	825.12	947.89	5,140.66	0.00	0.00
Wadoorpet	0.00	967.74	619.21	426.17	520.80	2,533.92	2.24	2.24
Wagdhari	0.00	140.26	105.01	429.00	211.06	885.32	0.00	0.00
Wankidi(E)	0.00	1,534.89	612.57	458.00	465.84	3,093.83	-1.36	1.36
Wankidi(W)	0.00	1,574.27	607.50	370.05	362.72	2,916.24	0.00	0.00
TOTAL	19.44	19,269.47	9,170.22	7,604.78	7,052.85	43,238.94	-20.07	20.07
ECHODA Range								
Bharampur	0.00	646.33	513.47	576.95	650.69	2,387.44	0.00	0.00
Bhutai	0.00	249.49	234.25	236.46	615.71	1,335.91	0.00	0.00
Dedra	0.00	2,097.94	755.68	782.19	1,415.71	5,051.53	0.00	0.00
Dignoor	0.00	408.22	202.42	494.06	395.69	1,500.39	-12.75	12.75
Echoda	0.00	642.31	196.57	271.14	179.96	1,289.98	0.00	0.00
Gairjam	5.36	910.88	263.06	506.26	146.60	1,836.22	0.00	0.00
Gudihathnoor	0.00	771.21	467.38	737.46	359.62	2,335.66	0.00	0.00
Harkai	0.00	603.64	350.20	675.82	365.64	1,995.29	-10.87	10.87
Jhari	0.00	1,329.19	717.24	321.64	467.43	2,835.50	0.00	0.00
Madhapur	185.75	866.92	290.25	530.32	49.58	1,922.83	0.00	0.00
Sirchalma	47.69	1,976.58	256.76	595.11	51.52	2,931.04	-23.88	23.88
Sirkonda	22.33	692.87	224.29	828.75	131.31	1,899.56	5.12	0.00
Talamadri	128.90	1,261.82	203.39	671.03	53.88	2,319.02	0.00	0.00
Waipet	14.60	1,575.57	320.03	600.28	121.89	2,632.37	-23.45	23.45
TOTAL	404.64	14,032.98	4,994.99	7,827.48	5,005.23	32,272.74	-65.83	70.95
INDERVELLY Range								
Chorgaon	260.82	1,489.76	488.42	1,578.39	152.86	3,970.90	0.00	0.00
Dhanora	6.29	269.11	199.65	385.10	177.12	1,038.28	0.00	0.00
Indervelly	381.74	2,165.78	671.45	1,081.27	120.16	4,422.09	0.00	0.00
Muthnoor	89.59	473.35	108.57	304.13	18.22	995.66	0.00	0.00
Pataguda	174.35	1,873.11	342.62	520.35	34.21	2,966.00	0.00	0.00
Pochampally(N)	122.19	841.73	375.28	0.06147	238.69	3,059.98	-2.26	2.26
Pochampally(S)	32.63	1,736.96	611.97	1,033.80	194.07	3,652.60	-22.56	22.56
Sayedpur	317.43	1,511.70	448.91	511.22	65.74	2,875.33	0.00	0.00
Shampur	85.94	1,833.56	777.61	1,020.71	175.69	3,959.91	14.97	14.97
Tosham	32.73	863.04	193.42	294.22	70.55	1,453.95	0.00	0.00
Wadgaon	80.76	777.69	336.18	741.22	90.77	2,028.18	0.00	0.00
Waipet[South]	2.75	2,563.25	391.36	403.74	62.92	3,586.48	19.59	19.59
TOTAL	1,587.21	16,399.04	4,945.44	9,344.21	1,400.97	34,009.36	-59.38	59.38
UTNOOR Range								
Chinnakohinoor	164.83	610.00	84.91	92.86	24.04	976.64	0.00	0.00
Daboli	168.67	2,032.94	815.74	555.09	187.02	3,759.46	0.00	0.00
Gadiguda	9.24	613.02	328.72	324.07	53.42	1,328.47	0.00	0.00
Ghanpur	44.19	692.27	152.64	389.39	66.93	1,346.60	.00	0.00
Gudamamada	76.84	1,940.73	522.07	661.92	164.59	3,366.15	0.00	0.00
Hasnapur	387.81	971.71	235.48	481.09	29.53	2,105.63	0.00	0.00
Kobbaiguda	108.65	392.63	145.78	431.07	107.84	1,185.97	0.00	0.00
Limbori	19.48	973.33	893.38	469.99	121.74	2,477.92	0.00	0.00
Lokari	104.29	948.11	242.60	291.20	11.88	1,598.08	0.00	0.00
Netnoor	576.69	5,727.96	1,339.55	1,682.35	311.02	9,824.20	0.00	0.00
Raghapur	129.22	1,683.65	275.55	303.98	49.26	2,445.38	0.00	0.00
Rasimetta	53.27	1,752.22	1,024.44	461.98	98.65	400.343,	0.00	0.00
Sedwai	13.93	561.72	331.65	342.69	14.26	1,267.80	0.00	0.00
Umri	21.00	1,386.30	891.25	306.34	76.36	2,681.25	0.00	0.00
Utnoor	133.72	3,460.72	918.87	235.85	229.44	4,982.40	-44.64	46.50
Yempally	20.07	724.60	453.86	247.78	77.44	1,523.75	0.00	0.00
TOTAL	2,031.90	24,471.93	8,656.50	7,277.67	1,623.40	44,270.03	-44.64	46.50
Grand Total	5,230.97	92,529.45	33,840.54	38,160.81	19,399.62	189,894.88	-227.90	196.90

* Beat wise total area including Water bodies.





Chapter-IV

4.2 BELLAMPALLY DIVISION

4.2.1 Introduction:

Bellampally Forest Division lies in the Adilabad District, between latitudes 18° 56' 16" and 19° 36' 58" N and longitudes 78° 56' 8" and 79° 56' 53" E. The Geographical Area of the Division is 3293.30km², which constitutes 20.41 % of the total area of the District. The terrain is undulating with a fringe of low hills in different directions. The general elevation of hill ranges varies from 125m to 570m above MSL. Deccangudda is the highest with an elevation of 633m above MSL.

Land use pattern of the Division is given in Table 4.2.1

The temperature varies from 9°C to 47°C. The average annual rainfall of the division is 1051mm received mainly from south-west monsoons.

The Black cotton and Red soils are found predominantly in the division and the sandy loams are found mostly in the middle and eastern portion of the division. The Saline and Alkaline soils are also found but to a lesser extent.

The prominent geological formations in the division are Archaen Granites and Gneisses, the Deccan trap and the Gondwana sand stones. The lower Gondwana bear some coal seams, which are being mined by Singareni Collieries Company Limited in the Bellampally-Mancherial belt. The Division has rich reserves of coal, lime stone and clays.

The total population of the Division is 0.40 million (2011 Census). The Per capita forest area is 0.38ha. The population density is 121 persons per Km².

Table 4.2.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	3293.3	
Forest including Scrub	1392.19	42.27
Agriculture	1563.56	47.48
Land with Scrub	141.66	4.30
Fallow Lands	7.24	0.22
Grasslands	0.1	0.00
Settlements	11.68	0.36
Vegetation outside Forest	95.62	2.90
Water body	81.25	2.47

4.2.2 Recorded Forest Area:

The total notified forest area of the Division is **1540.56 Km²**, which is 46.77 % of the total geographical area. Reserved, Protected and Unclassed Forests Constitute 1337.74 Km² (86.8 %), 163.58 Km² (10.64%) and 39.24 Km² (2.5 %) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, forests, but for the convenience of forest management into Teak forest and Mixed Forest.

4.2.3 Protected Area: There is no Protected Area in the Division.

4.2.4 Community Forest Management:

There are 228 Vana Samrakshana Samities (VSSs) in the Division. An area of 206.92Km² forests which is 13.43% of the notified forests is under the management of the VSSs.

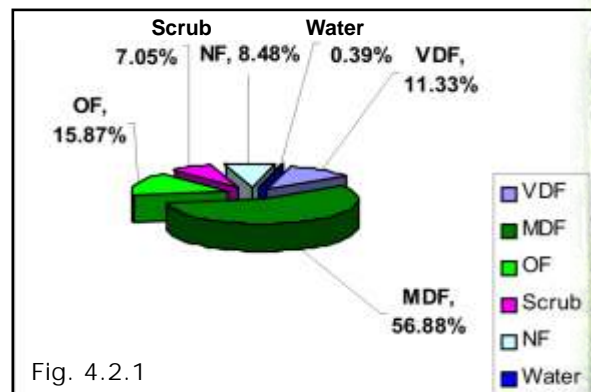
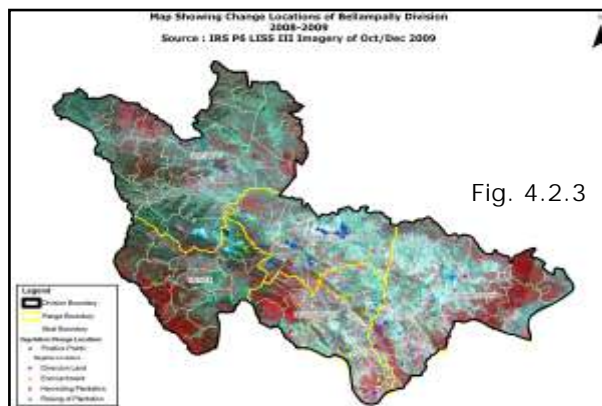
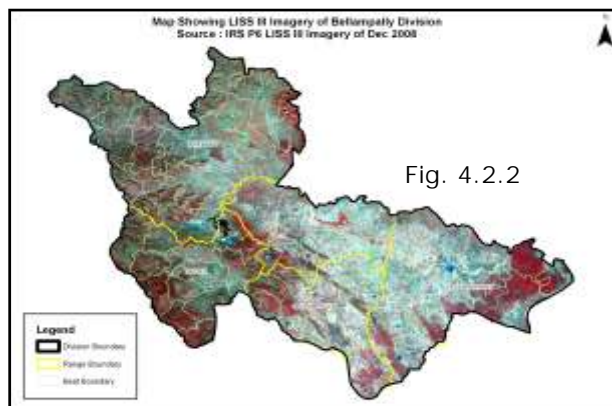


Fig. 4.2.1



4.2.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Oct/Dec 2009), is 1282.15 Km², which is 38.93 % of the total Geographical area. In terms of the forest canopy density classes, the Division has 172.82 Km² of Very Dense Forests, 867.33 Km² of Moderately Dense Forests, and 242.00 Km² of Open Forests. The area of the Scrub is 107.48 Km², Non-Forest 129.27 Km² and Water Bodies 5.88 Km². The distribution of the forest cover of the division is shown in Fig 4.2.5



4.2.6 Change in Forest Cover :- The Satellite images of 2008 and 2009 are shown in Fig (4.2.2 & 4.2.3) and the changes during this period is shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct/Dec 2009) with that of previous assessment year (Satellite data of Dec 2008), shows a positive change of 225.94 Ha and negative change of 509.11 Ha. The forest cover change matrix, given in Table 4.2.2 reveals that there has been a decrease of 90 Ha of moderately dense forest and 206 Ha of open forest.

The positive change is on account of raising or growth in raised plantations. Of the total negative change 207.47 Ha on account of Raising of Plantations, 73.93 Ha on account of encroachment, 217.16 Ha of Harvesting of Plantation and 10.55 Ha of Diversion of Forest Land to the Non Forestry Purpose. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 73.93 Ha only.

The simplified forest cover change matrix is given in Table 4.2.3 and 4.2.4

There are 60 Beats in the Division. Negative change in Forest Cover is noticed in only 14 Beats, and positive change in 5 Beats. There is no change in remaining 41 Beats.

Details of forest cover changes in the 17 Beats where forest cover is changed is shown in Table 4.2.5

Table 4.2.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Dec. 2008)	2009 (Data of Oct/Dec. 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	172.82	0.00	0.00	0.00	0.00	0.00	172.82
Moderately Dense Forest	0.00	867.29	0.00	0.02	0.92	0.00	868.23
Open Forest	0.00	0.00	240.89	0.50	2.67	0.00	244.06
Scrub	0.00	0.00	0.00	105.85	0.99	0.00	106.84
Non-Forest	0.00	0.04	1.11	1.11	124.70	0.00	126.96
Water	0.00	0.00	0.00	0.00	0.00	5.88	5.88
Total of 2009	172.82	867.33	242.00	107.48	129.28	5.88	1524.79
Net Change	0.00	-0.90	-2.06	0.64	2.32	0.00	

2008 (Data of Dec. 2008)	2009 (Data of Oct/ Dec. 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1281.00	4.11	0.00	1285.11
Degraded Forest	1.15	232.65	0.00	233.80
Water	0.00	0.00	5.88	5.88
Total of 2009	1282.15	236.76	5.88	1524.79
Net Change	-2.96	2.96	0.00	0

2008 (Data of Dec 2008)	2009 (Data of Oct / Dec. 2009)			Total of 2008
	Green	Barren	Water	
Green	1387.37	4.58	0.00	1391.95
Barren	2.26	124.70	0.00	126.96
Water	0.00	0.00	5.88	5.88
Total of 2009	1389.63	129.28	5.88	1524.79
Net Change	-2.32	2.32	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
ASIFABAD Range								
Asifabad	496.02	1,180.34	199.40	85.17	66.26	2,035.31	5.32	0.00
Balhanpur	175.66	940.64	159.94	160.67	48.80	1,485.72	0.00	0.00
Bambara	637.58	1,628.73	451.01	164.58	360.43	3,242.32	0.00	0.00
Chichpally	66.13	1,979.66	889.71	136.43	162.30	3,234.23	0.00	0.00
Chintaguda	355.55	1,963.85	161.40	161.54	104.13	2,771.16	0.00	0.00
Chirrakunta	423.29	979.93	156.79	30.91	33.49	1,626.72	0.00	0.00
Dantanpally	618.98	3,513.16	682.69	274.74	95.21	5,186.50	0.00	0.00
Dhanora	130.74	2,558.90	466.88	316.24	86.85	3,559.61	0.00	0.00
Goyegoan	160.72	1,402.87	160.38	134.59	53.68	1,912.24	0.00	0.00
Indapur	63.85	1,550.61	515.29	325.48	63.16	2,520.86	-3.77	3.77
Indhani	126.96	1,217.32	426.71	157.35	263.22	2,234.24	0.00	0.00
Kanergoan	544.01	746.03	122.18	93.56	65.64	1,571.42	0.00	0.00
Karangjiwada	52.18	2,860.93	2,567.55	508.75	482.62	6,587.71	0.00	0.00
Keremeri	114.91	2,041.35	491.96	526.39	218.14	3,447.88	0.00	0.00
Kodanmovad[North]	273.01	1,326.83	173.74	60.01	91.91	1,925.49	0.00	0.00
Kodanmovad[South]	112.37	1,310.35	130.28	22.85	37.81	1,613.66	0.00	0.00
Nawdhari	149.95	1,182.88	528.21	73.09	141.70	2,075.83	0.00	0.00
Sangvi	63.16	2,378.22	1,036.03	261.51	111.89	3,850.81	0.00	0.00
Wankidi	428.17	1,538.30	426.59	116.03	180.38	2,689.46	0.00	0.00
Waudham	335.56	1,365.02	164.60	280.93	182.65	2,328.76	0.00	0.00
Welgi	728.99	1,754.70	226.40	262.97	300.89	3,279.09	0.00	0.00
TOTAL	6,057.80	35,420.61	10,137.73	4,153.80	3,151.15	59,179.05	1.55	3.77
BELLAMPALLY Range								
Adilpet	0.00	754.24	615.30	217.49	376.02	1,970.49	-12.31	0.00
Bellampally	2.36	656.11	590.58	602.47	883.03	2,741.65	39.56	0.00
Dharmaraopet	900.68	902.88	184.12	64.88	67.62	2,150.79	0.00	0.00



Madaram	431.86	1,066.47	297.74	108.18	70.14	1,974.39	0.00	0.00
Murliguda	574.92	1,700.87	289.43	139.90	122.82	2,827.94	0.00	0.00
Narwaipet	4.14	735.53	565.00	184.60	528.51	2,034.59	-54.30	0.00
Rallapet	1.81	475.87	398.24	178.73	239.24	1,293.88	20.78	0.00
Tandur	34.66	513.95	317.51	129.49	118.15	1,114.86	7.39	0.00
Venkatapur	765.29	1,049.33	150.05	36.77	31.98	2,033.42	0.00	0.00
TOTAL	2,715.71	7,855.24	3,407.97	1,662.49	2,437.50	18,142.00	1.12	0.00
KUSHNEPALLY								
Range								
Girelly	0.00	14.56	123.53	130.69	293.58	580.33	0.00	0.00
Gopalpet	1,007.98	2,778.34	214.06	60.67	19.57	4,086.67	0.00	0.00
Hathni	0.00	12.46	41.19	217.30	1,392.05	1,669.62	-21.45	0.00
Kushnepally	0.79	678.20	592.79	163.89	331.78	1,786.67	0.00	0.00
Lingala	104.80	904.36	387.32	166.87	209.53	1,776.40	0.00	0.00
Nagaram	251.78	1,558.30	357.60	143.75	218.40	2,535.02	0.00	0.00
Nennel	0.56	815.28	473.40	83.71	64.38	1,444.44	0.00	0.00
Rampur	0.95	1,401.32	277.56	129.57	14.62	1,825.98	-1.56	1.56
Rangapet	60.08	993.47	475.34	445.96	992.92	3,024.27	-146.76	0.00
Rebbena[Kpl]	6.98	880.56	707.06	402.41	476.10	2,498.55	0.00	0.00
Vemanpally	495.37	3,424.82	966.98	519.24	212.89	5,655.31	0.00	0.00
TOTAL	1,929.29	13,461.66	4,616.82	2,464.07	4,225.83	26,883.24	-169.77	1.56
REBBENA RANGE								
Abbapur	196.27	822.90	258.76	193.19	263.26	1,756.22	-5.53	0.00
Ameenguda	491.38	729.26	177.61	53.20	30.13	1,481.59	0.00	0.00
Dharmaram	0.00	131.06	890.41	405.14	1,450.29	2,879.30	-66.27	0.00
Edulawada	980.83	682.93	106.67	51.04	69.32	1,890.78	-1.14	1.14
Rebbena	20.27	579.02	257.94	307.71	268.83	1,437.76	5.86	6.13
Takkallapally	122.02	625.04	271.93	112.42	207.48	1,343.82	-3.55	19.34
TOTAL	1,810.78	3,570.21	1,963.32	1,122.69	2,289.30	10,789.48	-70.63	26.61
TIRYANI Range								
Bhimrelly	305.55	1,944.13	549.69	84.47	42.15	2,927.62	0.00	0.00
Chintalamadira	188.65	1,504.89	255.01	8.28	7.08	1,963.91	0.00	0.00
Devaiguda	571.25	1,749.52	236.83	56.34	210.95	2,824.89	-10.63	5.61
Ginnedhari	225.45	1,623.67	437.67	46.72	23.89	2,357.40	0.00	0.00
Gopera	300.54	2,707.03	213.01	258.88	69.39	3,554.69	0.00	0.00
Goyena	520.40	4,790.86	404.56	443.42	87.24	6,246.49	0.00	0.00
Gudipet	123.33	1,223.06	756.04	142.07	119.54	2,380.25	0.00	0.00
Gundal[East]	507.76	1,703.18	163.96	13.56	13.17	2,406.88	0.00	0.00
Gundal[West]	378.26	2,133.45	133.97	23.56	11.62	2,680.87	0.00	0.00
Irkepally	174.33	1,820.68	467.61	93.76	40.95	2,597.34	0.00	0.00
Kannepally	530.76	2,216.24	304.87	61.95	46.16	3,159.98	0.00	0.00
Mangi	373.70	2,455.60	88.68	46.70	24.48	2,989.16	-3.64	36.38
Meddi	568.40	553.25	62.48	65.21	127.35	1,395.89	-31.17	0.00
TOTAL	4,768.39	26,425.58	4,074.39	1,344.93	823.98	37,485.36	-45.44	41.99
Grand Total	17,281.98	86,733.29	24,200.23	10,747.99	12,927.75	152,479.12	-283.17	73.93

* Beat wise total area including Water bodies.

Satellite Imageries



2008



2009

Longitude	79.57285
Latitude	18.98779
Area	54.30 Ha
Change	DF TO NF
Compartment No	356
Beat	Narwaipet
Range	Bellampally
Division	Bellampally



Chapter-IV

4.3 JANNARAM DIVISION

4.3.1 Introduction:

Jannaram Forest Division lies in the Adilabad District, between latitudes 18° 55' 21" and 19° 21' 5" N and longitudes 78° 45' 10" and 79° 14' 5" E. The Geographical Area of the Division is 925.27Km², which is 5.7 % of the total area of the District. The Northwest corner of this Division is the Birsaipet plateau is 396m above mean seal level. This plateau is all undulatory and drains from either side, into Peddavagu, which runs across the plateau from North-East to South-West.

Land use pattern of the Division is given in Table 4.3.1

The temperature varies from 15°C to 45°C. Average annual Rainfall of the division is 750mm received mainly from south-west monsoons.

In Kawal Wildlife Sanctuary about 30 seasonal streams are identified. The area serves as a catchment for many streams, which drain into Kaddam reservoir and Godavari River. There are a large number of small, medium and big tanks scattered through out the division inside and out side the Reserve Forest.

Red soils are extensive, followed by Black soils. Alluvial and laterite soils are found occasionally to a small extent.

The total population of the Division is 0.10million (2011 Census). The Per capita forest area is 0.64ha. The population density is 108 persons per Km².

Table 4.3.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	925.27	
Forest including Scrub	631.29	68.23
Agriculture	236.33	25.54
Land with Scrub	9.53	1.03
Fallow Lands	3.91	0.42
Grasslands	0	0.00
Settlements	13.03	1.41
Vegetation outside Forest	13.9	1.50
Water body	17.28	1.87

4.3.2 Recorded Forest Area:

The total notified forest area of the Division is **617.94 Km²**, which is 66.78 % of the total geographical area. Reserved and Protected Forests Constitute 80.82 Km² (13.2 %) and 537.12 Km² (86.8 %) of the total forest area respectively. (Source: Facts & Figures from APFD website).

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous & Bamboo Mixed Forests (Dry Teak bearing Forests, Dry Mixed Forests).

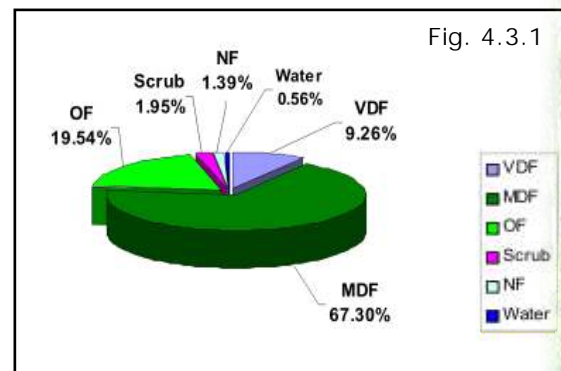
4.3.3 Protected Area:

The Division is one of the two constituent Divisions of Kawal Wildlife Sanctuary. The total notified forest area of the Division is included in Kawal WLS.

4.3.4 Community Forest Management: There are 75 Vana Samrakshana Samities (VSSs) in the Division. An area of 122.02 Km² forests, which is 19.74 % of of the notified forests, is under the management of the VSSs.

4.3.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Dec2009), is **618.55**



Km², which is 66.85 % of the total Geographical area. In terms of the forest canopy density classes, the Division has 59.60 Km² of Very Dense Forests, 433.17 Km² of Moderately Dense Forests, and 125.78 Km² of Open Forests. The area of the Scrub is 12.58 Km², Non-Forest 8.97 Km² and Water Bodies 3.63 Km². The distribution of the forest cover of the division is shown in Fig 4.3.1

4.3.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.3.2, Fig 4.3.3 and the changes during this period have shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Dec 2009) with that of previous assessment year (Satellite data of Dec 2008), shows a negative change in forest cover of 37.94 Ha and positive change of 11.83 Ha. The forest cover change matrix, given in Table 4.3.2 reveals that there has been a decrease of 9 Ha of moderately dense forest and 11 Ha of open forest.

The positive change is on account of natural growth of forest. The negative change on account of encroachments alone is considered as loss of Forest Cover. Therefore, the net loss of Forest Cover in this Division is 37.94 Ha.

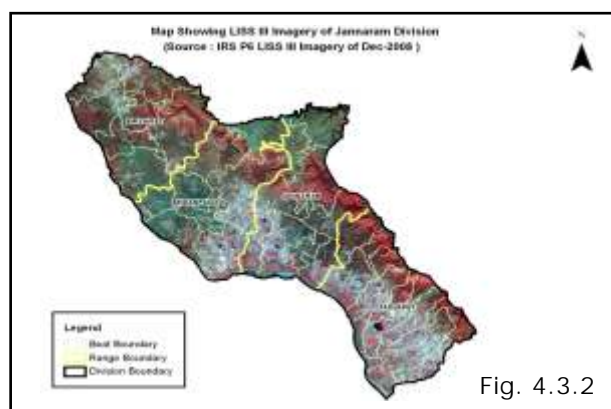


Fig. 4.3.2

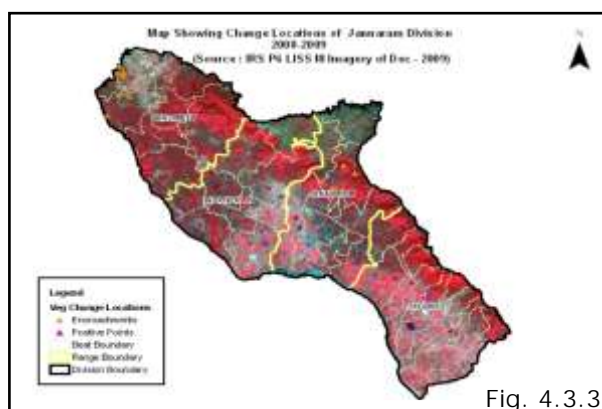


Fig. 4.3.3

The simplified forest cover change matrix is given in Table 4.3.3 and Table 4.3.4

There are 34 beats in the division. Negative change in forest cover is noticed in 3 beats, positive change in forest cover is noticed in 1 beat. There is no change in the remaining 30 beats.

Details of Forest Cover changes in the 4 Beats where Forest Cover is changed, is shown in Table 4.3.5.

Table 4.3.2: Forest Cover change matrix

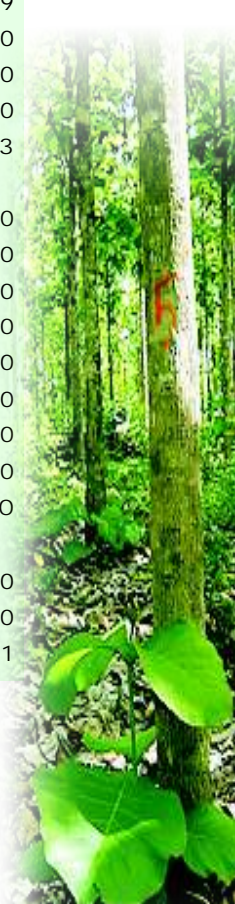
(Area in Km²)

2008 (Data of Dec. 2008)	2009 (Data of Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	59.60	0.00	0.00	0.00	0.00	0.00	59.60
Moderately Dense Forest	0.00	433.17	0.00	0.04	0.05	0.00	433.26
Open Forest	0.00	0.00	125.66	0.06	0.17	0.00	125.89
Scrub	0.00	0.00	0.00	12.48	0.06	0.00	12.54
Non-Forest	0.00	0.00	0.12	0.00	8.69	0.00	8.81
Water	0.00	0.00	0.00	0.00	0.00	3.63	3.63
Total of 2009	59.60	433.17	125.78	12.58	8.97	3.63	643.73
Net Change	0.00	-0.09	-0.11	0.04	0.16	0.00	0.00

2008 (Data of Dec. 2008)	2009 (Data of Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	618.43	0.32	0.00	618.75
Degraded Forest	0.12	21.23	0.00	21.35
Water	0.00	0.00	3.63	3.63
Total of 2009	618.55	21.55	3.63	643.73
Net Change	-0.20	0.20	0.00	

2008 (Data of Dec 2008)	2009 (Data of Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	631.01	0.28	0.00	631.29
Barren	0.12	8.69	0.00	8.81
Water	0.00	0.00	3.63	3.63
Total of 2009	631.13	8.97	3.63	643.73
Net Change	-0.16	0.16	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
BIRSAI PET Range								
Birsaipet-e	53.23	1526.74	113.07	4.00	4.66	1701.70	0.00	0.00
Birsaipet-w	45.49	2206.97	354.54	22.26	14.84	2654.86	-2.74	2.74
Dantanpalli-e	167.50	2048.72	564.50	52.21	44.73	2884.91	0.00	0.00
Dantanpalli-w	89.80	1323.61	726.73	84.12	89.80	2314.06	-17.09	17.09
Gandigopalpur	617.45	3927.00	828.59	59.21	84.64	5517.79	0.00	0.00
Maisampet	120.61	2407.43	1116.37	46.09	23.14	3717.73	0.00	0.00
Rampur	13.10	1905.33	336.74	11.32	1.00	2267.49	0.00	0.00
Total	1107.18	15345.80	4040.55	279.21	262.81	21058.54	-19.83	19.83
INDANPALLI Range								
Dosthnagar	0.00	984.10	464.55	25.30	25.42	1499.37	0.00	0.00
Indanpalli	50.59	864.83	730.61	65.32	30.55	1766.88	0.00	0.00
Islampur	246.67	2450.41	504.84	47.50	42.36	3298.83	0.00	0.00
Kalamadugu	24.50	395.77	354.26	130.31	136.30	1108.89	0.00	0.00
Kalleda	129.92	1607.75	622.65	45.52	38.06	2464.13	0.00	0.00
Kawal	368.63	2472.44	662.04	68.41	49.68	3673.28	0.00	0.00
Kothapalli	196.68	972.03	727.71	75.11	17.08	1988.61	0.00	0.00
Narlapur	1.73	1390.70	568.28	33.88	15.48	2017.78	0.00	0.00
Total	1018.72	11138.03	4634.94	491.36	354.94	17817.76	0.00	0.00
JANNARAM Range								
Alinagar	171.15	2116.35	229.88	4.76	4.56	2531.50	0.00	0.00
Chintaguda	37.62	756.88	358.23	19.83	6.43	1187.46	0.00	0.00
Dongapalli	604.42	2521.39	210.87	29.82	50.25	3416.76	-18.11	18.11

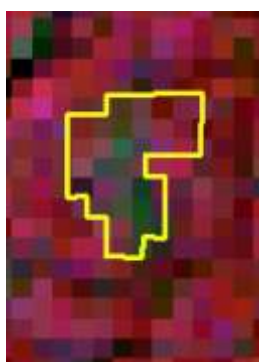


Andhra Pradesh State of Forests - 2011

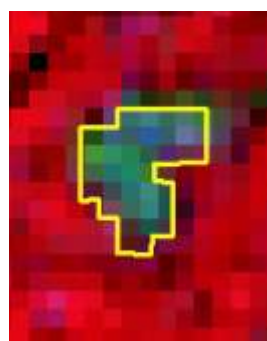
Jamuldhara	153.42	1560.85	504.14	78.01	25.89	2322.31	0.00	0.00
Jannaram	0.00	588.64	500.83	78.21	32.24	1250.95	0.00	0.00
Kistapur	89.79	1247.23	421.16	45.86	56.75	1863.60	0.00	0.00
Mamidipalli	85.30	917.54	508.58	65.40	32.24	1609.06	0.00	0.00
Paidipalli	24.96	728.84	252.87	30.12	11.35	1067.77	0.00	0.00
Total	1166.66	10437.72	2986.55	352.01	219.71	15249.41	-18.11	18.11
TADLAPET Range								
Chintapalli	522.62	400.86	57.59	2.70	0.00	983.77	0.00	0.00
Dammannapet	369.21	289.70	24.94	0.00	0.96	684.81	0.00	0.00
Lingapur	400.17	335.76	67.42	31.60	15.50	850.44	11.83	0.00
Makulpet	367.33	314.97	16.58	0.00	0.00	698.88	0.00	0.00
Mallial	86.35	1949.35	340.53	26.19	7.86	2435.50	0.00	0.00
Mohammadabad	5.14	622.29	284.10	47.29	22.39	1021.18	0.00	0.00
Patha mamidipalli	167.44	360.69	26.34	12.81	9.82	577.10	0.00	0.00
Ralli	111.55	196.82	11.38	2.45	0.89	323.10	0.00	0.00
Singaraipet	195.82	792.36	46.79	5.94	1.85	1051.47	0.00	0.00
Tadlapet	350.11	679.43	28.44	1.80	0.00	1059.78	0.00	0.00
Tanimadugu	91.23	454.18	10.97	4.70	0.37	561.45	0.00	0.00
Total	2666.98	6396.42	915.08	135.50	59.64	10247.50	11.83	0.00
Division Total	5959.54	43317.97	12577.11	1258.07	897.10	64373.22	-26.11	37.94

* Beat wise total area including water bodies.

Satellite Imageries



2008



2009

Longitude	79.05463
Latitude	19.19998
Area	2.00 Ha
Change	DF TO NF
Compartment No	296
Beat	Dongapally
Range	Jannaram
Division	Jannaram



Chapter-IV

4.4 KAGAZ NAGAR DIVISION

4.4.1 Introduction:

Kagaz nagar Forest Division lies in the North Eastern side Adilabad District, between latitudes 19° 11' 51" and 19° 36' 20"N and longitudes 79° 22' 28" and 79° 58' 21" E. The Geographical Area of the Division is 1645.83 Km², which constitutes 10.20% of the total area of the District. The important rivers and streams of the division are Wardha, Pranahitha and Peddavagu which finally joins Godavari.

Land use pattern of the Division is given in Table 4.4.1

The climate of the Division is generally dry and hot. The temperature varies from 6°C to 48°C. The normal Annual rainfall of the division is 904mm, received mainly from south-west monsoons.

The rock formations in the division are Achaeen Granites and Genesis, the Deccan trap and the Gondwana sand stones, soils formed from these rocks supports good Teak forests. Soil types are Black cotton soils, Cahlka and Red loams, Sandy loams, Saline and Alkaline soils.

The total population of the Division is 0.25 million (2011 Census). The Per capita forest area is 0.37 ha. The population density is 146 persons per Km².

4.4.2 Recorded Forest Area:

The total notified forest area of the Division is 858.81 Km², which is 52.18 % of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 650.62 Km² (75.74 %), 206.58 Km² (24 %) and 1.61 Km² (0.18 %) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous & Bamboo Mixed Forests.

4.4.3 Protected Area:

There is no Protected Area in the Division.

4.4.4 Community Forest Management:

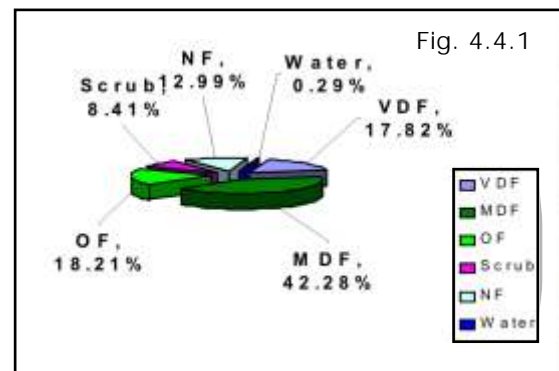
There are 113 Vana Samrakshana Samities (VSSs) in the Division. An area of 148.42 Km² forests which is 17.27% of the notified forests, is under the management of the VSSs.

4.4.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Oct/Dec 2009), is 699.56 Km², which is 42.50 % of the total Geographical area. In terms of the forest canopy density classes, the Division has 159.17 Km² of Very Dense Forests, 377.70 Km² of Moderately Dense Forests and 162.69 Km² of Open Forests. The area of the Scrub is 75.11 Km², Non-Forests 116.03 Km² and Water Bodies 2.59 Km². The distribution of the forest cover of the division is shown in Fig. 4.1

Table 4.4.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	1645.83	
Forest including Scrub	777.61	47.25
Agriculture	706.05	42.90
Land with Scrub	73.15	4.44
Fallow Lands	11.61	0.71
Grasslands	0.00	0.00
Settlements	8.51	0.52
Vegetation outside Forest	34.68	2.10
Water body	34.22	2.08



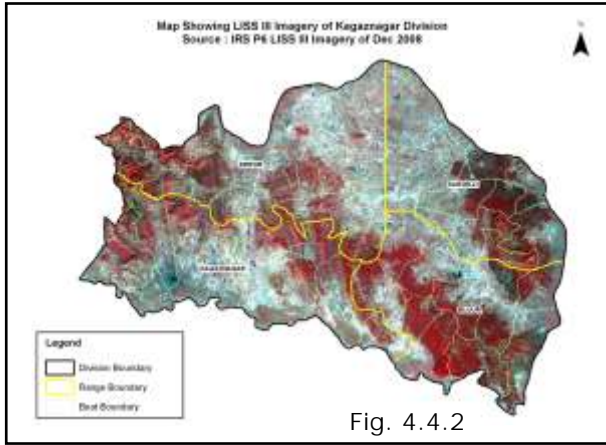


Fig. 4.4.2

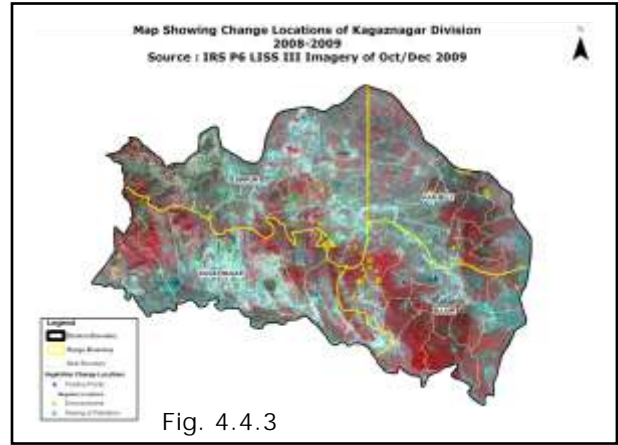


Fig. 4.4.3

4.4.6 Change in Forest Cover :-

The Satellite images of 2008 and 2009 are shown in Fig (4.4.2 & 4.4.3) and the changes during this period is shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct/Dec 2009) with that of previous assessment year (Satellite data of Dec 2008), shows a positive change of 1.88 Ha and negative change of 229.68 Ha. The forest cover change matrix, given in Table 4.4.2 reveals that there has been a decrease of 99Ha of moderately dense forest and 105 Ha of open forest.

The positive change is on account of raising or growth in raised plantations. Of the total negative change 74.54 Ha on account of Raising of Plantations and 155.14 Ha on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 155.14 Ha only.

The simplified forest cover change matrix is given in Table 4.4.3 and Table 4.4.4.

There are 39 Beats in the Division. Negative change in Forest Cover is noticed in only **19 Beats**, and positive change in 1 Beat. There is no change in remaining 19 Beats.

Details of forest cover changes in the 20 Beats where forest cover is changed is shown in Table 4.4.5

Table 4.4.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Oct/ Dec 2008)	2009 (Data of Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	159.17	0.00	0.00	0.00	0.00	0.00	159.17
Moderately Dense Forest	0.00	377.68	0.00	0.30	0.71	0.00	378.69
Open Forest	0.00	0.00	162.69	0.08	0.97	0.00	163.74
Scrub	0.00	0.00	0.00	74.73	0.23	0.00	74.96
Non-Forest	0.00	0.02	0.00	0.00	114.12	0.00	114.14
Water	0.00	0.00	0.00	0.00	0.00	2.59	2.59
Total of 2009	159.17	377.70	162.69	75.11	116.03	2.59	893.29
Net Change	0.00	-0.99	-1.05	0.15	1.89	0.00	

2008 (Data of Oct/ Dec 2008)	2009 (Data of Dec. 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	699.54	2.06	0.00	701.60
Degraded Forest	0.02	189.08	0.00	189.10
Water	0.00	0.00	2.59	2.59
Total of 2009	699.56	191.14	2.59	893.29
Net Change	-2.04	2.04	0.00	0

2008 (Data of Oct/ Dec 2008)	2009 (Data of Dec. 2009)			Total of 2008
	Green	Barren	Water	
Green	774.65	1.91	0.00	776.56
Barren	0.02	114.12	0.00	114.14
Water	0.00	0.00	2.59	2.59
Total of 2009	774.67	116.03	2.59	893.29
Net Change	-1.89	1.89	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
BIJJUR Range								
Bijjur	500.21	1,443.17	293.53	103.09	427.57	2,767.57	0.00	0.00
Ellur	1,295.97	918.24	148.98	13.84	13.46	2,390.49	0.00	0.00
Gundepally	902.80	1,432.57	604.44	171.51	49.23	3,183.73	0.00	0.00
Indergaon	40.27	638.18	452.48	205.38	63.73	1,400.03	0.00	0.00
Kondapally	383.20	1,027.04	453.63	172.75	668.01	2,712.25	-14.31	14.31
Kuntalamanepally	353.25	929.76	96.05	90.50	519.81	1,994.69	-8.84	8.84
Lodpally	523.26	985.54	219.82	47.05	42.24	1,817.91	0.00	0.00
Mogelly	0.00	618.54	545.83	526.81	85.17	1,785.50	-4.58	4.58
Murliguda	0.00	568.49	1,250.41	1,010.49	167.39	3,010.97	0.00	0.00
Papanpet	300.14	1,052.85	385.33	257.25	129.56	2,139.91	0.00	0.00
Sulgupally	282.41	1,183.69	104.42	82.61	508.45	2,182.94	0.00	0.00
Total	4,581.52	10,798.07	4,554.93	2,681.28	2,674.62	25,386.00	-27.73	27.73
KAGAZNAGAR Range								
Bombaiguda	20.13	430.36	287.98	189.95	428.47	1,363.44	0.00	0.00
Chedwai	706.40	1,208.64	623.33	256.26	378.00	3,185.96	0.00	0.00
Kadamba	1,104.87	1,460.16	399.42	76.93	192.14	3,233.52	8.06	6.30
Kag-Ankoda	763.51	756.75	160.19	30.69	122.26	1,833.40	0.00	2.15
Korsini	929.39	1,302.21	311.46	134.36	240.97	2,925.82	0.00	22.10
Kothapet	1,226.97	1,449.64	497.04	196.50	420.27	3,805.64	3.46	3.46
Raspalli	102.51	403.58	466.66	103.88	678.12	1,790.08	0.00	0.00
Vempalli	1,145.26	1,285.83	535.24	136.47	187.52	3,292.77	20.05	0.00
Total	5,999.05	8,297.17	3,281.32	1,125.03	2,647.75	21,430.64	-31.57	34.01
KARJELLI Range								
Dimda	78.94	651.43	207.43	363.23	393.98	1,725.49	-13.35	13.35
Gudem	176.43	1,032.89	966.19	840.02	362.27	3,377.81	0.00	0.00
Gudlabori	0.50	109.40	366.90	113.72	355.88	946.41	0.00	0.00
Kar-Ankoda	61.77	316.24	437.08	86.93	313.52	1,215.54	2.15	

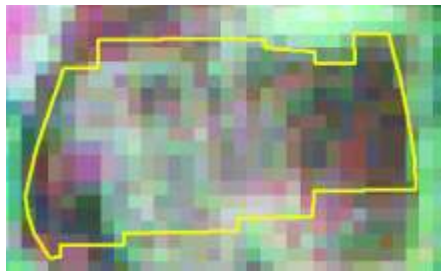


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Karjelly	514.13	1,041.99	139.14	53.95	317.97	2,067.18	-12.78	12.78
Katepally	236.95	1,039.42	327.16	71.18	218.75	1,893.46	- 3.70	3.70
Keethani	482.52	1,013.76	24.93	9.14	.50	1,582.37	0.00	0.00
Korsana	439.51	1,145.44	147.15	23.79	101.24	1,859.55	-20.22	0.00
Kukuda	131.00	1,048.17	374.35	114.53	82.53	1,765.45	- 5.05	5.05
Total	2,121.76	7,398.74	2,990.33	1,676.49	2,197.64	16,433.25	- 57.25	34.88
SIRPUR Range								
Bhupal_Patnam	167.37	735.83	443.38	159.92	86.79	1,593.30	0.00	0.00
Cheelapally	660.92	2,791.59	693.22	128.65	278.52	4,554.76	-10.90	1.89
Chintakunta	167.65	960.70	453.55	109.67	275.05	1,966.62	-19.24	19.24
Dabba	33.63	358.45	285.68	214.95	568.29	1,465.08	-23.45	23.45
Kanki	8.32	434.23	448.49	307.59	693.71	1,895.92	- 6.33	6.33
Loanvelly	25.21	423.12	405.75	244.17	499.67	1,597.91	0.00	0.00
Makodi	677.12	1,570.78	614.41	194.92	510.85	3,568.09	- 9.62	0.00
Malini	943.41	1,727.80	276.99	49.28	42.19	3,039.66	0.00	0.00
Muthampet	70.80	857.73	900.00	276.43	512.39	2,626.98	-11.21	0.00
Rebbena	449.73	792.23	238.84	117.85	264.33	1,872.04	- 7.61	7.61
Sirpur	10.02	622.91	682.17	225.14	351.96	1,898.47	- 22.89	0.00
Total	3,214.18	11,275.36	5,442.49	2,028.56	4,083.75	26,078.82	-111.25	58.52
Grand Total	15,916.50	37,769.34	16,269.06	7,511.36	11,603.76	89,328.71	- 227.80	155.14

* Beat wise total area including Water bodies .

Satellite Imageries



2008



2009

Longitude	79.51839
Latitude	19.38456
Area	20.05Ha
Change	OF TO NF
Compartment No	88
Beat	Vempalli
Range	Kagaznagar
Division	Kagaznagar



Chapter-IV

4.5 MANCHERIAL DIVISION

4.5.1 Introduction:

Mancherial Forest Division lies in the South-East Part of Adilabad District, between latitudes 18° 40' 10" and 19° 8' 42" N and longitudes 79° 10' 15" and 79° 57' 53" E. The Geographical Area of the Division is 2328.55 Km², which constitutes 14.4% of the total area of the District. The elevation of hill ranges varies from 135m – 540m from MSL. The highest point in the Division is 556m from MSL. Godavari and Pranahitha are the major rivers of the division. Pranahitha forms eastern boundary and Godavari forms southern boundary of the division.

Land use pattern of the Division is given in Table 4.5.1

The temperature varies from 9°C to 48°C. The average annual rainfall of the division is 1100mm received mainly from south-west monsoon.

The soils of Mancherial Division ranges from Black cotton, Chalka sandy loam, Red loams to Saline and Alkaline soils. The Black cotton, Chalka and Red loamy soils are found throughout the division and the sandy loams are found mostly in the middle portion of the division. Coal is found in the Barakar sand stone of Gondwanas and the Limestone deposits are found in Rally block well situated for cement manufacture.

The total population of the Division is 0.56 million (2011 Census). The Per capita forest area is 0.20 ha. The population density is 240 persons per Km².

4.5.2 Recorded Forest Area:

The total notified forest area of the Division is 1205.83 Km², which is 51.85 % of the total geographical area. Reserved, Protected and Un-classed Forests constitute 1180.64 Km² (97.92 %), 24.09 Km² (0.0199 %) and 1.10 Km² (0.09 %) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous & Bamboo Mixed Forests (Dry Teak bearing Forests, Dry Mixed Forests).

4.5.3 Protected Area:

The Division consists of Pranahitha Wild Life Sanctuary, with an area of 68.37 Km² which constitutes 2.9% of total geographic area of the Division. The Division also part of Shivaram Wild Life Sanctuary includes two beats of 14.23 km² area.

4.5.4 Community Forest Management:

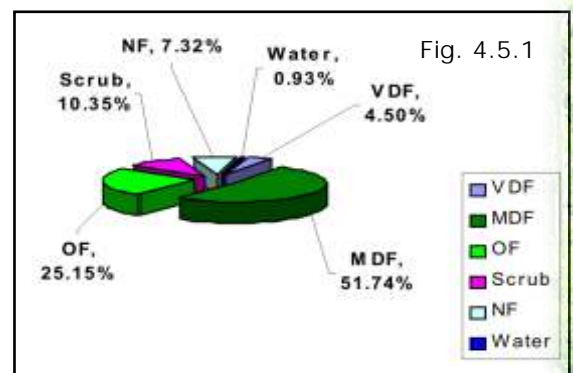
There are 113 Vana Samrakshana Samities (VSSs) in the Division. An area of 137.67 Km² forests which is 11.41 % of the notified forests, is under the management of the VSSs.

4.5.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009-Dec2009), is 907.92 Km², which is 38.99 % of the total Geographical area. In terms of the forest canopy density classes, the Division

Table 4.5.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	2328.56	
Forest including Scrub	1026.02	44.06
Agriculture	983.23	42.22
Land with Scrub	115.78	4.97
Fallow Lands	63.42	2.72
Grasslands	0.00	0.00
Settlements	13.76	0.59
Vegetation outside Forest	65.25	2.81
Water body	61.1	2.63



has 50.23 Km² of Very Dense Forests, 577.14 Km² of Moderately Dense Forests, and 280.55 Km² of Open Forests. The area of the Scrub is 115.40 Km², Non-Forest 81.04 Km² and Water Bodies 10.41 Km². The distribution of the forest cover of the division is shown in Fig 4.5.1

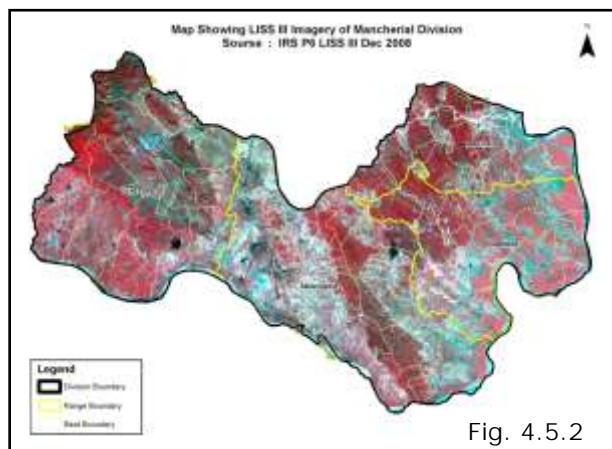


Fig. 4.5.2

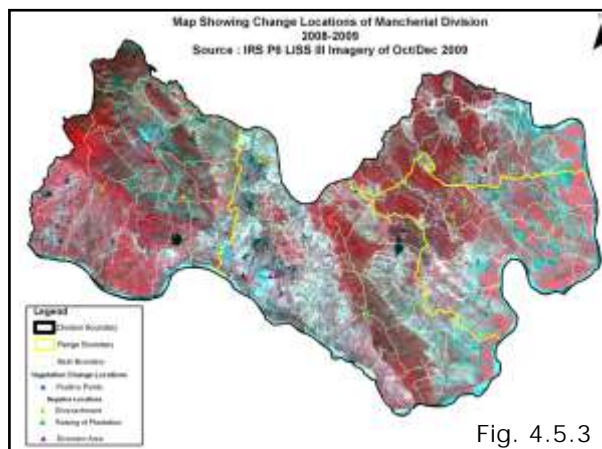


Fig. 4.5.3

4.5.6 Change in Forest Cover: - The Satellite images of 2008 and 2009 are shown in Fig (4.5.2 & 4.5.3) and the changes during this period is shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct/Dec 2009) with that of previous assessment year (Satellite data of Dec 2008), shows a positive change of 129.70 Ha and negative change of 268.68 Ha. The forest cover change matrix, given in Table 4.5.2 reveals that there has been a decrease of 97 Ha of moderately dense forest and 82 Ha of open forest

The positive change is on account of raising or growth in raised plantations. Of the total negative change 134.04 Ha on account of Raising of Plantations, 71.13 Ha on account of encroachment and 63.51 Ha of Diversion of Forest Land to the Non Forestry Purpose. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 71.13 Ha only.

The simplified forest cover change matrix is given in Table 4.5.3 and 4.5.4

There are 50 Beats in the Division. Negative change in Forest Cover is noticed in only 8 Beats, and positive change in 1 Beats. There is no change in remaining 41 Beats.

Details of forest cover changes in the 9 Beats where forest cover is changed is shown in Table 4.5.5

Table 4.5.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Dec 2008)	2009 (Data of Oct/Dec. 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	50.23	0.00	0.00	0.00	0.00	0.00	50.23
Moderately Dense Forest	0.00	577.14	0.00	0.00	0.97	0.00	578.11
Open Forest	0.00	0.00	280.26	0.08	1.03	0.00	281.37
Scrub	0.00	0.00	0.29	114.31	0.60	0.00	115.20
Non-Forest	0.00	0.00	0.00	1.01	79.04	0.00	80.05
Water	0.00	0.00	0.00	0.00	0.00	10.41	10.41
Total of 2009	50.23	577.14	280.55	115.40	81.64	10.41	1115.37
Net Change	0.00	-0.97	-0.82	0.20	1.59	0.00	

2008 (Data of Dec Dec 2008)	2009 (Data of Oct/Dec. 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	907.63	2.08	0.00	909.71
Degraded Forest	0.29	194.96	0.00	195.25
Water	0.00	0.00	10.41	10.41
Total of 2009	907.92	197.04	10.41	1115.37
Net Change	-1.79	1.79	0.00	0

2008 (Data of Dec 2008)	2009 (Data of Oct/Dec. 2009)			Total of 2008
	Green	Barren	Water	
Green	1022.31	2.60	0.00	1024.91
Barren	1.01	79.04	0.00	80.05
Water	0.00	0.00	10.41	10.41
Total of 2009	1023.32	81.64	10.41	1115.37
Net Change	-1.59	1.59	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
CHENNUR Range								
Annaram	0.00	316.82	722.19	744.31	105.46	1,888.78	0.00	0.00
Chennur	0.00	1,410.39	900.18	431.62	73.14	2,815.32	0.00	0.00
Kistampet	31.41	2,021.29	1,058.97	272.49	395.15	3,826.79	0.00	0.00
Kotapalli	4.49	1,128.39	1,304.76	313.02	299.98	3,056.58	-64.92	0.00
Lingannapet	0.00	602.75	533.64	543.66	40.18	1,734.77	0.00	0.00
Nagampet	0.00	844.37	598.04	484.71	89.44	2,016.55	0.00	0.00
Pangidismaram	0.00	1,078.67	708.43	196.16	240.47	2,227.88	0.00	0.00
Parpalli	0.00	226.17	593.64	877.11	105.01	1,803.62	0.00	0.00
Sirsa	0.00	291.55	306.80	750.96	123.22	1,483.38	0.00	0.00
Venkatapur	30.42	1,817.90	517.45	150.86	209.49	2,726.12	0.00	0.00
Total	66.32	9,738.28	7,244.09	4,764.89	1,681.52	23,579.78	-64.92	0.00
LUXETTIPET Range								
Devapur	342.28	2,827.38	923.65	197.86	72.23	4,490.05	0.00	0.00
Gadhpur	89.48	1,220.03	504.10	138.50	61.96	2,018.63	-26.16	26.16
Hanmanthpally	1,065.42	1,957.81	120.19	8.86	12.85	3,165.13	0.00	0.00
Korichelma	1,102.27	939.06	89.07	8.86	5.73	2,144.99	0.00	0.00
Medaram	247.31	1,033.17	320.97	99.33	96.27	1,802.39	0.00	0.00
Mulkalla	2.07	1,107.80	421.82	42.84	15.41	1,816.05	0.00	0.00
Muthampalli	191.08	1,642.63	652.64	105.69	99.75	2,696.53	0.00	0.00
Old Mancherial	33.12	913.94	529.05	101.37	86.66	1,681.75	0.00	0.00
Peddampet	811.68	895.29	209.45	93.45	11.62	2,021.48	-8.41	8.41
Ralli	20.05	1,997.91	733.32	79.23	52.28	2,892.16	0.00	0.00



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Sonapur	404.97	2,832.45	419.43	88.96	96.88	3,842.70	0.00	0.00
Tikannapalli	115.77	2,705.79	1,142.87	152.57	96.96	4,236.03	0.00	0.00
Venkatapur	259.44	1,191.04	256.65	40.37	36.06	1,784.91	0.00	0.00
Total	4,684.93	21,264.29	6,323.22	1,157.90	744.66	34,592.81	-34.57	34.57
MANCHERIAL Range								
Arapelli	0.00	1,035.72	652.15	133.80	160.79	1,983.59	0.00	0.00
Asnad	1.68	1,908.03	588.98	118.07	365.44	2,985.78	0.00	0.00
Audam	20.57	839.61	293.38	64.33	47.02	1,267.77	0.00	0.00
Bhimaram	5.25	757.37	601.25	193.23	441.01	2,062.80	0.00	0.00
Burugupalli	20.80	1,181.24	569.88	115.97	172.32	2,185.20	0.00	0.00
Dampur	0.00	1,494.76	309.22	23.44	22.16	1,849.58	0.00	0.00
Gudipally	12.44	1,074.12	440.41	109.65	157.89	1,798.89	0.00	0.00
Indaram	0.00	441.30	781.25	503.89	508.29	2,234.89	93.90	0.00
Jaipur	5.23	568.43	313.81	124.04	147.76	1,166.34	0.00	0.00
Kundaram	2.42	1,298.98	582.96	22.07	134.51	2,040.94	-29.86	0.00
Mancherial	0.00	658.57	569.76	206.28	601.29	2,044.49	-56.51	0.00
Mandamarri	7.54	196.76	372.54	209.44	310.97	1,125.88	19.09	9.71
Pegadapally	1.07	896.00	537.73	163.00	196.20	1,798.76	0.00	0.00
Pownur	6.14	1,215.42	381.28	49.88	42.83	1,698.31	0.00	0.00
Sarangapalli	0.00	579.96	818.60	326.27	663.50	2,407.04	-26.85	26.85
Somanpally	0.00	383.28	477.44	464.80	184.47	1,518.14	0.00	0.00
Total	83.15	14,529.55	8,290.65	2,828.17	4,156.45	30,168.40	-0.23	36.56
NEELWAI Range								
Bopparam	0.00	915.51	347.46	262.71	37.62	1,563.30	0.00	0.00
Katepally	166.63	1,085.16	276.54	70.87	78.48	1,728.55	0.00	0.00
Kharji	2.58	1,209.15	228.62	28.34	98.10	1,696.00	0.00	0.00
Kothur	8.07	1,387.64	715.46	204.55	233.40	2,550.11	0.00	0.00
Mailaram	3.83	1,327.02	778.79	164.47	179.49	2,463.33	0.00	0.00
Mallampet	1.24	1,653.35	518.66	84.49	48.65	2,312.34	0.00	0.00
Nakkalpally	0.00	1,186.68	319.38	47.32	38.51	1,603.40	0.00	0.00
Neelwai	0.00	524.01	774.38	236.03	161.53	1,719.18	0.00	0.00
Sawanpally	6.20	1,110.46	437.71	119.35	208.85	1,963.42	0.00	0.00
Shankarapur	0.00	1,303.79	962.66	249.21	177.99	2,700.45	-39.26	0.00
Yenchapalli	0.00	478.34	836.48	1,322.67	318.89	2,980.28	0.00	0.00
Total	188.54	12,181.10	6,196.14	2,790.01	1,581.51	23,195.66	-39.26	0.00
Grand Total	5,022.94	57,713.23	28,054.10	11,540.96	8,164.13	111,536.66	-138.98	71.13

* Beat wise total area including Water bodies.

Satellite Imageries



2008



2009

Longitude	79.76332
Latitude	18.91123
Area	21.26 Ha
Change	DF TO NF
Compartment No	272
Beat	Kothapally
Range	Mancherial
Division	Mancherial



Chapter-IV

4.6 NIRMAL DIVISION

4.6.1 Introduction:

Nirmal Forest Division lies in the South-West Part of Adilabad District, between latitudes 18° 50' 39" and 19° 20' 31"N and longitudes 77° 45' 45" and 78° 56' 34" E. The Geographical Area of the Division is 3525.62 Km², which constitutes 21.8% of the total area of the District. Godavari is the major river forms southern boundary of the Division. Siddha and Kaddam rivers are tributaries of Godavari which flows through the Division.

Land use pattern of the Division is given in Table 4.6.1

The temperature varies from 16°C to 46°C. The normal Annual rainfall of the division is 800mm received mainly from south-west monsoons.

Black cotton soils, Cahlka and Red soils, Sandy loams, Saline and Alkaline soils are found in this Division. The division has reserves of iron ore, lime stone and clays.

The total population of the Division is 0.68 million (2011 Census). The Per capita forest area is 0.15 ha. The population density is 193 persons per Km².

Table 4.6.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	3525.63	
Forest including Scrub	927.25	26.30
Agriculture	1951.56	55.35
Land with Scrub	81.76	2.32
Fallow Lands	75.74	2.15
Grasslands	0.46	0.01
Settlements	32.49	0.92
Vegetation outside Forest	144.85	4.11
Water body	311.52	8.84

4.6.2 Recorded Forest Area:

The total notified forest area of the Division is 1178.4 Km², which is 33.42 % of the total geographical area. Reserved, Protected and Unclassed Forests Constitute 354.57 Km² (30%), 743.17 Km² (63%) and 80.66 Km² (7%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous & Bamboo Mixed Forests (Dry Teak bearing Forests, Dry Mixed Forests).

4.6.3 Protected Area:

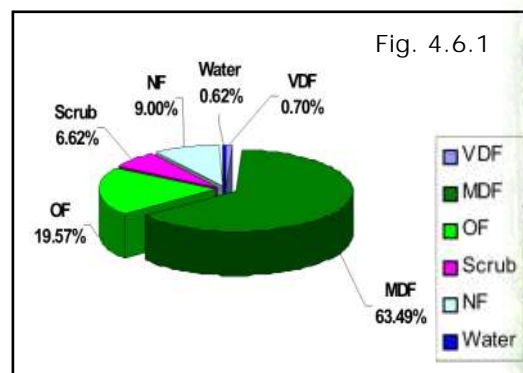
The Division is one of the two constituent Divisions of Kawal Wildlife Sanctuary. The total notified forest area of the Division is included in Kawal WLS. 407.2 km² of geographical area is included in Kawal WLS.

4.6.4 Community Forest Management:

There are 205 Vana Samrakshana Samities (VSSs) in the Division. An area of 282.48 Km² forests, which is 23.97 % of the notified forests, is under the management of the VSSs.

4.6.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Nov2009-Dec2009), is 858.57 Km², which is 24.35 % of the total Geographical area. In terms of the forest canopy density classes, the Division has 7.18 Km² of Very Dense Forests, 650.77 Km² of Moderately Dense Forests, and 200.62 Km² of Open Forests.



The area of the Scrub is 67.91 Km², Non-Forest 92.31 Km² and Water Bodies 6.37 Km². The distribution of the forest cover of the Division is shown in Fig 4.6.1

4.6.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.6.2, Fig 4.6.3 and the changes during this period have shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2009 – Dec 2009) with that of previous assessment year (Satellite data of Nov 2008 - Dec 2008), shows a negative change in forest cover of 24.54 Ha and positive change is 8.21 Ha. The forest cover change matrix, given in Table 4.6.2 reveals that there has been a decrease of 3 Ha of moderately dense forest and 11 Ha of open forest.

The positive change is on account of raising or growth in raised plantations.

The negative change on account of encroachments alone is considered as loss of Forest Cover. Therefore, the net loss of Forest Cover in this Division is 24.54 Ha.

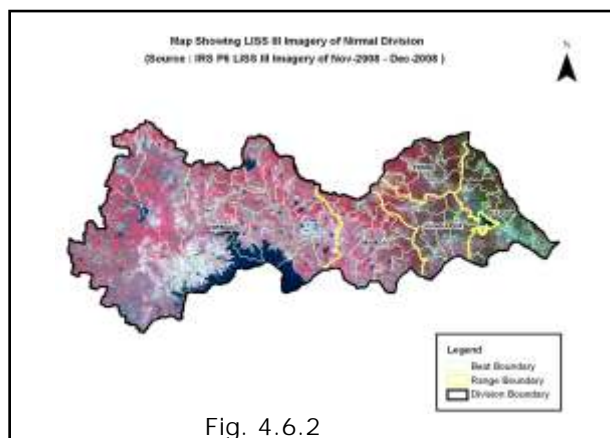


Fig. 4.6.2

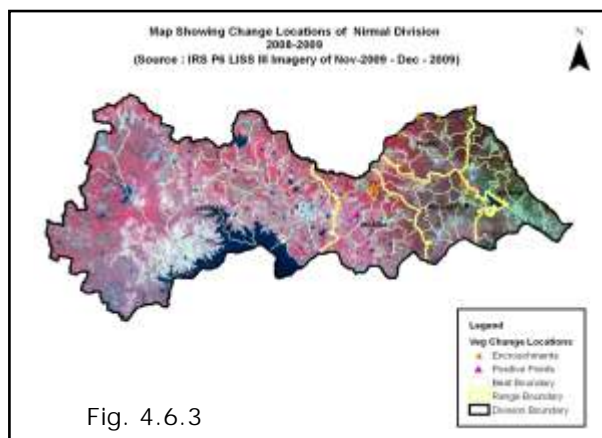


Fig. 4.6.3

The simplified forest cover change matrix is given in Table 4.6.3 and Table 4.6.4

There are 56 beats in the division. Negative change in forest cover is noticed in 7 beats, positive change in forest cover is noticed in 1 beat. There is no change in the remaining 48 beats.

Details of Forest Cover changes in the 6 Beats where Forest Cover is changed, is shown in Table 4.6.5.

Table 4.6.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Nov 2008 – Dec 2008)	2009 (Data of Nov 2009 – Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	7.18	0.00	0.00	0.00	0.00	0.00	7.18
Moderately Dense Forest	0.00	650.77	0.00	0.00	0.03	0.00	650.80
Open Forest	0.00	0.00	200.54	0.03	0.16	0.00	200.73
Scrub	0.00	0.00	0.03	67.88	0.02	0.00	67.93
Non-Forest	0.00	0.00	0.05	0.00	92.10	0.00	92.15
Water	0.00	0.00	0.00	0.00	0.00	6.37	6.37
Total of 2009	7.18	650.77	200.62	67.91	92.31	6.37	1025.16
Net Change	0.00	-0.03	-0.11	-0.02	0.16	0.00	0.00

2008 (Data of Nov 2008 – Dec 2008)	2009 (Data of Nov 2009 – Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	858.49	0.22	0.00	858.71
Degraded Forest	0.08	160.00	0.00	160.08
Water	0.00	0.00	6.37	6.37
Total of 2009	858.57	160.22	6.37	1025.16
Net Change	-0.14	0.14	0.00	

2008 (Data of Nov 2008 – Dec 2008)	2009 (Data of Nov 2009 – Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	926.43	0.21	0.00	926.64
Barren	0.05	92.10	0.00	92.15
Water	0.00	0.00	6.37	6.37
Total of 2009	926.48	92.31	6.37	1025.16
Net Change	-0.16	0.16	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
KADAM Range								
Alampally_east	50.11	1871.25	252.36	47.08	188.62	2409.41	0.00	0.00
Alampally_west	5.53	1654.33	499.21	13.29	84.85	2268.84	0.00	0.00
Dasturabad	1.85	717.78	182.26	94.01	88.34	1084.24	0.00	0.00
Dattojipet	60.48	2171.59	376.05	36.16	151.23	2798.11	0.00	0.00
Dildarnagar	0.00	262.23	32.86	0.00	0.00	463.62	0.00	0.00
Gangapur	31.26	1317.66	1111.28	192.78	165.15	2823.58	0.00	0.00
Lakshmipur	80.38	2318.30	369.01	6.80	2.56	2777.05	0.00	0.00
Munial	142.88	640.13	132.33	104.75	127.07	1160.08	0.00	0.00
Pandavapur	27.05	1967.67	412.61	108.90	104.98	2640.49	0.00	0.00
Peddur	117.25	1347.25	287.87	45.06	35.63	1886.04	0.00	0.00
Total	516.79	14268.18	3655.83	648.84	948.43	20311.48	0.00	0.00
KHANAPUR Range								
Beernandi	11.88	1255.67	209.69	92.93	157.40	1805.98	-1.34	1.34
Iqbalpur	0.35	1020.90	14.59	0.65	29.71	1066.20	0.00	0.00
Khanapur	1.95	1330.14	256.32	14.13	15.99	1618.54	0.00	0.00
Mandapally	1.96	1426.55	211.50	9.98	35.60	1685.58	0.00	0.00
Maskapur	0.00	693.53	183.72	4.60	11.02	892.87	0.00	0.00
Muthyampet	7.25	1116.33	226.72	38.05	71.75	1461.47	0.00	0.00
Nagapur	19.32	2026.00	185.99	3.04	2.65	2240.79	0.00	0.00
Pochampally	4.97	1067.68	322.75	68.90	224.17	1688.63	0.00	0.00
Rajura	1.13	1318.11	133.47	20.22	70.81	1553.07	0.00	0.00
Sattanpally	10.07	921.35	326.50	19.58	21.26	1298.75	0.00	0.00
Singapur	12.01	1558.88	218.68	15.55	28.85	1846.44	0.00	0.00
Somwarpet	2.40	1150.91	203.03	50.40	228.81	1661.77	-5.48	5.48
Total	73.30	14886.05	2492.96	338.02	898.03	18820.10	-6.82	6.82
MAMDA Range								
Arepally	3.02	701.32	907.80	550.40	286.11	2448.65	8.21	0.00
Bandal Khanapur	2.28	1163.65	635.31	140.78	97.80	2071.96	0.00	0.00

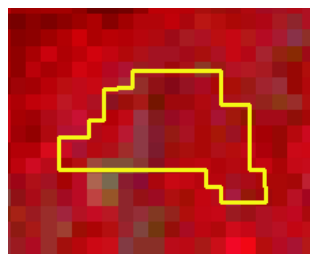


Andhra Pradesh State of Forests - 2011

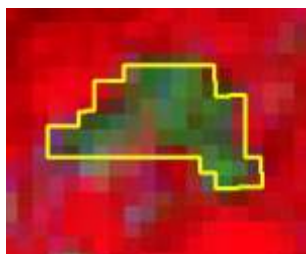
Boregaon	5.87	723.91	558.59	337.13	138.38	1763.89	0.00	0.00
Dimmadurthy	3.28	1087.90	204.73	17.47	17.60	1365.49	0.00	0.00
Gaidpally	0.00	72.50	445.76	515.92	282.63	1316.80	-10.17	10.17
Kappanpally	2.46	1550.23	73.10	6.70	39.89	1692.96	0.00	0.00
Mamda	2.92	1011.21	221.03	27.58	29.49	1292.23	0.00	0.00
Medpally	0.00	1497.85	199.99	109.07	152.88	1962.88	0.00	0.00
Naldurthy	9.23	1726.61	520.86	73.47	43.31	2389.44	0.00	0.00
Ranapur	0.00	814.74	172.66	74.39	62.42	1136.12	0.00	0.00
Total	29.06	10349.91	3939.84	1852.91	1150.51	17440.42	-1.96	10.17
NI RMAL Range								
Bamini	0.00	300.10	248.68	93.75	134.72	798.02	0.00	0.00
Chincholi	0.00	818.35	209.69	92.97	50.45	1177.24	0.00	0.00
Dhani	0.00	1148.34	266.52	158.32	85.14	1669.72	0.00	0.00
Dilawarpur	0.00	55.64	232.39	173.72	132.05	594.47	0.00	0.00
Doderna	0.00	532.73	349.97	134.22	110.62	1127.54	0.00	0.00
Jam	0.00	1038.25	198.49	180.94	247.30	1664.97	0.00	0.00
Jewly	0.00	664.29	308.81	326.18	956.12	2255.40	0.00	0.00
Koutla	0.00	1050.98	320.21	226.38	331.41	1928.99	0.00	0.00
Kubeer	0.00	809.03	827.21	317.32	524.53	2478.09	0.00	0.00
Kuntala	0.00	928.99	501.90	357.21	411.22	2199.32	0.00	0.00
Mogli	0.00	44.33	236.47	214.32	558.44	1053.56	0.00	0.00
Narsapur	0.00	132.20	344.35	306.78	233.56	1019.35	0.00	0.00
NeelaiPET	0.00	659.29	132.61	92.83	110.64	995.37	0.00	0.00
Ola	0.00	1027.93	616.11	400.35	456.88	2501.83	0.00	0.00
Pyaramoor	0.00	193.08	274.50	271.77	212.50	964.83	0.00	0.00
Total	0.00	9403.53	5067.90	3347.05	4555.58	22428.72	0.00	0.00
PEMBI Range								
Domdhari	4.08	2736.56	693.37	34.96	179.63	3698.33	-3.74	3.74
Englapur	0.13	1380.27	478.93	54.09	163.68	2083.32	0.00	0.00
Itkial	1.24	1401.71	833.83	115.43	241.37	2593.57	0.00	0.00
Paspula	17.00	2684.73	332.49	72.06	280.93	3387.21	-1.48	1.48
Pembi	0.72	2817.23	734.83	111.95	161.15	3825.89	0.00	0.00
R.d.nala	0.00	1169.09	749.52	34.04	66.26	2018.91	-1.57	1.57
Raidhari	61.40	1498.27	289.55	127.65	308.80	2285.67	0.00	0.00
Tatiguda	11.85	1397.33	416.35	20.57	102.72	1948.81	-0.76	0.76
Yapaguda	1.96	1084.19	376.38	33.73	174.21	1673.60	0.00	0.00
Total	98.38	16169.38	4905.25	604.49	1678.75	23515.30	-7.55	7.55
Division Total	717.53	65077.05	20061.78	6791.31	9231.30	102516.02	-16.33	24.54

* Beat wise total area including water bodies.

Satellite Imageries



2008



2009

Longitude	78.49757
Latitude	19.14747
Area	3.69 Ha
Change	OF TO NF
Compartment No	934
Beat	Gaidpally
Range	Mamda
Division	Nirmal



Chapter-IV

4.7 ANANTHPUR DIVISION

4.7.1 Introduction:

Ananthpur Forest Division lies in the South Western Part of Andhra Pradesh state, between latitudes 13°40'52.32" and 15°14'0.24"N and longitudes 78°45'39.96" and 78° 28' 14.52"E. The Geographical Area of the Division and the District is 19130 Km². The Division's northern and central portions are a high plateau, generally undulating, with large granite rocks or low hill ranges rising occasionally above its surface. In the southern portion of the district the surface is more hilly, the plateau there rising 0.61 m above MSL. Six rivers flow within the district: Penna, Chithravathi, Vedavathi, Papagni, Swarnamuki, and Thadakaleru.

Land use pattern of the division is given in Table 4.7.1

The climate of this Division is generally dry with temperatures ranging from 29.1°C to 40.3°C and the annual rainfall is about 553.00 mm, receiving from Southwest monsoons (338 mm) and North East monsoon (156.0 mm). The failure of the rains in this South West monsoon period of June to September leads the District to drought by failure of crops.

The District may be divided into 3 Natural Divisions. They are 1) Northern portion of Black Cotton soils (2) Central portion mainly made up of arid region with poor Red Soils consisting (3) High Level Land connecting with Mysore plateau at higher elevation having sandy red soils of normal productivity.

The soils in Anantapur District are predominantly red soils (76%) and black soils (24%) occur in certain areas.

The total population of the Division & District is 4.00 million (2011 Census). The Per capita forest area is 0.054 ha. The population density is 209 persons per Km². The livestock population is 8.25 million.

Table 4.7.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	19130.00	
Forest including Scrub	1060.42	5.54
Agriculture	15173.67	79.32
Land with Scrub	1286.08	6.72
Fallow Lands	802.60	4.20
Grasslands	28.66	0.15
Settlements	58.89	0.31
Vegetation outside Forest	134.32	0.70
Waterbodies	585.36	3.06

4.7.2 Recorded Forest Area:

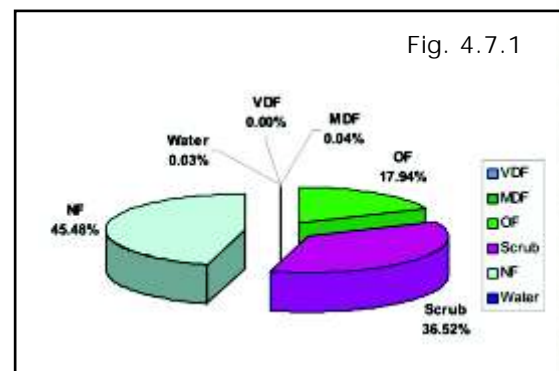
The total notified forest area of the Division is 1969.78 Km², which is 10.3% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 1921.48 Km² (77.64%), 14.73 Km² (15.55%) and 33.57 Km² (6.81%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical Moist deciduous, Tropical Semi-evergreen and Tropical Thorn Forest types.

4.7.3 Protected Area: There are no Protected Areas in the Division

4.7.4 Community Forest Management:

There are 281 VSSs in the Division covering an area of 628.35 Km² forest areas, which constitutes 32 % of forest area.



4.7.5 Forest Cover:

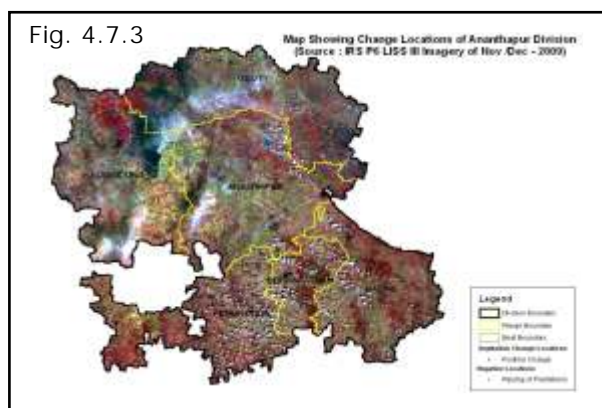
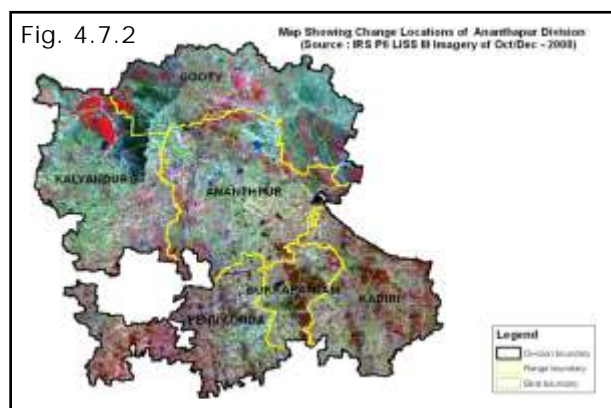
The forest cover in the Division, based on the Interpretation of IRS P6 LISS III 2009 data (Nov 2009 – Jan2010), is **349.55 Km²**, which is 1.83% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.87 Km² of Moderately Dense Forests and 348.95 Km² of Open Forests. The area of the Scrub is 710.50 Km², Non-Forest 884.78 Km² and Water Bodies 0.50Km². The distribution of the forest cover of the division is shown in Fig 4.7.1

4.7.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.7.2, Fig 4.7.3 and the changes during this period have shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2009-Jan 2010) with that of previous assessment (Satellite Imagery of Oct 2008-Mar 2009), Shows a negative change in forest cover of 28.00 Ha and positive change of 22.95 Ha. The forest cover change matrix, given in Table 4.7.2 reveals that there has been a decrease of 28 Ha of scrub.

The positive change is on account of rising of or growth in raised plantations. Of the total negative change 5.05 Ha on account of Raising of Plantations. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the no net loss of Forest cover in the division.



The simplified forest cover change matrix is given in Table 4.7.2 and Table 4.7.3

There are 72 beats in the division. Negative change in forest cover is noticed in 4 beats, positive change in forest cover is noticed in 2 beats. There is no change in remaining 66 beats.

Table 4.7.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Dec 2008)	2009 (Data of Oct – Dec. 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.0	0.00	0.00	0.00
Moderately Dense Forest	0.00	0.87	0.00	0.00	0.00	0.00	0.87
Open Forest	0.00	0.00	348.72	0.00	0.00	0.00	348.72
Scrub	0.00	0.00	0.00	710.50	0.28	0.00	710.78
Non-Forest	0.00	0.00	0.23	0.00	884.50	0.00	884.73
Water	0.00	0.00	0.00	0.00	0.00	0.50	0.50
Total of 2009	0.00	0.87	348.95	710.50	884.78	0.50	1945.60
Net Change	0.00	0.00	0.23	-0.28	0.05	0.00	

2008 (Data Dec 2008)	2009 (Data of Oct – Dec. 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	349.59	0.00	0.00	349.59
Degraded Forest	0.23	1595.28	0.00	1595.51
Water	0.00	0.00	0.50	0.50
Total of 2009	349.82	1595.28	0.50	1945.60
Net Change	0.23	-0.23	0.00	

2008 (Data of Dec 2008)	2009 (Data of Oct 2009 / Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	1060.09	0.28	0.00	1060.37
Barren	0.23	884.50	0.00	884.73
Water	0.00	0.00	0.50	0.50
Total of 2009	1060.32	884.78	0.50	1945.60
Net Change	-0.05	0.05	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
Ananthpur Range								
Bhadrapuram	0.00	0.00	0.91	671.11	1,437.99	2,110.01	0.00	0.00
Daddithota	0.00	0.92	0.47	119.75	2,358.71	2,479.85	0.00	0.00
Darsinamala	0.00	0.00	240.19	1,317.87	837.25	2,395.31	0.00	0.00
Durgam	0.00	0.00	188.53	893.98	857.15	1,939.66	0.00	0.00
Ganginenipalli	0.00	1.34	1,087.07	1,105.69	472.26	2,666.36	0.00	0.00
Kondapalli	0.00	0.00	0.00	563.93	1,270.84	1,834.77	0.00	0.00
Marutla South	0.00	0.00	0.00	86.36	2,206.24	2,293.04	0.00	0.00
Matutla North	0.00	0.00	4.98	110.94	3,060.17	3,180.34	0.00	0.00
Ramagiri East	0.00	0.00	13.86	658.07	719.98	1,391.91	0.00	0.00
Ramagiri West	0.00	0.00	0.00	382.44	421.75	804.19	0.00	0.00
Singanamala	0.00	0.00	11.72	1,199.28	3,425.98	4,637.44	0.00	0.00
Singavaram	0.00	3.58	6.76	128.06	2,127.83	2,266.23	0.00	0.00
Voddipalli	0.00	0.00	3.25	937.53	3,557.05	4,498.71	0.00	0.00
Yellutla	0.00	5.66	69.49	716.67	2,794.10	3,585.92	21.58	0.00
Total	0.00	11.50	1,627.23	8,891.68	25,547.30	36,083.74	21.58	0.00
Bukkapatnam Range								
Amagondapalem (E)	0.00	3.67	2,144.28	1,577.57	160.98	3,886.50	0.00	0.00
Amagondapalem (W)	0.00	0.00	554.25	1,910.48	1,013.61	3,478.34	0.00	0.00
Bukkapatnam	0.00	1.05	2,661.26	704.75	134.91	3,501.97	0.00	0.00
Earlampalli	0.00	0.50	777.29	697.95	133.60	1,609.34	0.00	0.00
Gangiredapalli	0.00	4.10	2,488.06	2,211.12	398.69	5,101.97	0.00	0.00
Gunipalli	0.00	0.00	510.89	1,276.32	500.46	2,287.67	0.00	0.00



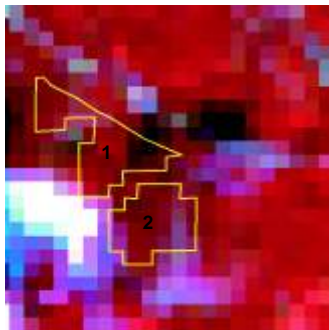
Kondakamarla	0.00	22.26	1,132.39	793.19	306.34	2,259.30	0.00	0.00
Mylsamudram	0.00	2.98	881.31	612.09	198.37	1,694.75	0.00	0.00
Nallamada	0.00	1.22	1,640.18	1,156.15	175.71	2,973.79	0.00	0.00
Narasampalli	0.00	0.99	1,005.58	914.35	79.33	2,003.78	0.00	0.00
Pamudurthi	0.00	0.00	561.54	1,977.86	1,084.44	3,625.17	1.37	0.00
Total	0.00	36.77	14,357.03	13,831.83	4,186.44	32,422.58	1.37	0.00
Gooty Range								
Anumpalli	0.00	0.00	5.88	996.05	2,641.20	3,643.73	0.00	0.00
Jakkalachruvu	0.00	0.00	17.10	388.63	2,532.58	2,939.47	0.00	0.00
Maddipalli	0.00	0.00	0.50	109.44	3,156.10	3,266.04	0.00	0.00
Mutchiukota South	0.00	0.00	9.42	197.76	2,699.29	2,906.47	0.00	0.00
Mutchukunta	0.00	0.00	1.79	162.25	2,359.04	2,523.08	0.00	0.00
Nagasamudram	0.00	0.00	31.28	595.63	2,537.37	3,170.54	0.00	0.00
Pandikunta	0.00	0.01	7.65	536.79	4,041.00	4,585.45	0.00	0.00
Rayalacheruvu	0.00	0.00	92.97	747.18	1,015.23	1,855.38	0.00	0.00
Yadiki	0.00	1.67	28.20	753.41	3,088.54	3,871.82	0.00	0.00
Yellanur	0.00	0.00	12.73	26.28	153.09	192.10	0.00	0.00
Total	0.00	1.68	207.52	4,513.42	24,223.44	28,954.08	0.00	0.00
Kadiri Range								
Chamalagondi	0.00	0.00	1,165.07	1,345.81	268.71	2,780.31	0.00	0.00
Charupalli	0.00	0.00	157.34	727.88	227.53	1,113.92	0.00	0.00
Dorigallu East	0.00	0.00	232.76	1,559.16	543.30	2,335.22	0.00	0.00
Dorigallu West	0.00	0.00	24.94	833.26	1,737.78	2,595.98	0.00	0.00
Edurudona	0.00	1.27	1,274.78	2,307.17	416.91	4,001.26	0.00	0.00
Kalasangamudram	0.00	5.26	1,179.88	821.60	412.32	2,419.06	0.00	0.00
Kokkanti	0.00	0.00	1,754.05	2,178.33	518.84	4,451.22	0.00	0.00
Kuntlapalli	0.00	11.26	2,801.61	1,715.49	185.37	4,714.72	0.00	0.00
Kurli	0.00	4.77	1,232.79	1,611.74	777.33	3,628.94	0.00	0.00
Peddannavaripalli	0.00	0.55	1,235.46	1,396.03	109.48	2,741.52	0.00	0.00
Tallakalva	0.00	0.00	538.28	1,948.92	666.71	3,154.37	0.00	0.00
Talupula	0.00	0.00	575.42	842.49	220.66	1,638.57	0.00	0.00
Tanakallu	0.00	2.11	826.10	1,330.79	367.89	2,526.89	0.00	0.00
Thummala (S)	0.00	1.00	735.04	1,104.42	450.64	2,294.08	0.00	0.00
Tummala North	0.00	2.98	694.71	1,910.33	288.80	2,896.82	-9.3	0.00
Tummalabailu	0.00	0.00	199.50	1,019.84	257.90	1,477.24	0.00	0.00
Tummalal South	0.00	0.50	1,148.27	1,756.76	399.85	3,306.22	0.00	0.00
Total	0.00	29.70	15,776.00	24,410.02	7,850.02	48,076.34	-9.30	0.00
Kalyandurg Range								
Beluguppa	0.00	0.00	13.94	326.24	849.09	1,189.99	0.00	0.00
Dharmapuri	0.00	0.00	99.95	1,113.74	1,388.07	2,601.76	0.00	0.00
Jambugumpala	0.00	0.00	141.79	1,071.48	655.24	1,869.86	0.00	0.00
Kalyandurg	0.00	0.00	37.57	994.96	2,072.82	3,105.35	0.00	0.00
Kanekal	0.00	1.97	249.43	515.78	525.63	1,292.81	0.00	0.00
Khairevu	0.00	0.00	21.18	680.78	2,641.41	3,344.04	0.00	0.00
Obulapuram	0.00	0.00	3.90	465.22	4,013.68	4,482.80	0.00	0.00
Pillalapalli	0.00	0.00	44.93	352.33	875.18	1,272.44	0.00	0.00
Rayadurg	0.00	0.00	147.42	1,018.38	2,880.08	4,045.88	0.00	0.00
Settur	0.00	0.00	2.72	346.82	1,416.13	1,765.67	0.00	0.00
Total	0.00	1.97	762.83	6,885.73	17,317.33	24,970.60	0.00	0.00

Penukonda Range								
Gundumala	0.00	0.00	533.94	1,302.40	567.23	2,406.79	-3.46	0.00
Guttur	0.00	0.00	178.69	1,437.42	1,469.24	3,085.35	0.00	0.00
Madakasira	0.00	0.00	382.95	977.87	515.74	1,876.56	0.00	0.00
Mandlapalli	0.00	0.00	27.50	979.98	861.08	1,868.56	0.00	0.00
Penukonda	0.00	0.00	215.39	2,406.41	2,016.08	4,637.88	0.00	0.00
Rallapalli	0.00	0.00	131.97	485.60	535.50	1,153.07	-9.49	0.00
Rolla	0.00	0.00	11.06	547.48	813.00	1,371.54	-5.75	0.00
Somandepalli	0.00	0.00	67.69	1,074.85	1,371.49	2,521.66	0.00	0.00
Yerrakonda North	0.00	3.99	283.79	2,093.11	895.84	3,277.62	0.00	0.00
Yerrakonda South	0.00	0.89	332.03	1,212.86	307.85	1,853.63	0.00	0.00
Total	0.00	4.88	2,165.01	12,517.98	9,353.05	24,052.66	-18.70	0.00
Division Total	0.00	86.50	34,895.62	71,050.66	88,477.58	194,560.00	-5.05	0.00

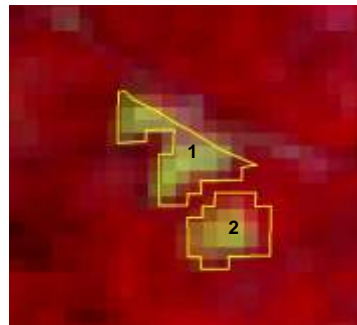
* Beat wise total area including water bodies.

Satellite Imageries

2008



2009



Longitude	77.09594
Latitude	13.87513
Area	5.75 Ha, 1.60 Ha
Change	SF to NF
Compartment No.	375
Beat	Gundumala
Range	Penukonda
Division	Ananthapur

1

Longitude	77.19474
Latitude	13.95511
Area	5.75 Ha, 1.60 Ha
Change	SF to NF
Compartment No.	375
Beat	Gundumala
Range	Penukonda
Division	Ananthapur

2





Chapter-IV

4.8 CHITTOOR WEST DIVISION

4.8.1 Introduction:

Chittoor West Forest Division lies on the Southern Part of Andhra Pradesh state, between latitudes 12° 37' 22" and 13° 59' 37.76" N and longitudes 78° 40' 12" and 79° 08' 35.52" E. The Geographical Area of the Division is 7944 Km², which constitutes 52.32% of the total area of the District. Terrain may be roughly divided into Hills and plateaus and Outer slopes and Outliners. The Eastern Ghats traverse this division from South-West to North – east. Palmaner, Punganur, Madanapalli Plateaus are continuous of the Mysore Plateau. The elevation of the division varies from 305m on plains to 1377m on the hills. One of the prominent hills in the Division is Horsley Hill 1314 m above MSL.

Land use pattern of the division is given in Table 4.8.1

The climate of the Division is equable, healthy and pleasant. The maximum temperature recorded in the division 44°C to 46°C. The average rainfall of the division is 730mm.

The soils in the Division are red loamy, red sandy and black clay black loamy, black sandy and red clay.

The population of the Division is 1.90 million (2011 Census), which consists of 0.976 million males and 0.96 million females, which constitutes 46.45% of the total population of the District. The per capita forest area is 0.109 ha. The Population density is 239 persons per Km²

Table 4.8.1: Land use Pattern

Land use	Area in Sq km	Percentage
Total geographical area	7944.00	
Forest including Scrub	1807.19	22.75
Agriculture	4377.76	55.11
Land with Scrub	855.53	10.77
Fallow Lands	593.37	7.47
Grasslands	11.69	0.15
Settlements	11.63	0.14
Vegetation outside Forest	88.07	1.11
Water bodies	198.77	2.50

4.8.2 Recorded Forest Area:

The total notified forest area of the Division is 2068 Km², which is 26% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 1510.5 Km² (73%), 550.85 Km² (26.64%) and 6.72 Km² (0.32%) of the total forest area respectively.

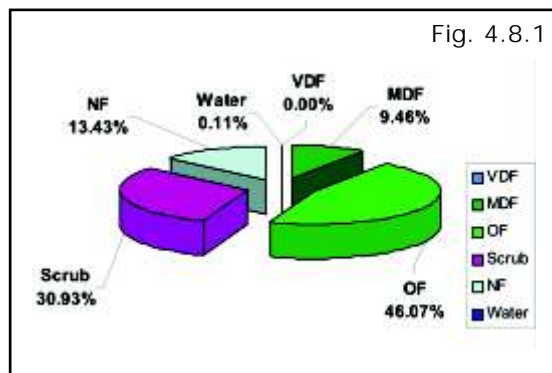
As per Champion and Seth's classification, the Forests of Division fall under Dry tropical South Indian dry mixed deciduous forests, Southern catch thorn forest groups & Tropical dry evergreen forests.

4.8.3 Protected Area:

Out of 2068 Km² of notified Forest area, 815.50 Km² is included in the Koundinya Wildlife Sanctuary.

4.8.4 Community Forest Management:

There are 119 Forest Protection Committees (FPCs) or Vana Samrakshana Samities (VSSs) in the Division. An area of 222.34 Km² forests, which is 9.3 % of the notified forests, is under the management of the VSSs.



4.8.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009), is **1160.14 Km²**, which is 14.61% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.03 Km² of Very Dense Forests, 197.72 Km² of Moderately Dense Forests, and 962.68 Km² of Open Forests. The area of the Scrub is 646.34 Km², Non-Forest 280.62 Km² and Water Bodies 2.37 Km². The distribution of the forest cover of the division is shown in Fig 4.8.2

4.8.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.8.2, Fig 4.8.3 and the changes during this period have shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov/Dec 2009) with that of previous assessment (Satellite data of Nov/Dec 2008), shows a Negative Change in forest cover of 74.70 Ha and positive change of 3.15 Ha. The forest cover change matrix, given in Table 4.8.2 reveals that there has been a decrease of 71 Ha of Open Forest.

The positive change is on account of rising of or growth in raised plantations. Of the total negative change 74.70 Ha is on account of Raising of Plantations. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore there is no net loss of Forest cover in this division only.

The Satellite images of 2008 and 2009 are shown in Fig 4.8.2, Fig 4.8.3 and the changes during this period is shown on the image of 2009.

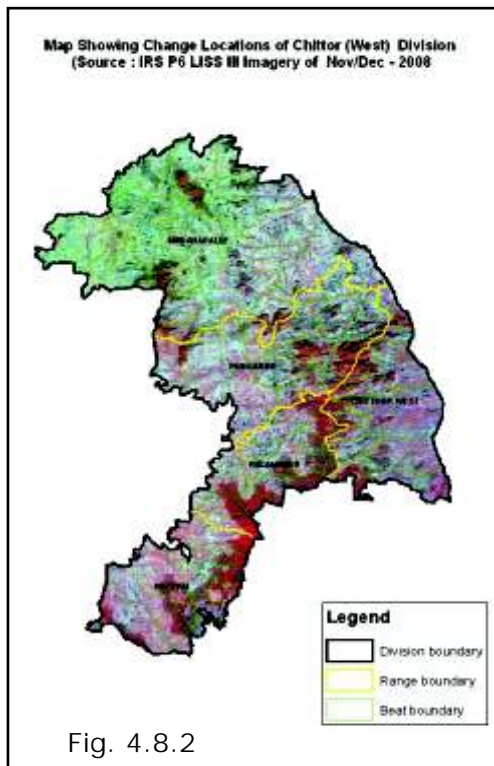


Fig. 4.8.2

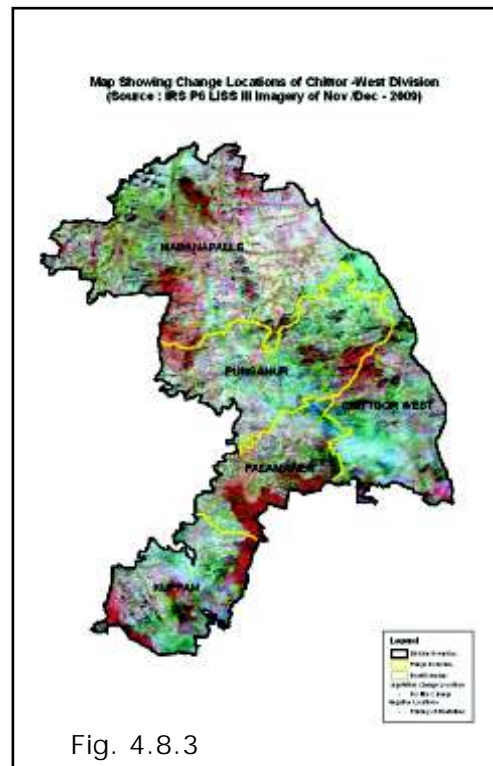


Fig. 4.8.3

The simplified forest cover change matrix is given in Table 4.8.3 and Table 4.8.4

There are **84 beats** in the division. Negative change in forest cover is noticed in only 9 beats, and both changes in 1 beat. There is no change in the remaining 74 beats.

Details of forest cover changes in the 10 beats where forest cover is lost, is shown in Table 4.8.5



Table 4.8.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Oct 2008 - Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.03	0.00	0.00	0.00	0.00	0.00	0.03
Moderately Dense Forest	0.00	197.72	0.00	0.00	0.00	0.00	197.72
Open Forest	0.00	0.00	962.68	0.39	0.32	0.00	963.39
Scrub	0.00	0.00	0.00	646.95	0.10	0.00	646.05
Non-Forest	0.00	0.00	0.00	0.00	280.20	0.00	280.20
Water	0.00	0.00	0.00	0.00	0.00	2.37	2.37
Total of 2009	0.03	197.72	962.68	646.34	280.62	2.37	2089.76
Net Change	0.00	0.00	-0.71	0.29	0.42	0.00	0.00

Table 4.8.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Oct 2008 - Dec -2008)	2009 (Data of Oct. 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1160.43	0.71	0.00	1161.14
Degraded Forest	0.00	926.25	0.00	926.25
Water	0.00	0.00	2.37	2.37
Total of 2009	1160.43	926.96	2.37	2089.76
Net Change	-0.71	0.71	0.00	

Table 4.8.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Oct 2008 - Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	1806.77	0.42	0.00	1807.19
Barren	0.00	280.20	0.00	280.20
Water	0.00	0.00	2.37	2.37
Total of 2009	1806.77	280.62	2.37	2089.76
Net Change	-0.42	0.42	0.00	

Table No: 4.8.5 Beat wise Forest Cover (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
Chittoor West Range								
Bodabanda	0.00	192.49	1,435.20	947.70	273.86	2,849.25	0.00	0.00
Chittapara	0.00	141.55	1,797.80	437.92	45.98	2,423.25	0.00	0.00
Gollapalle	0.00	56.53	715.44	169.97	52.85	995.77	0.00	0.00
Gundlapalle	0.00	69.79	1,113.60	580.59	254.65	2,029.28	0.00	0.00
Irala	0.00	96.02	1,618.70	652.06	214.45	2,584.70	0.00	0.00
Kalluru	0.00	123.61	1,538.13	1,245.16	252.71	3,159.61	0.00	0.00
Kammappalle	0.00	687.46	1,302.23	173.26	63.58	2,226.53	- 2.13	0.00
Keenatampalle	0.00	0.58	337.84	494.44	220.5	1,053.41	0.00	0.00
M.V.Giri	0.00	29.25	542.93	734.22	306.94	1,614.55	0.00	0.00
Madhavaram	0.00	205.66	936.03	148.89	61.06	1,351.64	0.00	0.00
Mittoor	0.00	221.08	837.52	232.11	92.10	1,382.81	0.00	0.00

Nagamvandlapalle	0.00	624.99	2,020.11	403.80	229.61	3,278.51	0.00	0.00
Nampalle	0.00	70.43	833.76	534.04	80.42	1,518.65	0.00	0.00
Rachoor	0.00	123.00	959.20	495.41	350.13	1,928.53	0.00	0.00
Ragimanipenta	0.00	531.38	1,003.56	154.52	68.72	1,758.18	7.89	0.00
Santhapeta	0.00	33.51	1,291.81	1,172.86	157.04	2,655.22	0.00	0.00
Sarakallu	0.00	168.62	1,226.84	511.32	102.79	2,009.57	0.00	0.00
Setteri	0.00	144.07	1,097.59	576.08	236.30	2,054.04	0.00	0.00
Thumbakuppam	0.00	185.52	807.73	170.88	109.46	1,273.59	0.00	0.00
Thumbapalem	0.00	570.17	1,042.30	68.52	52.13	1,736.58	0.00	0.00
Total	0.00	4,275.71	22,458.32	9,903.75	3,225.33	,883.89	- 10.02	0.00
Kuppam Range								
Balla	0.00	1.51	591.17	1,118.07	193.76	1,905.38	0.00	0.00
Bommadevarachenulu	0.00	12.75	1,182.92	2,642.19	456.74	4,295.94	0.00	0.00
Kadapalle	0.00	157.37	1,575.08	444.81	151.99	2,330.93	-1.74	0.00
Kangundi	0.00	18.78	861.45	405.30	62.30	1,347.83	0.00	0.00
Kuppum	0.00	96.80	1,165.75	132.95	45.46	1,440.96	-5.10	0.00
Mittapalle	0.00	287.09	2,158.11	133.07	42.90	2,621.17	0.00	0.00
Muddanapalle	0.00	365.51	877.48	596.05	201.51	2,061.33	0.00	0.00
Nadimuru	0.00	20.54	2,507.56	1,744.26	266.32	4,538.68	0.00	0.00
Naniyala	0.58	1,410.66	1,710.69	289.24	9.21	3,420.38	0.00	0.00
Narayanapuram	0.00	328.24	905.72	654.90	521.22	2,412.51	0.00	0.00
Nayanur	0.00	151.10	1,189.44	1,156.52	23.48	2,520.54	0.00	0.00
Pandyalamadugu	0.00	1,170.11	1,543.78	215.01	166.25	3,095.15	0.00	0.00
Peddavanka	0.00	10.90	616.74	991.62	113.91	1,735.10	0.00	0.00
Peddur	0.00	297.18	1,793.97	318.41	46.61	2,471.59	-35.49	0.00
Total	0.58	4,328.54	18,679.86	10,842.40	2,301.66	36,197.49	-42.33	0.00
Madanapalle Range								
Chalimamidi	0.00	73.71	697.50	1,169.85	723.97	2,671.88	0.00	0.00
Cheekalabylu	0.00	267.27	1,133.39	956.61	634.75	2,992.02	0.00	0.00
Ellutla	0.00	27.23	692.69	944.50	442.04	2,106.46	0.00	0.00
Kalicherla	0.00	23.06	893.30	1,653.41	1,088.33	3,658.10	0.00	0.00
Kalikiri	0.00	10.97	931.37	1,704.85	1,029.72	3,679.82	0.00	0.00
Kandlamadugu	0.75	252.49	897.58	419.22	173.32	1,743.36	-4.16	0.00
Kottala	0.00	14.37	1,240.88	1,360.84	886.06	3,502.86	0.00	0.00
Marripadu	0.00	0.00	104.93	1,689.92	887.07	2,681.92	0.00	0.00
Nadimicherla	0.00	7.85	754.39	1,349.23	853.05	2,965.15	0.00	0.00
Nerdikonda	0.00	0.00	285.31	1,828.63	291.18	2,492.14	-9.90	0.00
Noorukuppalakonda	0.00	5.55	850.39	1,575.79	968.26	3,403.12	0.00	0.00
Penchupadu	0.00	261.79	1,053.57	915.42	788.44	3,019.22	0.00	0.00
Plateau	0.58	197.46	282.16	68.64	78.24	627.08	0.00	0.00
Ramaganipalle	0.00	4.57	251.69	1,120.31	376.89	1,754.07	0.00	0.00
Sangasamudram	0.00	8.78	350.58	1,142.22	629.95	2,131.53	0.00	0.00
Tarigonda	0.00	5.72	494.20	1,282.47	834.70	2,617.09	0.00	0.00
Tavalam	0.00	241.37	1,952.82	748.03	382.23	3,325.66	0.00	0.00
Thambapalle	0.00	28.99	1,699.97	1,177.19	227.83	3,133.98	-1.00	0.00
Thettu	0.64	502.48	1,588.28	589.14	199.30	2,881.28	0.00	0.00
Vepurikota	0.00	1.85	378.20	1,861.11	747.77	2,994.46	0.00	0.00
Total	1.97	1,935.51	16,533.20	23,557.38	12,243.10	54,381.20	-15.06	0.00
Palamaner Range								
Doddipalle	0.00	75.49	1,029.87	735.66	340.01	2,195.14	0.00	0.00
Engamvaripalle	0.00	614.45	2,254.37	169.65	40.84	3,081.34	0.00	0.00
Jagamarla	0.00	1,070.78	2,211.65	365.64	176.17	3,824.24	0.00	0.00
Kalavapalle	0.00	58.89	1,564.68	1,007.92	370.60	3,009.00	0.00	0.00
Keelapatla	0.00	1,168.69	2,068.46	451.33	247.68	3,936.16	-2.00	0.00
Kolamasinapale	0.00	70.74	775.08	923.62	433.94	2,206.97	0.00	0.00
M.Kothur	0.00	275.18	2,769.10	616.28	114.26	3,774.82	0.00	0.00
Nellipatla	0.00	496.98	2,010.16	776.81	292.80	3,576.75	0.00	0.00



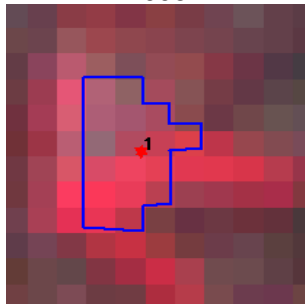
Andhra Pradesh State of Forests - 2011

P.N.D North	0.00	247.08	2,367.69	67.86	28.45	2,711.08	0.00	0.00
P.N.D South	0.00	988.11	,117.82	62.38	48.94	3,217.25	0.00	0.00
Palamaner	0.00	186.53	1,076.07	972.13	453.98	2,700.64	0.00	0.00
Pathikonda	0.00	7.61	249.20	979.88	694.60	1,931.29	0.00	0.00
Tekumanda	0.00	171.73	1,572.66	978.91	130.04	2,853.34	0.00	0.00
Thotakanuma	0.00	201.70	1,482.08	595.89	372.01	2,651.68	0.00	0.00
Total	0.00	5,633.96	23,548.89	8,703.96	3,744.32	41,669.70	-2.00	0.00
Punganur Range								0.00
Arantlapalle	0.00	22.04	434.99	1,199.49	642.01	2,298.53	0.00	0.00
Chandramakulapalle	0.00	0.00	121.29	978.35	892.65	1,992.29	0.00	0.00
Charala	0.00	78.86	816.54	650.62	243.71	1,791.52	0.00	0.00
Chembakuru	0.00	150.48	712.56	369.73	215.82	1,448.59	0.00	0.00
Gollapalle	0.00	141.30	1,489.09	982.76	342.93	2,956.08	0.00	0.00
Gurujulavaripalle	0.00	43.64	644.93	534.71	195.63	1,418.91	0.00	0.00
Kanduru	0.00	95.90	1,196.96	1,353.49	569.38	3,232.27	0.00	0.00
Madirimalai East	0.00	328.83	1,677.30	708.41	353.23	3,067.77	0.00	0.00
Madirimalai West	0.00	585.90	1,039.73	252.78	147.99	2,027.31	0.00	0.00
Muthukur	0.00	0.00	61.32	556.68	523.92	1,143.13	0.00	0.00
Petur	0.00	410.67	1,050.98	275.69	326.09	2,064.26	0.00	0.00
Rampalle	0.00	579.69	1,696.00	326.84	136.01	2,738.54	0.00	0.00
Rayolpeta	0.00	118.54	1,400.79	636.70	350.90	2,506.93	-5.29	0.00
Somala	0.00	29.89	1,182.60	1,647.03	727.02	3,587.52	0.00	0.00
Upparapalle	0.00	1,010.80	1,381.39	271.43	239.33	2,902.95	0.00	0.00
Valligatla	0.00	2.31	146.26	879.94	638.73	1,668.86	0.00	0.00
Total	0.00	3,598.85	15,052.73	11,624.65	6,545.35	36,845.46	-5.29	0.00
Division Total	2.55	19,772.57	96,273.00	64,632.14	28,059.76	208,977.52	-74.70	0.00

* Beat wise total area including water bodies.

Satellite Imageries

2008



2009



Longitude	78.48213
Latitude	13.82536
Area	1.00 Ha
Change	OF to NF
Compartment No.	62
Beat	Thambalpa
Range	Madanapal
Division	Chittoor West





Chapter IV

4.9 ACHAMPET WLM DIVISION

4.9.1 Introduction:

Achampet Forest Division lies in the south eastern part of Mahabubnagar District, between latitudes 160 08' 50" and 160 37' 45" N and longitudes 780 4' 30" and 780 58' 50" E. The Geographical Area of the Division is 4303.47 Km², which is 23.35 % of the geographical area of the District. The Division has two physiographic zones, the Amrabad plateau of Nallamalai hills having an altitude of 500 to 876 m and the plains having an altitude of 200 to 500 m. The River Krishna forms Southern boundary of the Division as well as the District. Major tributaries of Krishna falling in Division are Dindi, Bhumunikolanu vagu, Nallavagu, Buggavagu, and Yemulapayavagu.

Land use pattern of the division is given in Table 4.9.1

The climate of this Division is generally dry with temperatures ranging from 16.90 C to 45C and the annual rainfall is about 700 mm, received mainly from Southwest monsoons.

Srisaillam quartzite occupies most part of the Division. The soil types found mainly are Black cotton, Red and Brown sandy loam.

The total population of the Division is 0.47 million (2011 Census), which constitutes about 12.25 % of the total population of the District. The Per capita forest area is 0.51 ha. The population density is 109 persons per Km². The livestock population is 4.82 million.

Table 4.9.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	4303.47	
Forest including Scrub	2293.29	53.29
Agriculture	804.03	18.68
Land with Scrub	236.07	5.49
Fallow Lands	102.87	2.39
Grasslands	127.72	2.97
Settlements	4.03	0.09
Not available for cultivation	645.24	14.99
Rivers/Streams	90.22	2.10

4.9.2 Recorded Forest Area:

The total notified forest area of the Division is 2423.36 Km², which is 56.31% of the total geographical area. Reserved-, Protected- and Un-classed forests constitute 1881.51 Km² (77.64%), 376.72 Km² (15.55%) and 165.03 Km² (6.81%) of the total forest area, respectively.

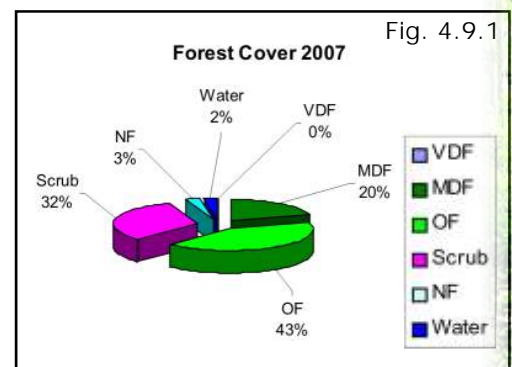
As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical Moist deciduous, Tropical Semi-evergreen and Tropical Thorn Forest types.

4.9.3 Protected Area:

The Division is one of the four constituent Divisions of Nagarjuna Sagar – Srisaillam Tiger Reserve (NSTR), the biggest Tiger Reserve of India. Out of 2,423.36 Km² of forest area, 1750 Km² is included in the Tiger Reserve.

4.9.4 Community Forest Management:

There are 79 Vana Samrakshana Samities (VSSs) in the Division. 216.73 Km² forest area, which constitutes 8.95 % of forest area, is under management of the VSSs.



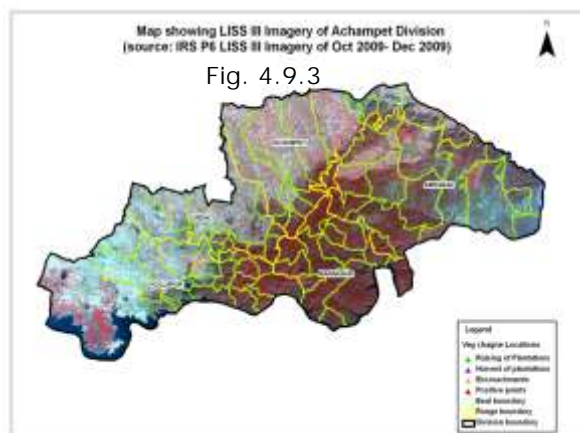
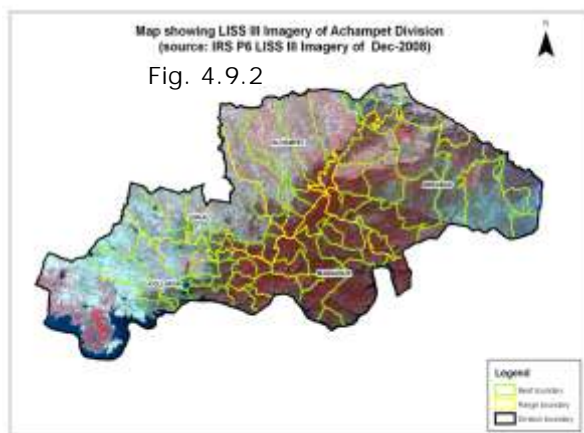
4.9.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2008 data (Oct 2007-Dec 2008), is 1,513.27 Km², which is 35.16% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.33 Km² of Very Dense Forests, 479.11 Km² Moderately Dense Forests, and 1032.14 Km² Open Forest. The area of the Scrub is 782.23 Km², that of Non-Forest 69.60 Km² and Water Bodies 59.96 Km². The distribution of the forest cover of the Division is shown in Fig 4.9.1

4.9.6 Change in Forest cover:

The satellite image 2008 and 2009 in Fig 4.9.2, 4.9.3 and the change during this period is shown in the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009-Dec 2009) with that of previous assessment (Satellite Imagery of Dec 2008), shows that there is no change between these years. The forest cover change matrix, given in Table 4.9.2 reveals that there has been no decrease of moderately dense forest and open forest.



The simplified forest cover change matrix is given in Table 4.9.3 and Table 4.9.4

Table 4.9.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Dec 2008)	2009 (Data of Oct 2009– Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.33	0.00	0.00	0.00	0.00	0.00	0.33
Moderately Dense Forest	0.00	479.11	0.00	0.00	0.00	0.00	479.11
Open Forest	0.00	0.00	1032.14	0.00	0.00	0.00	1032.14
Scrub	0.00	0.00	0.00	782.23	0.00	0.00	782.23
Non-Forest	0.00	0.00	0.00	0.00	69.60	0.00	69.60
Water	0.00	0.00	0.00	0.00	0.00	59.96	59.96
Total of 2009	0.33	479.11	1032.14	782.23	69.60	59.96	2423.37
Net Change	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 4.9.3: Forest Cover change matrix (Good and Degraded Forest)				(Area in Km ²)
2008 (Data of Dec 2008)	2009 (Data of Oct 2009– Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1511.58	0.00	0.00	1511.58
Degraded Forest	0.00	851.83	0.00	851.83
Water	0	0.00	59.96	59.96
Total of 2009	1511.58	851.83	59.96	2423.37
Net Change				

Table 4.9.4: Forest Cover change matrix (Rejuvenation and Barren)				(Area in Km ²)
2008 (Data of Dec 2008)	2009 (Data of Oct 2009– Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	2293.81	0.00	0.00	2293.81
Barren	0.00	69.60	0.00	69.90
Water	0.00	0.00	59.96	59.96
Total of 2009	2293.81	69.60	59.96	2423.37
Net Change	0.00	0.00	0.00	

Table 4.9.5: Beat wise Forest Cover							(Area in Ha)
Beat	Very dense forest	Mod.dense forest	Open forest	SRUB	Non forest	Total	
ACHAMPET Range							
Achampet	0.00	500.01	897.54	150.55	0.60	1548.70	
Banala(n)	0.00	865.58	732.47	37.99	0.00	1636.04	
Banala(s)	0.00	1568.81	501.60	34.49	0.00	2166.44	
Billakal	0.00	582.00	463.39	51.38	0.00	1097.08	
Bommanapally	0.00	516.96	1376.04	210.30	0.00	2103.30	
Choutapally	0.00	1297.53	535.80	29.82	0.00	1863.15	
Ganapur	0.00	14.59	1313.64	1600.59	15.83	2946.46	
Inole	0.00	11.72	241.10	1077.52	21.93	1355.14	
Kondanagul	0.00	432.91	994.94	132.52	2.21	1562.58	
Mannevari pally	0.15	18.29	1354.19	2191.08	11.66	3580.95	
Rangapur	0.00	1173.28	913.00	144.58	0.00	2230.86	
Siddapur-(e)	0.66	231.48	1214.70	1199.95	27.63	2678.72	
Siddapur-(w)	0.00	8.63	534.29	1145.73	30.65	1723.28	
Total	0.81	7221.79	11072.70	8006.50	110.51	26492.70	
AMRABAD Range							
Amrabad	0.00	726.04	3210.54	2833.89	55.49	6826.57	
Domarlagundi	2.82	8.84	1035.14	4764.48	737.04	7271.45	
Ippalapally	0.00	1.00	658.16	1258.65	106.43	2242.22	
Kollampenta	0.00	1685.39	1426.44	492.08	0.90	3604.81	
Macharam-(n)	0.00	233.81	1219.20	1297.29	6.76	2760.31	
Macharam-(s)	0.0	672.47	2462.42	1675.37	29.05	4839.91	



Maddimadugu	0.51	55.70	1542.03	10316.09	2777.55	14850.01
Maredugu	0.00	69.91	5345.86	9449.10	1019.25	16090.71
New road farhabad	0.00	2427.35	1725.33	394.82	0.01	4547.51
Padara	0.00	198.33	2921.82	5147.04	34.37	8302.28
Tirmalapur	0.00	523.40	6178.07	4574.96	164.49	11441.39
Ummanpenta	2.08	0.00	524.86	4446.03	1022.99	6280.76
Vatvarlapally(e)	0.40	1621.59	7711.77	2233.11	51.88	11697.79
Vatvarlapally(n)	0.00	277.79	1815.64	368.03	0.00	2461.46
Total	5.81	8501.62	37777.28	49250.94	6006.21	103217.18
KOLLAPUR Range						
Amaragiri	0.00	9.50	393.93	1058.67	162.54	1836.06
Ankilpenta(n)	0.00	1886.90	212.39	12.31	0.00	2111.60
Ankilpenta(s)	0.00	1285.14	449.09	26.48	0.00	1760.71
Bollaram	0.28	654.58	1586.41	754.12	155.71	3613.99
Chintapally_s-ii	0.00	88.94	621.74	604.29	0.00	1314.97
Chintapally-s-i	0.00	77.47	533.45	579.51	3.82	1279.12
Kollapur	0.00	66.73	549.29	422.85	79.26	1157.51
Medarvote	0.00	170.42	684.20	869.00	4.37	1741.10
Narlapur	0.74	75.90	367.35	2221.14	35.76	2721.45
Peddavote	0.00	1090.73	1337.74	252.95	4.53	2686.78
Somasila	0.78	55.27	744.49	862.73	164.86	1862.83
Sukkalagundam	0.00	907.17	765.53	103.28	10.33	1926.55
Yeddulagundam	0.00	1642.64	791.05	55.83	0.00	2489.52
Yellore	0.00	2.82	58.98	629.71	21.73	971.95
Yerragundam penta	0.00	1048.47	1494.07	266.72	1.16	2998.26
Yerrapenta	0.00	2308.89	2820.65	355.56	47.60	5821.62
Yetham	0.00	2.16	23.42	600.45	92.49	724.66
Total	1.80	11373.73	13433.78	9675.60	784.16	37018.68
LINGAL Range						
Appaipally	0.00	429.13	616.38	120.73	0.00	1166.24
Bacharam	0.00	0.00	143.59	1057.29	5.07	1211.16
Balmoor	0.00	230.33	480.28	47.78	0.00	758.39
Dhararam	0.00	391.65	558.24	51.08	0.00	1000.97
Gorremadugi-s	0.00	20.81	569.13	379.06	0.12	969.12
Gorremadugi-s	0.00	228.68	8.55	87.08	0.00	874.42
Lingal	0.51	135.61	1042.91	721.94	1.34	1935.09
Mareddinne	0.00	2.21	146.70	220.02	0.72	383.83
Marlapaya	0.00	1323.84	799.83	49.18	0.00	2175.19
Padmanapally	0.00	756.14	591.12	58.02	0.00	1412.02
Rayawaram	0.00	46.69	644.09	403.83	0.00	1094.61
Sathapur	1.09	20.68	306.79	1483.51	55.54	1921.59
Total	1.60	3585.77	6457.72	4679.52	62.79	14902.63
MANNANUR Range						
Appapur	0.00	717.44	1017.30	39.85	0.00	1799.70
Behirapur - (n)	0.00	1988.10	3932.08	244.32	0.55	6569.03

Forest division wise results

Behirapur-(s)	0.00	93.14	1264.94	408.65	0.00	2122.68
Burujugundal	0.00	1759.84	1389.39	244.27	0.00	3393.50
Eagalapenta	2.61	279.69	2474.90	711.89	9.90	3906.81
Farahabad(e)	18.36	1268.22	2537.82	709.54	2.73	4536.67
Farahabad(w)	0.00	771.63	1091.08	329.44	0.00	2192.15
Farhabad(s)	0.00	1152.73	2718.60	269.36	0.00	4144.19
Mannanur -(n)	0.00	813.32	823.62	421.20	0.40	2058.54
Mannanur -(s)	0.00	2468.71	1854.17	176.41	0.00	4502.39
Pullaipally	0.00	2270.91	3106.15	266.54	0.00	5643.60
Rampur	0.00	1513.62	1783.90	324.33	1.38	3627.87
Sangadigundal	2.51	1642.70	8777.37	2077.04	4.60	13475.66
Vatvarlapally(s)	0.00	459.78	1827.97	298.49	0.09	2730.32
Total	23.48	17299.83	34599.29	6521.33	19.65	60703.11
Grand Total	33.50	47982.74	103340.77	78133.89	6983.32	242334.30

* Beat wise total area including Water bodies.





Chapter-IV

4.10 ATMAKUR DIVISION

4.10.1 Introduction:

Atmakur Forest Division lies in the north-east part of Kurnool District, between latitudes 16° 8' 52.8" and 15° 39' 3.6" N and longitudes 78° 55' 57" and 78° 15' 1.8" E. The Geographical Area of the Division is 2154 Km², which is 12.20 % of the total area of the District.

Land use pattern of the division is given in Table 4.10.1

The climate of this Division is generally dry with temperatures ranging from 12° C to 43°C and the annual rainfall is about 670 mm, received mainly from Southwest monsoons.

Important minerals and rocks found in the District are iron, lime stone, steatite, barytes, quartz, asbestos, diamond and black & pink granite. The soil types found mainly are Black cotton (East and North Western), Red (South Eastern) and Brown sandy loam.

The population of the Division is 0.29 million (2011 Census), which consists of 0.156 million males and 0.134 million females, which constitutes 7.82% of the total population of the District. The per capita forest area is 0.44 ha. The Population density is 135 persons per Km²

Table 4.10.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	2154	
Forest including Scrub	868.80	40.33
Agriculture	784.92	36.44
Land with Scrub	77.13	3.58
Fallow Lands	22.93	1.07
Grasslands	30.68	1.42
Settlements	12.89	0.60
Vegetation outside Forest	103.96	4.83
Water bodies	252.69	11.73

4.10.2 Recorded Forest Area:

The total notified forest area of the Division is **1288.81 Km²**, which is 59.83 % of the total geographical area. Reserved, and Un-classed Forests Constitute 1204.44 Km² (93.45%), and 84.37 Km² (6.54%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical Dry Deciduous, Tropical Moist Deciduous and Tropical Thorn Forest types.

4.10.3 Protected Area:

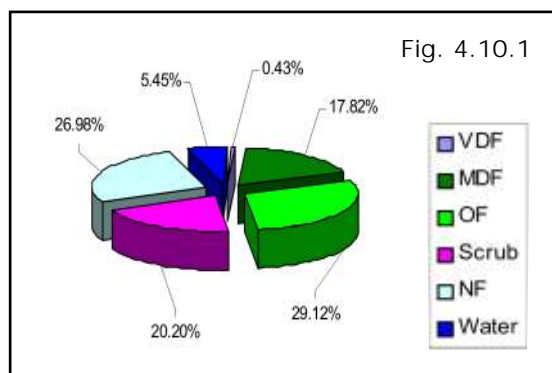
The Atmakur Division is one constituent Division of Gundla Brahmeswaram Wildlife Sanctuary (GBM) and Nagarjuna Sagar Tiger Reserve (NTSR) and Rollapadu WLS. Out of 1288.81 Km² of forest area, 536.16 Km² is included in Nagarjuna Sagar Tiger Reserve (NTSR) and 277.88 Km² is in Gundla Brahmeswaram Wildlife Sanctuary (GBM) & 5.20 Km² is in Rollapadu Wild Life Sanctuary.

4.10.4 Community Forest Management:

There are 47 Forest Protection Committees (FPC) or Vana Samrakshana Samities (VSSs) in the Division. An area of 135.31 Km² forests, which is 10.5 % of the notified forests, is under the management of the VSSs.

4.10.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2008 data (Oct 2007-Mar 2008), is **609.06 Km²**, which is **28.27 %** of the total Geographical area. In terms of the forest canopy cover density classes, the



Division has 5.53 Km² of Very Dense Forests, and 229.08 Km² of Moderately Dense Forests, and 374.45 Km² of Open Forests. The area of the Scrub is 259.74 Km², Non-Forests 346.94 Km² and Water Bodies is 70.03 Km². The distribution of the forest cover of the division is shown in Fig 4.10.1

4.10.6 Change in Forest cover:

The satellite images of 2008 and 2009 are shown in Fig 4.10.2, 4.10.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Dec 2009) with that of previous assessment (Satellite Imagery of Dec 2008), shows that there is no change between this year. The forest cover change matrix, given in Table 4.10.2 reveals that there has been a no decrease of moderately dense forest and open forest.

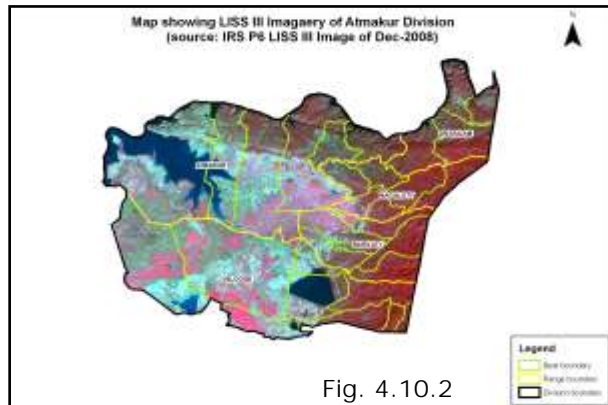


Fig. 4.10.2

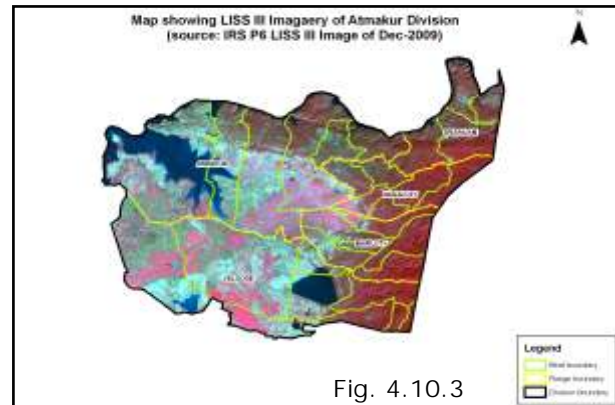


Fig. 4.10.3

The simplified forest cover change matrix is given in Table 4.10.3 and Table 4.10.4

Table 4.10.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Dec 2008)	2009 (Data of Dec 2009)						Total of 2009
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	5.53	0.00	0.00	0.00	0.00	0.00	5.53
Moderately Dense Forest	0.00	229.08	0.00	0.00	0.00	0.00	229.08
Open Forest	0.00	0.00	374.45	0.00	0.00	0.00	374.45
Scrub	0.00	0.00	0.00	259.74	0.00	0.00	259.74
Non-Forest	0.00	0.00	0.00	0.00	346.94	0.00	346.94
Water	0.00	0.00	0.00	0.00	0.00	70.03	70.03
Total of 2009	5.53	229.08	374.45	259.74	346.94	70.03	1285.77
Net Change	0.00	0.00	0.00	0.00	0.00	0.00	

Table 4.10.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Dec 2008)	2009 (Data of Dec 2009)			Total of 2007
	Good Forest	Degraded Forest	Water	
Good Forest	609.06	0.0	0.0	609.06
Degraded Forest	0.0	606.68	0.0	606.68
Water	0.0	0.0	70.03	70.03
Total of 2009	609.06	606.68	70.03	1285.77
Net Change	0.00	0.00	0.00	



Table 4.10.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Dec 2008)	2009 (Data of Dec 2009)			Total of 2007
	Green	Barren	Water	
Green	868.80	0.00	0.00	868.80
Barren	0.00	346.94	0.00	346.94
Water	0.00	0.00	70.03	70.03
Total of 2009	868.80	346.94	70.03	1285.77
Net Change	0.00	0.00	0.00	

Table 4.10.5: Beat wise Forest cover (Area in Ha)

Beat	Very dense forest	Mod.dense forest	Open forest	Scrub forest	Non forest	Total
ATMAKUR Range						
Amakur	0.00	169.23	2,707.83	3,357.65	2,630.50	9,784.02
Gummadapuram	0.00	35.59	1,049.10	1,786.50	1,989.47	5,545.04
Guvvalakuntla east	0.00	58.35	883.21	1,127.45	2,632.73	4,813.07
Guvvalakuntla west	0.00	62.51	1,626.96	2,409.51	1,304.11	5,982.84
Musalimadugu	0.00	21.69	441.62	1,089.39	3,236.18	4,962.32
Sivapuram	1.91	243.79	1,870.93	2,389.35	2,051.45	6,847.77
Total	1.91	591.16	8,579.65	12,159.85	13,844.44	37,935.06
BAI RLUTY Range						
Bairluty	3.41	1,263.34	1,610.76	283.76	177.05	3,423.99
Nallakalva	0.00	243.09	1,564.68	665.97	1,198.49	3,672.23
P.a.puram north	0.00	313.62	876.75	404.85	559.49	2,176.33
P.a.puram south	0.00	194.18	662.10	354.12	385.99	1,596.39
Pasurutla	38.80	2,748.49	2,461.49	400.63	79.94	5,729.35
Rudrace	195.88	3,102.91	1,408.11	344.88	246.65	5,298.43
Total	238.09	7,865.63	8,583.89	2,454.21	2,647.61	21,896.72
NAGALUTY Range						
Indiresvaram east	0.02	141.74	1,017.97	902.92	1,608.51	3,671.16
Indiresvaram west	0.00	237.44	1,406.16	593.98	1,897.43	4,191.17
Nagaluty	0.00	854.09	843.56	340.91	321.20	2,359.76
Pangidi east	3.08	1,084.97	2,791.28	702.41	139.53	4,721.31
Pangidi west	9.02	1,724.78	2,183.30	632.53	213.64	4,763.27
Venkatapuram	1.84	280.98	989.09	397.39	500.51	2,169.81
Total	13.96	4,324.00	9,231.36	3,570.14	4,680.82	21,876.48
SRI SAILAM Range						
Pechuruvu east	0.00	579.43	2,645.18	2,094.73	2,954.15	8,471.73
Pechuruvu west	0.00	524.98	2,180.07	1,644.59	2,189.43	6,903.18
Srisailam	0.00	0.91	574.55	1,365.06	847.51	3,296.76
Sundipenta	0.00	27.08	685.82	1,190.67	827.99	2,949.45
Total	0.00	1,132.40	6,085.62	6,295.05	6,819.08	21,621.12

Forest division wise results

VELGODE Range						
Abbarajukunta	95.93	2,683.03	1,240.22	177.58	163.29	4,360.05
G.b.m. east	7.10	649.09	162.90	6.63	0.69	826.41
G.b.m. west	11.17	1,283.06	168.54	1.50	0.00	1,464.27
Pangidi	184.46	4,046.74	2,026.33	414.00	295.57	6,989.58
Rollapadu	0.00	0.00	1.16	4.18	395.59	400.93
Velgode north	0.00	14.29	381.29	393.09	2,231.55	3,195.52
Velgode south	0.00	319.06	983.02	420.63	856.74	5,165.71
Velgode west	0.00	0.00	0.73	76.94	2,758.71	2,845.44
Total	298.66	8,995.27	4,964.19	1,494.55	6,702.14	25,247.91
Grand total	552.62	22,908.46	37,444.71	25,973.80	34,694.09	128,577.29

* Beat wise total area including Water bodies





Chapter-IV

4.11 MARKAPUR DIVISION

4.11.1 Introduction:

Markapur Forest Division lies in the South Eastern Part of Prakasam District, between latitudes 15° 23' 1" and 16° 18' 16" N and longitudes 78° 47' 48" and 79° 57' 56" E. The Geographical Area of the Division is 7,218 Km², which is 25.1 % of the total area of the District. The Rivers Gundlakamma, Sagileru, Musi, Paleru and Manneru are seasonal and the Gundlakamma River rises in Nallamala hills and the Cumbum Tank is formed by a bund across the river.

Landuse pattern of the division is given in Table 4.11.1

The climate of this Division is dry and salubrious, temperatures ranging from 19° to 38° and the annual rainfall is about 871 mm, received mainly from Southwest monsoons.

Sandstone mixed with quartzite and occasional Shale is the characteristic rock formation on the veligonda and at their extreme's bordering Kanigiri the rocks gradually change into Gneisses or Granite composition the Division. Outcrops of Barytes and Manganese ores occur in veligonda. The soil types found mainly are red loamy soil, Black cotton, sandy loam and sandy soils.

The total Population of the division is 0.84 million (2011 Census). The Per capita forest area is 0.27 ha. The population density is 116 persons per Km².

4.11.2 Recorded Forest Area:

The total notified forest area of the Division is 2476.39 Km², which is 34.30% of the total geographical area. The total forest area is Reserved Forest.

As per Champion and Seth's classification, the Forests of Division fall under Southern Tropical dry deciduous as the predominant and climatic climax forest in the Division. The Southern Tropical Thorn Forest also occurs in low elevations and in plains.

4.11.3 Protected Area:

The Division is one of the constituent Divisions of Nagarjunasagar – Srisailem Tiger Reserve (NSTR), and Gundla Brahmeswaram Wild Life Sanctuary (GBM). Out of 2476 Km² of notified forest area 1039.51 Km² is included in the Nagarjunasagar – Srisailem Tiger Reserve and 55.45 Km² is included in the Gundla Brahmeswaram Wild Life Sanctuary (GBM).

4.11.4 Community Forest Management:

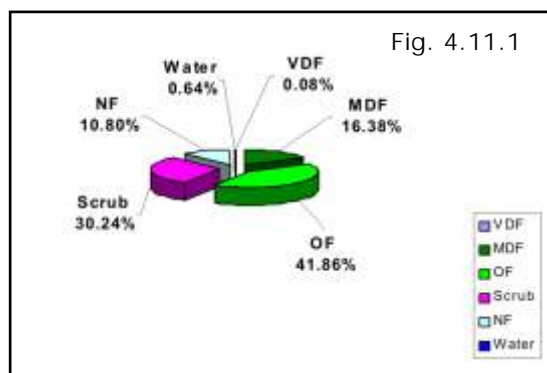
There are 93 Vana Samrakshna Samities (VSSs) in the Division. An area of 347.14 Km² forests, which is 14.01 % of the notified forests, is under the management of VSSs.

4.11.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009 - Mar 2010) is 1325.69 Km², which is 18.36% of the total Geographical area. In terms of the forest cover canopy density classes the

Table 4.11.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	7218	
Forest including Scrub	2014.3	27.91
Agriculture	4267.32	59.12
Land with Scrub	534.29	7.40
Fallow Lands	111.67	1.55
Grasslands	13.84	0.19
Settlements	31.10	0.43
Vegetation outside Forest	188.96	2.62
Water body	56.53	0.78



Division has 1.93 Km² of Very Dense Forests, 372.31 Km² of Moderately Dense Forests, and 951.45 Km² of Open Forests. The area of the Scrub is 687.26 Km², Non-Forest 245.41 Km² and Water Bodies 14.50 Km². The distribution of the forest cover of the division is shown in Fig 4.11.1

4.11.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 are shown in Fig (4.11.2 & 4.11.3), the changes during this period have shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment year (Satellite Imagery of Dec 2008-Feb 2009), shows a negative change of 184.76 Ha. The forest cover change matrix, of forest cover during the period of one year given in Table 4.11.2 reveals that there has been a decrease 185 Ha of scrub forest.

Of the total negative change 147.84 Ha on account of Raising of Plantations and 36.92Ha on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 36.92 Ha only.

The simplified forest cover change matrix is given in Table 4.11.3 and Table 4.11.4

There are 40 Beats in the division. Negative change in Forest cover is noticed in only 8 Beats. There is no change in the remaining 32 Beats.

Details of Forest Cover changes in the 8 Beats where Forest Cover is lost, is shown in Table 4.11.5

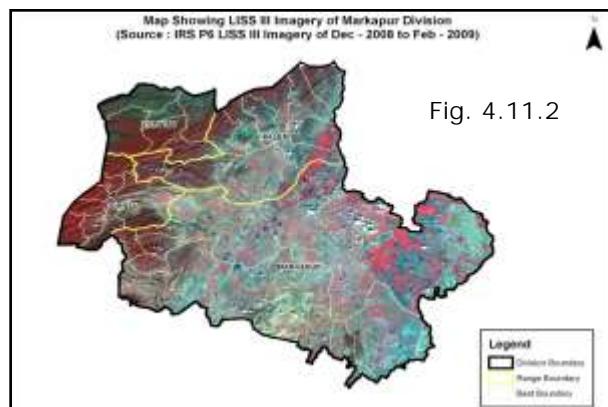


Fig. 4.11.2

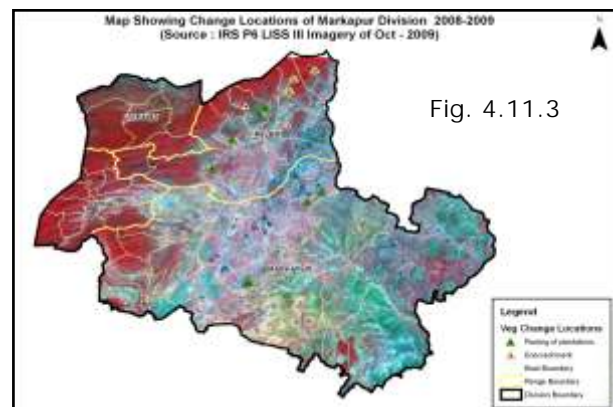


Fig. 4.11.3

Table 4.11.2: Forest Cover change matrix

(Area in Km²)

2008 (Data of Dec 2008 – Feb 2009)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	1.93	0.00	0.00	0.00	0.00	0.00	1.93
Moderately Dense Forest	0.00	372.31	0.00	0.00	0.00	0.00	372.31
Open Forest	0.00	0.00	951.45	0.00	0.00	0.00	951.45
Scrub	0.00	0.00	0.00	687.26	1.85	0.00	689.11
Non-Forest	0.00	0.0	0.00	0.00	243.56	0.00	243.56
Water	0.00	0.00	0.00	0.00	0.00	14.50	14.50
Total of 2009	1.93	372.31	951.45	687.26	245.41	14.50	2272.86
Net Change	0.00	0.00	0.00	- 1.85	1.85	0.00	



Table 4.11.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Dec 2008 – Feb 2009)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1325.69	0.00	0.00	1325.69
Degraded Forest	0.00	932.67	0.00	932.67
Water	0.00	0.00	14.5	14.5
Total of 2009	1325.69	932.67	14.5	2272.86
Net Change	0.00	0.00	0.00	

Table 4.11.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Dec 2008 – Feb 2009)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	2012.95	1.85	0.00	2014.80
Barren	0.00	243.56	0.00	243.56
Water	0.00	0.00	14.50	14.50
Total of 2009	2012.95	245.41	14.50	2272.86
Net Change	- 1.85	1.85	0.00	

Table 4.11.5: Beat wise Forest Area in 2009 (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
DORNAL Range								
Ch.Mantanala	68.70	4714.36	1502.76	109.73	8.42	6403.97	0.00	0.00
Chilakacherla	2.29	429.17	3907.89	2009.88	282.92	6678.22	0.00	0.00
Chinnarutla	5.14	2577.36	2560.16	309.78	45.99	5498.43	0.00	0.00
Chintala	3.81	885.63	2544.30	419.00	28.20	3880.94	0.00	0.00
Edavalli	0.00	237.43	1241.55	750.92	81.07	2310.97	0.00	0.00
Nallaguntla	5.67	1578.66	1466.71	312.58	59.78	3423.40	0.00	0.00
P. Bommalapuram	9.02	141.38	812.15	669.79	125.92	1758.26	0.00	0.00
Peddachama	2.76	2194.77	828.98	15.98	1.04	3043.53	0.00	0.00
Peddamanantala	5.41	3134.65	1677.61	182.79	51.34	5051.80	0.00	0.00
Tummalabailu	2.39	1526.70	1173.50	169.80	13.59	2885.98	0.00	0.00
Y.Cheropalli	0.48	1241.00	2999.87	769.60	93.28	5138.99	0.00	0.00
Total	105.67	18661.11	20715.48	5719.85	791.55	46074.49	0.00	0.00
G.V.PALLI Range								
Burugundala	1.90	1444.49	4906.49	4031.23	1749.31	12526.98	0.00	0.00
G.V.Palli	11.26	1710.29	5104.05	709.70	63.51	7608.22	0.00	0.00
Guttalachenu	1.72	91.48	4330.61	5633.59	2249.60	13123.97	0.00	0.00
Nekkanti	4.57	2165.38	9702.86	2981.70	927.10	15837.42	0.00	0.00
Palutla	3.87	71.07	1572.96	2032.51	795.36	4480.73	0.00	0.00
Regumanipenta	2.53	1367.90	4950.89	1692.15	434.81	8448.28	0.00	0.00
Total	25.85	6850.61	30567.86	17080.88	6219.69	62025.60	0.00	0.00
MARKAPUR Range								
Bommilingam	32.80	2295.57	1551.82	16.66	0.00	3896.85	0.00	0.00

Forest division wise results

Donkaonda	0.00	183.37	1605.03	1932.60	168.08	3889.08	0.00	0.00
Gotlagattu	0.74	2.36	225.67	2141.80	1715.95	4086.52	0.00	0.00
Gottipadia	0.00	74.50	1469.79	4042.05	217.93	5804.27	0.00	0.00
Gundamcherla	3.21	1227.80	3233.67	1499.92	132.33	6096.93	0.00	0.00
Kalanuthala	0.89	472.27	1521.83	2977.25	880.66	5853.61	0.00	0.00
Kaluzuvvalapadu	0.00	6.77	103.14	2352.18	1345.53	3818.91	-55.59	0.00
Magatur	8.36	949.35	2585.90	1581.03	76.64	5201.28	0.00	0.00
Nagulavaram	0.00	13.23	814.92	1568.69	258.00	2654.84	0.00	0.00
Peddarikatla	0.00	198.91	1018.19	1209.72	619.24	3046.06	0.00	0.00
Podlli	0.00	46.62	822.99	828.14	666.36	2364.11	0.00	0.00
Potlapadu	4.85	198.41	723.63	1989.97	3989.12	6930.48	-32.71	0.00
Total	50.85	5669.16	15676.58	22140.01	10069.84	53642.94	-88.30	0.00
Y.PALEM Range								
Akkapalem	0.00	691.01	3030.50	3171.18	290.79	7185.04	-4.60	4.60
Boyalapalli	0.00	6.01	227.41	2501.78	989.20	3732.42	-10.64	0.00
Kolukula	4.16	1363.28	7169.15	1480.27	81.06	10097.92	0.00	0.00
Komarolu	0.00	430.23	2201.63	2456.92	1769.63	6864.43	-13.41	0.00
Mallapalem	0.00	7.38	679.36	2832.54	1366.76	4888.77	-46.36	10.87
Naidupalem	0.00	0.00	116.49	868.52	876.81	1861.82	0.00	0.00
Pullalacheruvu	0.00	309.48	2845.88	2519.78	74.84	5749.98	-16.00	16.00
Rentapalli	0.00	0.00	105.23	1932.36	1572.46	3610.05	-5.45	5.45
T.R.Chervu	3.70	1755.10	5614.98	689.95	17.27	8081.00	0.00	0.00
Veerabhadrapuram	2.59	1276.87	3401.04	1342.38	181.66	6223.76	0.00	0.00
Venkatareddypalli	0.00	210.33	2793.73	3989.87	239.59	7247.76	0.00	0.00
Total	10.45	6049.69	28185.40	23785.55	7460.07	65542.95	-96.46	36.92
Grand Total	192.82	37230.57	95145.32	68726.29	24541.15	227285.98	-184.76	36.92

* Beat wise total area including water bodies





Chapter-IV

4.12 NAGARJUNA SAGAR DIVISION

4.12.1 Introduction:

Nagarjuna Sagar Forest Division lies between, Nalgonda and Guntur Districts, it is located between latitudes $16^{\circ} 09' 45''$ and $16^{\circ} 55' 04''$ N and longitudes $78^{\circ} 51' 04''$ and $78^{\circ} 31' 12''$ E. The Geographical Area of the Division is **2323.46 Km²**, which is 34.17% of the total area of the Geographical Area. The Division has an average altitude of 615 m. The River Krishna is main river of the Division.

Land use pattern of the division is given in Table 4.12.1

The climate of this Division is extreme hot and arid. It experiences very hot summers with temperatures soaring up as high as 40°C , especially during March and June. The winters are comparatively pleasant and cool. The winter temperatures fall down to 10°C . The Nagarjunasagar Wildlife Sanctuary experiences heavy rainfall caused by the south west monsoons, from the months of June to October.

This division contains very rich minerals like Limestone, Quartzite, Granite, Telspar etc. The soil types found mainly are Black cotton, Red and Brown sandy loam.

The total population of the division is 32.48 Lakhs (2001 Census). The Per capita forest area is 0.02 ha. The population density is 229 persons per Km².

Table 4.12.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	2323.46	
Forest including Scrub	638.04	27.46
Agriculture	850.64	36.61
Land with Scrub	295.83	12.73
Fallow Lands	168.83	7.27
Grasslands	21.96	0.95
Settlements	6.50	0.28
Vegetation outside Forest	171.76	7.39
Water bodies	169.90	7.31

4.12.2 Recorded Forest Area:

The total notified forest area of the Division is 818.57 Km², which is 35.2% of the total geographical area. Reserved, Protected and Un-classed Forests constitute 818.57 Km² (99.44%), 0.2 Km² (0.03%) and 4.47 Km² (0.53%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous and Tropical Thorn Forest types.

4.12.3 Protected Area:

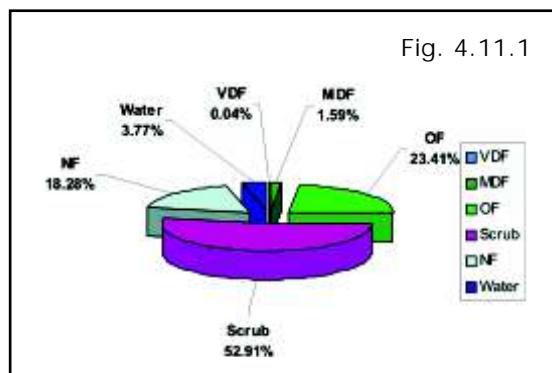
Part area of this district i.e. Nagarjunasagar WL Division is one of the four constituent Divisions of Nagarjuna Sagar – Srisaillam Tiger Reserve (NSTR), the biggest Tiger Reserve of India. Out of 818.57 Km² of notified forest area 440.89 Km² is included in the Tiger Reserve.

4.12.4 Community Forest Management:

There are 79 Vana Samrakshana Samities (VSSs) in the Division. An area of 176.23 Km² forests which is 21.19% of the notified forests is under the management of the VSSs.

4.12.5 Forest Cover:

The forest cover in the Division, based on the Interpretation of IRS P6 LISS III 2009 data (Oct 2009), is 2323.46 Km², which is 1.40% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.0 Km² of Very Dense Forest, 8.49 Km² of Moderately Dense Forest and 181.98 Km² of Open Forest. The area of the Scrub is 441.72 Km², Non-Forest 133.29 Km² and Water Bodies 29.50 Km². The distributions of the forest cover of the division is shown in Fig 4.12.1



4.12.6 Change in Forest Cover:

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment (Satellite data of Oct 2008), shows a 58.21 Ha negative change in Forest cover and no positive change. The Forest cover change matrix, given in Table 4.29.2 reveals that there has been a decrease of 58 Ha of scrub.

Of the total negative change 58.21 Ha on account of Raising of Plantations. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore there is no net loss of Forest cover in this division.

The Satellite images of 2008 and 2009 are shown in Fig 4.12.2, Fig 4.12.3 and the changes between this period is shown on the image of 2009.

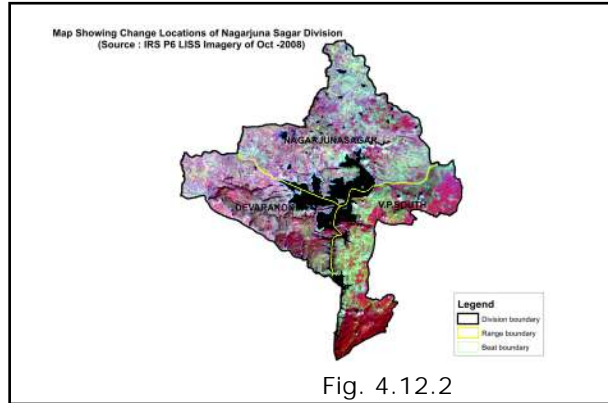


Fig. 4.12.2

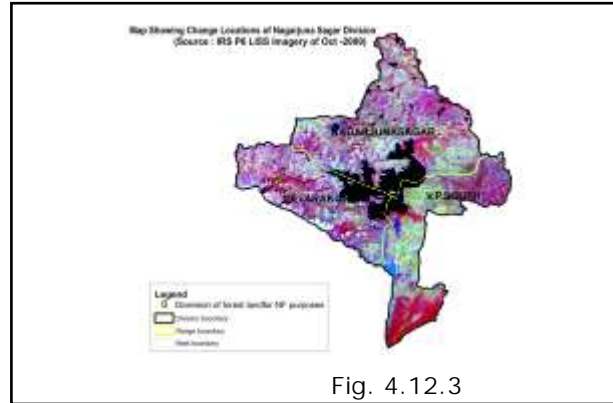


Fig. 4.12.3

The simplified forest cover change matrix is given in Table 4.12.3 and Table 4.12.4

There are 21 beats in the division. Negative change in forest cover is noticed in only 01 beat, no positive change in forest cover. There is no change in the remaining 20 beats.

Details of Forest cover changes in the 01 beat where Forest cover is change , is shown in Table 4.12.5.

Table 4.12.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Oct 2008 - Dec 2008)	2009 (Data of Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	8.49	0.00	0.00	0.00	0.00	8.49
Open Forest	0.00	0.00	181.98	0.00	0.00	0.00	181.98
Scrub	0.00	0.00	0.00	441.72	0.58	0.00	442.30
Non-Forest	0.00	0.00	0.00	0.00	132.71	0.00	132.71
Water	0.00	0.00	0.00	0.00	0.00	29.50	29.50
Total of 2009	0.00	8.49	181.98	441.72	133.29	29.50	794.98
Net Change		0.00	0	-0.58	0.58	0.00	

Table 4.12.3: Forest Cover change matrix (Good and Degraded Forest)				(Area in Km ²)
2008 (Data of –Oct 2008 - Dec 2008)	2009 (Data of Oct 2008 - Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	190.47	0.00	0.00	190.47
Degraded Forest	0.00	575.01	0.00	575.01
Water	0.00	0.00	29.50	29.50
Total of 2009	0.00	575.01	29.50	794.98
Net Change	0.00	0.00	0.00	



Table 4.12.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Dec 2008)	2009 (Data of Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	632.19	0.58	0.00	632.77
Barren	0.00	132.71	0.00	132.71
Water	0.00	0.00	29.50	29.50
Total of 2009	632.19	133.29	29.50	794.98
Net Change	-0.58	0.58	0.00	

Table 12.5: Beat wise Forest cover (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
DEVARAKONDA Range								
Bollaram	0.00	80.74	2,132.87	3,546.05	114.26	5,894.07	0.00	0.00
Chitriyala	0.00	293.19	1,520.33	1,649.32	391.88	3,858.87	-58.21	0.00
Kamballapaalli	0.00	347.24	2,962.30	2,126.35	86.12	5,584.75	0.00	0.00
Kothapally	0.00	22.31	1,367.54	2,832.61	72.91	4,295.94	0.00	0.00
Pogilla	0.00	14.37	748.78	2,642.49	492.63	4,048.09	0.00	0.00
Reku laram	0.00	26.21	2,399.63	2,405.57	187.93	5,139.43	0.00	0.00
Total	0.00	784.07	11131.44	15202.39	1345.73	28821.15	-58.21	0.00
NAGARJUNASAGAR Range								
Nagarjunasagar	0.00	22.21	832.10	2,333.48	246.84	3,469.22	0.00	0.00
Nellikal	0.00	11.33	1,190.15	939.93	134.43	2,406.65	0.00	0.00
Pedagattu	0.00	7.38	750.07	2,675.92	387.54	3,925.69	0.00	0.00
Tunkinuthala	0.00	3.94	424.24	1,902.02	152.63	2,494.89	0.00	0.00
Waddipatla	0.00	0.00	292.57	1,418.64	24.80	1,749.79	0.00	0.00
Yellapur	0.00	0.60	499.58	855.42	0.71	1,357.00	0.00	0.00
TOTAL	0.00	45.46	3988.72	10125.41	946.96	15403.25	0.00	0.00
VIJAYAPURI SOUH Range								
Gangalgunta(wl)	0.00	8.57	1,178.81	3,048.03	565.59	5,031.47	0.00	0.00
Gottipalli(wl)	0.00	0.00	68.92	1,103.25	3,133.37	5,021.51	0.00	0.00
Kandlgunta(wl)	0.00	0.00	14.79	256.50	1,512.57	1,784.43	0.00	0.00
Koppunuru(wl)	0.00	0.00	45.12	3,194.99	2,821.52	6,820.61	0.00	0.00
Nagulavaram(wl)	0.00	0.00	10.76	818.61	469.94	1,314.50	0.00	0.00
Pasuvemula(wl)	0.00	0.00	43.66	2,269.03	714.97	3,089.23	0.00	0.00
Sirigiripadu(wl)	0.00	10.90	1,696.20	5,517.61	222.25	7,446.97	0.00	0.00
Tummurukota(wl)	0.00	0.00	17.96	2,484.58	582.42	3,087.29	0.00	0.00
Zuvuku(wl)	0.00	0.00	1.27	150.74	1,013.89	1,676.58	0.00	0.00
TOTAL	0.00	19.47	3077.50	18843.34	11036.52	35272.59	0.00	0.00
Division Total	0.00	849.00	18197.65	44171.14	13329.20	79496.99	-58.21	0.00

* Beat wise total area including Water bodies



Chapter-IV

4.13 GIDDALUR DIVISION

4.13.1 Introduction:

Giddalur Forest Division lies in the South Eastern Part of Prakasam District, between latitudes 14° 57' 46" and 16° 09' 48" N and longitudes 78° 44' 16" and 80° 28' 35" E. The Geographical Area of the Division is 10,408.00 Km², which is 59.04% of the total area of the District. The Rivers Gundlakamma, Sagileru, Musi, Paleru and Manneru are seasonal and the Gundlakamma River rises in Nallamala hills and the Cumbum Tank is formed by a bund across the river.

Landuse pattern of the Division is given in Table 4.13.1

The climate of this Division is dry and salubrious, the temperatures ranging from 19° to 38° and the annual rainfall is about 871 mm, received mainly from Southwest monsoons.

The rocks in the Division are Sandstone mixed with quartzite and occasional Shale is the characteristic rock formation on the veligonda and at their extreme's bordering Kanigiri, the rocks gradually change into Gneisses or Granite composition. Outcrops of Barytes and Manganese ores also occur in veligonda. The soil types found mainly are red loamy soil, Black cotton, sandy loam and sandy soils.

The total population of the Division is 2.48 million (2011 Census). The Per capita forest area is 0.08 ha. The population density is 238 persons per Km².

4.13.2 Recorded Forest Area:

The total notified forest area of the Division is 1,948.60 Km², which is 18.72% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 1908.69 Km² (97.95%), 39.91 Km² (2.09%) of the total forest area respectively.

As per Champion and Seth's classification, the forests of Division fall under Southern tropical dry deciduous and it is the predominant and climatic climax forest, Southern Tropical Thorn Forest also occurs in low elevations and in plains.

4.13.3 Protected Area:

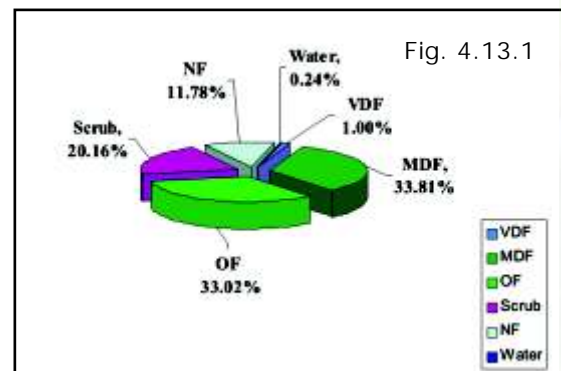
The Division is one of the two constituent Divisions of Gundla Brahmeswaram (GBM) Wildlife Sanctuary Out of 1948.60 Km² of notified forest area, 444.76 Km² is included in the Gundla Brahmeswaram Wildlife Sanctuary (GBM).

4.13.4 Community Forest Management:

There are 110 Vanasamrakshana Samities (VSSs) in the Division. An area of 287.08 Km² forests, which is 19.16% of the notified forests, is under the management of VSSs.

Table 4.13.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	10408.00	
Forest including Scrub	1944.51	18.68%
Agriculture	7164.53	68.84%
Land with Scrub	618.70	5.94%
Fallow Lands	100.77	0.97%
Grasslands	22.17	0.21%
Settlements	103.26	0.99%
Vegetation outside Forest	192.62	1.85%
Water body	261.44	2.51%



4.13.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009), is 1497.74 Km², which is 14.39 % of the total Geographical area. In terms of the forest canopy cover density classes, the Division has 22.10 Km² of Very Dense Forests, 746.57 Km² of Moderately Dense Forests, and 729.07 Km² of Open Forests. The area of the Scrub is 445.10 Km², Non-Forests 260.05 Km² and Water Bodies 5.31 Km². The distribution of the forest cover of the division is shown in Fig 4.13.1

4.13.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 are shown in Fig (4.13.2 & 4.13.3), the changes during this period have shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment year (Satellite Imagery of Dec 2008 – Feb 2009) shows a negative change of 17.39 Ha and there is no positive change. The forest cover change matrix, of forest cover during the period of one year given in Table 4.13.2 reveals that there has been a decrease of 15 Ha of scrub forest.

The total negative change 17.39 Ha is on account of Raising of plantations. Raising of plantations are forest management interventions and hence not considered as loss of forest cover. **Therefore the net loss of Forest cover is 0.00 Ha.**

The simplified forest cover change matrix is given in Table 4.13.3 and Table 4.13.4

There area 62 beats in the Division. Negative change in Forest cover is noticed in only 3 beats. There is no change in the remaining 59 beats.

Details of Forest cover changes in the 3 Beats where forest cover is changed, is shown in Table 4.13.5

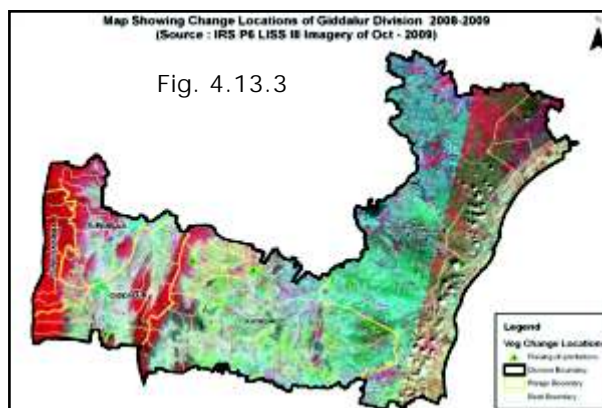
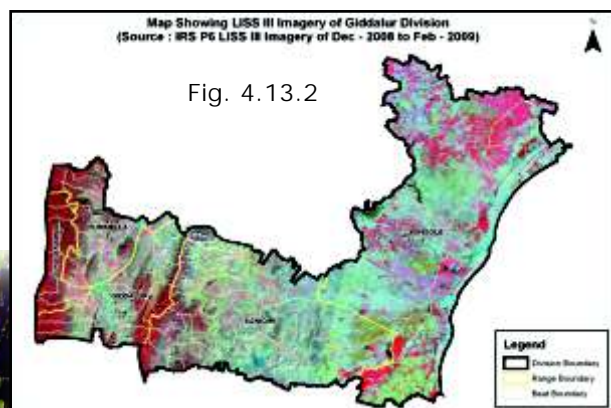


Table 4.13.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Dec 2008 – Feb 2009)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	22.10	0.00	0.00	0.00	0.00	0.00	22.10
Moderately Dense Forest		746.57	0.00	0.00	0.00	0.00	746.57
Open Forest	0.00	0.00	729.07	0.00	0.00	0.00	729.07
Scrub	0.00	0.00	0.00	445.10	0.17	0.00	445.27
Non-Forest	0.00	0.00	0.00	0.00	259.88	0.00	259.88
Water	0.00	0.00	0.00	0.00	0.00	5.31	5.31
Total of 2009	22.10	746.57	729.07	445.10	260.05	5.31	2208.20
Net Change	0.00	0.00	0.00	-0.17	0.17	0.00	

Table 4.13.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Dec 2008 – Feb 2009)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1497.74	0.00	0.00	1497.74
Degraded Forest	0.00	705.15	0.00	705.15
Water	0.00	0.00	5.31	5.31
Total of 2009	1497.74	705.15	5.31	2208.20
Net Change	0.00	0.00	0.00	

Table 4.13.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Dec 2008 – Feb 2009)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	1942.84	0.17	0.00	1943.01
Barren	0.00	259.88	0.00	259.88
Water	0.00	0.00	5.31	5.31
Total of 2009	1942.84	260.05	5.31	2208.20
Net Change	-0.17	0.17	0.00	

Table 4.13.5: Beat wise Forest Area in 2009 (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
GIDDALUR Range								
Allinagaram	30.70	1859.56	1329.54	1004.41	262.65	4486.86	0.00	0.00
Bodi	129.31	3197.59	1554.40	941.17	333.08	6155.55	0.00	0.00
Chinaobenipalli	0.00	209.66	1867.77	1649.38	292.83	4019.64	0.00	0.00
Chintalapalli	14.93	1297.71	1738.79	431.18	216.44	3699.05	0.00	0.00
Gunthapalli	0.69	722.08	1414.16	611.80	207.32	2956.05	-5.35	0.00
Janapalacheruvu	14.64	1425.84	2126.54	988.25	258.75	4814.02	0.00	0.00
Nallaguntla	19.25	1388.07	1375.28	441.07	57.42	3281.09	0.00	0.00
Sanjeevarao Peta	162.19	2993.67	1561.69	785.07	152.68	5660.86	0.00	0.00
Singasanipalli	58.52	2257.57	2529.19	519.99	86.88	5452.15	0.00	0.00
Taticherla	0.00	330.11	1559.93	821.94	77.68	2789.66	0.00	0.00
Uyyalawada	38.49	2067.40	1078.87	439.01	160.32	3797.99	0.00	0.00
Total	468.72	17749.26	18136.16	8633.27	2106.05	47112.92	-5.35	0.00
GUNDLAKAMMA Range								
Diguvametta	180.35	4635.93	377.62	22.04	0.00	5215.94	0.00	0.00
Isukagundam	48.34	3900.51	703.39	2.20	0.00	4654.44	0.00	0.00
Kothakota	143.14	2920.82	601.23	91.97	240.60	3997.76	0.00	0.00
Malakondapenta East	31.45	5120.63	1875.15	55.04	2.89	7085.16	0.00	0.00
Malakondapentawest	279.96	5504.23	311.53	0.87	0.00	6096.59	0.00	0.00
Obulesunipenta	52.36	3758.12	826.48	36.61	8.10	4681.67	0.00	0.00
Sandrapodu	50.40	2860.38	548.19	444.76	185.45	5109.42	0.00	0.00
Tunnel	498.59	2916.69	562.75	8.89	0.00	3986.92	0.00	0.00
Total	1284.59	31617.31	6806.34	662.38	437.04	40827.90	0.00	0.00



Andhra Pradesh State of Forests - 2011

KANIGIRI Range								
Ambavaram	0.00	133.30	823.17	452.94	17.30	1426.71	0.00	0.00
Ballipalli	0.00	0.00	298.24	1349.29	712.10	2359.63	0.00	0.00
Bonthavaripalli	56.35	1156.76	2624.61	825.03	35.23	4697.98	0.00	0.00
Chennapanauunipalli	37.50	2606.37	2282.35	307.95	3.14	5237.31	0.00	0.00
Chundi North	0.00	0.00	159.95	1726.23	496.52	2382.70	0.00	0.00
Chundi South	0.00	0.00	107.91	905.25	1505.35	2519.21	0.00	0.00
Gudipatipalli	20.96	1469.17	3143.67	2050.95	230.63	6915.38	-5.81	0.00
Gunthachenampalli	5.27	103.27	1750.91	1109.10	118.25	3086.80	0.00	0.00
Hazeepuram	0.00	0.00	139.58	570.49	815.39	1525.46	-6.23	0.00
Kanigiri	0.00	8.53	327.23	1079.96	716.98	2147.22	0.00	0.00
Kodigampalli	0.00	3.92	30.24	720.14	2814.10	3679.14	0.00	0.00
Malapadu	0.00	0.00	459.98	589.91	635.26	1698.56	0.00	0.00
Malapadu1	0.00	580.71	1716.78	343.47	40.70	2681.66	0.00	0.00
Mogilicherla	0.00	0.00	4.29	133.57	593.64	740.98	0.00	0.00
Nagireddipalli P	0.00	14.44	400.69	1377.69	940.23	2733.05	0.00	0.00
Peddacherlopalli	0.00	8.82	549.95	1207.20	407.93	2173.90	0.00	0.00
Peddirlapadu	0.00	0.81	580.79	1959.81	845.46	3386.87	0.00	0.00
Tadivaripalli	0.00	209.29	3113.43	2208.26	344.87	5875.85	0.00	0.00
Thummagunta	0.00	105.01	1160.57	824.43	189.17	2279.18	0.00	0.00
Thungodu	77.51	2077.63	3068.86	206.38	4.08	5434.46	0.00	0.00
Vedullacheruvup	9.30	1362.02	3954.26	1192.18	135.11	6652.87	0.00	0.00
Total	206.89	9840.05	26697.46	21140.23	11601.44	69634.92	-12.04	0.00
ONGOLE Range								
Chagollu	0.00	0.00	0.00	75.42	434.95	543.89	0.00	0.00
Chakicherla	0.00	5.54	2.10	75.29	353.86	570.19	0.00	0.00
Chimakurthy	0.00	0.00	28.35	1399.43	1690.72	3118.50	0.00	0.00
Gudlur	0.00	0.00	40.50	647.15	1377.16	2064.81	0.00	0.00
Kukatlapalli	0.00	0.00	3.51	223.65	1308.50	1537.72	0.00	0.00
Kullurpadu	0.00	1.01	9.69	162.19	337.40	609.31	0.00	0.00
Mocherla	0.00	4.85	179.61	1075.77	2415.42	3677.04	0.00	0.00
Motupalli	0.00	2.45	43.54	126.29	333.13	558.45	0.00	0.00
Peddavaram	0.00	0.00	2.61	108.67	355.37	466.65	0.00	0.00
Perlavanlapalle	0.00	0.00	4.57	83.55	85.43	180.22	0.00	0.00
Potlur	0.00	0.00	71.89	1205.43	1921.78	3199.83	0.00	0.00
Pullaripalem	0.00	0.00	10.04	89.99	149.96	249.99	0.00	0.00
Total	0.00	13.85	396.41	5272.83	10763.68	16776.60	0.00	0.00
TURIMELLA Range								
Ambavaram	11.55	1506.42	1937.57	956.68	113.99	4531.82	0.00	0.00
Araveetikota	51.88	2509.69	3104.80	509.80	53.71	6233.58	0.00	0.00
Bollupalli	6.54	1870.26	2570.12	647.22	110.14	5204.28	0.00	0.00
J.B. Krishnapuram	0.00	257.83	2054.60	1499.52	56.64	3868.59	0.00	0.00
J.P.Chervu	3.58	1081.24	1532.89	1350.45	14.37	3982.53	0.00	0.00
Maddipenta	150.17	3983.94	1075.63	49.23	4.57	5263.54	0.00	0.00
Apinenipalli	11.09	1959.20	3577.52	1243.39	154.62	6948.66	0.00	0.00
Racherla	0.00	108.07	1379.34	1688.23	495.93	3671.57	0.00	0.00
Turimella	6.54	623.25	1680.23	540.37	53.49	2903.88	0.00	0.00
Velagalapaya	8.74	1536.35	1958.27	316.02	39.90	3859.28	0.00	0.00
Total	250.09	15436.25	20870.97	8800.91	1097.36	46467.73	0.00	0.00
Grand Total	2210.29	74656.72	72907.34	44509.62	26005.57	220820.07	-17.39	0.00

* Beat wise total area including water bodies.





Chapter-IV

4.14 GUNTUR DIVISION

4.14.1 Introduction:

Guntur Forest Division Comprises of the entire District and lies in the South Eastern Part of Prakasam District, between latitudes 15° 42' 13.68" and 16° 49' 23.52" N and longitudes 79° 12' 34.56" and 80° 54' 16.92" E. The Geographical Area of the Division is 11,391.00 Km², which constitutes 100 % of the total area of the District. The Division has four physiographic zones the sea board, the plains, and hills rising gently to an altitude of 500 m. The 'U' shaped Nallamala hills skirting Macherla to its west and on the east Markapur and Kurnool Divisions, the other hill ranges are Venkatayyapalem and Kondaveedu of Sttenapalli and Narasaraopet and in the North from Nagarjunasagar runs towards east along Krishna River and meets in Bay of Bengal. The important rivers draning the division is the Krishna River and Gundlakamma with tributaries which are seasonal are Chandravanka, Goli and Naguleru in Macherla.

Landuse pattern of the Division is given in Table 4.14.1

The climate of this Division is dry and salubrious temperatures ranging from 17°C to 48°C, and the annual rainfall is about 989.1 mm received from both South-West and North-East monsoons.

The Common rocks are Shales, Slates, Lime-stone, Quartzite, Gneisses and Schist. Soils of all kinds occur in the Division, Swampy in the Krishna estuary, Sandy along the coast, Alluvial on the banks of Krishna, Red Gravelly in the interior and Loamy of rather rare occurrence.

The Guntur Division and District Population is 4.84 million (2011 Census). The Per capita forest area is 0.03 ha. The population density is 455 persons per Km². The livestock population is 2.3 million.

Table 4.14.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	10623.19	
Forest including Scrub	1112.92	10.48
Agriculture	8446.28	79.51
Land with Scrub	80.08	0.75
Fallow Lands	314.65	2.96
Grasslands	0.71	0.01
Settlements	287.41	2.71
Vegetation outside Forest	107.88	1.02
Water body	273.26	2.57

4.14.2 Recorded Forest Area:

The total notified forest area of the Division is 1411.10 Km², which is 13.28 % of the total geographical area. The total forest area is Reserved Forest.

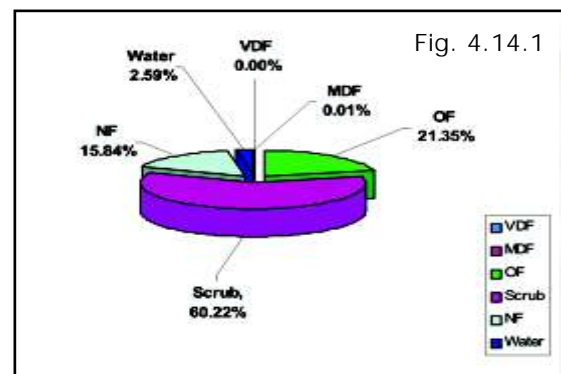
As per Champion and Seth's classification, the major Forest types of Division are classified into coastal Forests and inland Forests. In Coastal Forests Mangroves Forests and Dry evergreen Forests are present. Inland Forests are Southern dry mixed deciduous, Hardwickia binata forests and Acacia arabica forests.

4.14.3 Protected Area:

The Division is one of the two constituent Divisions of Krishna Wildlife Sanctuary (KWS). Out of 1411.10 Km² of notified forest area, 81.99 Km² is included in the Krishna Wildlife Sanctuary (KWS).

4.14.4 Community Forest Management:

There are 180 Vana Samrakshana Samities (VSSs) in the Division. An area of 260.80 Km² forests, which is constitutes 16.10 % of the notified forests, is under the management of the VSSs.



4.14.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Oct-2009), is 315.38 Km², which is 2.96% of the total Geographical area. In terms of the forest canopy cover density classes, 0.08 Km² of Moderately Dense Forests, and 315.30 Km² of Open Forests. The area of the Scrub is 889.33 Km², Non-Forest 233.94 Km² and Water Bodies 338.26 Km². The distribution of the forest cover of the division is shown in Fig 4.14.1

4.14.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 are shown in Fig (4.14.2 & 4.14.3), the changes during this period has been shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct - 2009) with that of previous assessment (Satellite Imagery of Oct 2008- Feb 2009) shows a positive change of 5.57Ha and negative change of 244.78 Ha. The forest cover change matrix, of forest cover during the period of one year given in Table 4.14.2 reveals that there has been a decrease of 75 Ha of open forest, 164 Ha of scrub forest.

The total negative change 244.78 Ha is on account of Raising of Plantations. Raising of Plantations are Forest management interventions and hence not considered as loss of forest cover. Hence **the net loss of forest cover in this division is 0.00Ha.**

The simplified forest cover change matrix is given in Table 4.14.3 and Table 4.14.4

There are 57 beats in the division. Negative change in forest cover is noticed in only 11 beats. There is no change in the remaining 46 beats.

Details of Forest cover changes in the 11 beats where forest cover is changed, is shown in Table 4.14.5

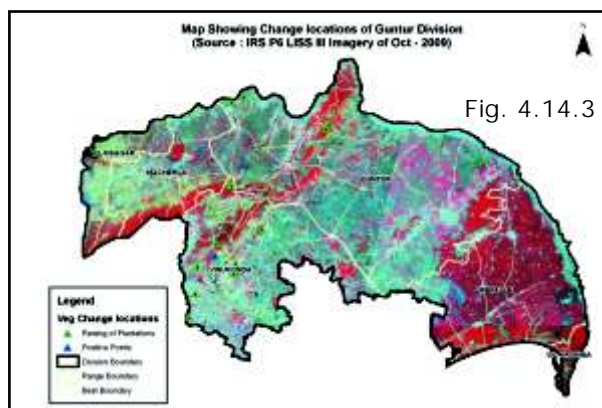
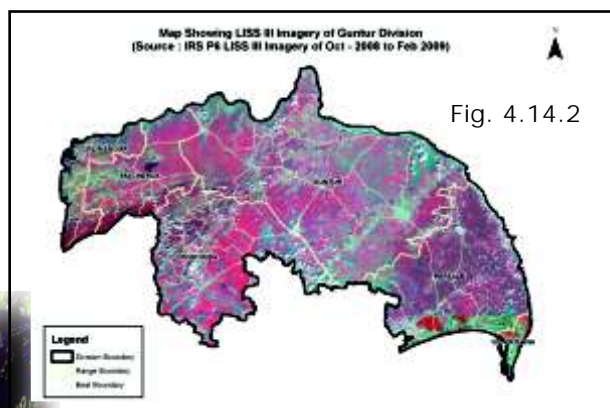


Table 4.14.2: Forest Cover change matrix

(Area in Km²)

2008 (Data of Oct 2008-Feb 2009)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	0.08	0.00	0.00	0.00	0.00	0.08
Open Forest	0.00	0.00	315.24	0.00	0.81	0.00	316.05
Scrub	0.00	0.00	0.00	889.33	1.64	0.00	890.97
Non-Forest	0.00	0.00	0.06	0.00	231.49	0.00	231.55
Water	0.00	0.00	0.00	0.00	0.00	38.26	38.26
Total of 2009	0.00	0.08	315.30	889.33	233.94	38.26	1476.91
Net Change	0.00	0.00	- 0.75	- 1.64	2.39	0.00	

2008 (Data of Oct 2008-Feb 2009)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	315.32	0.81	0.00	316.13
Degraded Forest	0.06	1122.46	0.00	1122.52
Water	0.00	0.00	38.26	38.26
Total of 2009	315.38	1123.27	38.26	1476.91
Net Change	-0.75	0.75	0.00	

2008 (Data of Oct 2008-Feb 2009)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	1204.65	2.45	0.00	1207.10
Barren	0.06	231.49	0.00	231.55
Water	0.00	0.00	38.26	38.26
Total of 2009	1204.71	233.94	38.26	1476.91
Net Change	-2.39	2.39	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
GUNTUR Range								
Ameenabad	0.00	0.00	365.23	908.90	17.78	1298.53	0.00	0.00
Atchampet	0.00	0.00	492.58	2202.86	197.30	2892.74	-33.31	0.00
Bodanam	0.00	0.00	117.00	1118.66	485.08	1720.74	0.00	0.00
Chinthapalli	0.00	0.00	1057.58	1847.48	71.22	2976.28	0.00	0.00
Dodleru	0.00	0.00	9.66	661.33	7.89	678.88	0.00	0.00
Enamdala	0.00	0.00	1059.10	1813.28	215.64	3090.10	0.00	0.00
Endroy	0.00	0.00	24.25	801.13	13.26	838.64	0.00	0.00
Gundlapalli	0.00	0.00	730.48	2050.44	237.76	3018.68	-22.34	0.00
Guthikonda	0.00	0.00	1586.14	2394.92	40.95	4023.81	0.00	0.00
Konanki	0.00	0.00	116.33	2490.13	332.42	2938.88	0.00	0.00
Kondaveedu	0.00	0.00	458.94	716.37	51.97	1227.92	0.00	0.00
Madinapadu	0.00	0.00	10.04	1244.18	3457.44	4716.67	-7.90	0.00
Mangalagiri	0.00	0.00	192.23	458.80	26.70	678.65	0.00	0.00
Nekarikal	0.00	0.00	560.17	1823.22	311.30	2696.64	0.00	0.00
Papayapalem	0.00	0.00	220.98	2639.65	112.42	2973.05	-47.61	0.00
Pulichintha	0.00	0.00	1424.82	2065.93	292.72	3783.57	0.00	0.00
Tripurapuram	0.00	0.00	1165.12	2790.65	58.31	4015.56	0.00	0.00
Tsallagariga	0.00	0.00	5.32	4845.59	436.72	5290.53	0.00	0.00
Vemavaram	0.00	0.00	9.05	268.33	2978.77	3256.67	-7.61	0.00
Venkatayapalem	0.00	0.58	780.75	1305.53	31.14	2118.00	0.00	0.00
Total	0.00	0.58	10385.77	34447.38	9376.79	54234.54	-118.77	0.00



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MACHERLA Range								
Adigoppula	0.00	0.00	1405.90	1660.60	123.64	3190.14	0.00	0.00
Daida	0.00	0.00	0.00	433.48	1247.13	1683.54	0.00	0.00
Kakirala	0.00	0.00	757.73	1251.38	27.28	2039.17	0.00	0.00
Loyapalli	0.00	0.00	3129.89	1581.14	186.76	4897.79	0.00	0.00
Macherla	0.00	0.00	12.51	1312.67	3895.36	5220.80	0.00	0.00
Madugula	0.00	0.00	0.00	224.24	439.58	666.91	0.00	0.00
Minchalapadu	0.00	0.00	1639.32	1688.94	223.96	3552.22	0.00	0.00
Mutukuru	0.00	0.00	2143.71	2474.47	137.93	4756.11	0.00	0.00
Veldurthi	0.00	0.00	30.57	635.72	2513.69	3192.28	0.00	0.00
Total	0.00	0.00	9119.63	11262.64	8795.33	29198.96	0.00	0.00
REPALLE Range								
Adavuladeevi	0.00	0.00	3.83	476.65	204.11	985.08	0.00	0.00
Dindi	0.00	0.00	19.61	222.99	186.84	535.67	0.00	0.00
Muthayapalem A	0.00	3.55	147.74	568.23	91.43	858.73	0.00	0.00
Muthayapalem B	0.00	0.00	56.16	1576.41	268.59	2169.46	0.00	0.00
Nizampatnam	0.00	0.00	284.59	338.15	146.60	894.11	0.00	0.00
Pulugubaripalem	0.00	0.00	344.51	680.42	250.86	1463.88	0.00	0.00
Total	0.00	3.55	856.44	3862.85	1148.43	6906.93	0.00	0.00
VINUKONDA Range								
Bollapalli	0.00	0.00	718.50	2949.28	64.11	3732.13	-8.07	0.00
Chejerla	0.00	0.00	923.01	1768.42	9.14	2700.57	0.00	0.00
Domalagudem	0.00	0.00	293.58	2632.69	100.03	3026.30	0.00	0.00
Epuru East	0.00	0.00	3.90	1302.86	551.50	1858.26	-10.85	0.00
Epuru West	0.00	0.00	625.86	2090.22	81.82	2797.90	0.00	0.00
Garikapadu	0.00	0.00	434.55	1610.76	98.60	2143.91	0.00	0.00
Jayanthipuram	0.00	0.00	935.68	1157.32	68.75	2161.75	0.00	0.00
Kandrika	0.00	0.00	618.23	3410.57	152.28	4181.08	0.00	0.00
Kanumulachervu	0.00	0.78	184.68	4963.97	182.89	5334.70	0.00	0.00
Karempudi	0.00	0.00	815.55	1955.34	186.98	2957.87	-22.24	0.00
Mellavagu	0.00	0.00	882.71	1190.72	27.65	2101.08	0.00	0.00
Naidupalem	0.00	0.00	177.82	2663.79	307.82	3150.93	-7.30	0.00
Ravulapuram	0.00	0.00	449.49	2378.87	47.10	2875.46	0.00	0.00
Ravvaram	0.00	3.57	17.48	1592.69	97.10	1712.64	0.00	0.00
Remidicherla	0.00	0.00	1661.16	1791.76	29.26	3482.18	0.00	0.00
Tangedumalli	0.00	0.00	0.69	609.73	13.72	624.14	0.00	0.00
Tangirala	0.00	0.00	4.22	1369.34	30.93	1407.02	-28.37	0.00
Vaddemgunta	0.00	0.00	0.39	2048.45	705.89	2754.73	-43.61	0.00
Total	0.00	4.35	8747.50	37486.78	2755.57	49002.65	-120.44	0.00
WL-KRISHNA Range								
Kothapalem(WI)	0.00	0.00	475.26	372.80	208.08	1137.98	0.00	0.00
Lanka Vanidibba(WI)	0.00	0.00	901.81	540.08	391.26	3638.87	0.00	0.00
Mollagunta(WI)	0.00	0.00	1042.76	960.68	718.35	3571.14	0.00	0.00
Total	0.00	0.00	2419.83	1873.56	1317.69	8347.99	0.00	0.00
Grand Total	0.00	8.48	31529.17	88933.21	23393.81	147691.07	-239.21	0.00

*Beat wise total area including water bodies.



Chapter IV

4.15 NELLORE DIVISION

4.15.1 Introduction:

Nellore Forest Division, Comprises of the entire District and lies in the South Eastern Part of Andhra Pradesh, between latitudes 15° 4' 58.59" and 13° 48' 49.58" N and longitudes 79° 6' 4.36" and 80° 14' 46.71" E. The Geographical Area of the Division is 13,076 Km², which is 100 % of the total area of the District.

The Division is bordered by the Bay of Bengal to the east, the state of Tamil Nadu to the South, the district of Kadapa, and the district of Prakasam to the north. The eastern side consists of area of low lying land extending from the base of the Eastern Ghats to the sea. The west side of the district is separated from Kadapa district by Veligonda hills. The district is split by the River Pennar and is located on both south and north banks of it. This Division has four physiographic zones the sea board, the plains, foothills and Ghats reaching upto 800 m, The principal rivers in the district area Pennar in the centre, Kandaleru, Swarnamukhi, Kalinga Rivers in the south and Uppuvagu in the north.

Land use pattern of the Division is given in Table 4.15.1

Table 4.15.1: Landuse Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	12934.72	
Forest including Scrub	1879.83	14.53
Agriculture	6610.72	51.11
Land with Scrub	2126.77	16.44
Fallow Lands	621.88	4.81
Grasslands	21.02	0.16
Settlements	84.33	0.65
Vegetation outside Forest	141.98	1.10
Water bodies	1448.19	11.20

The climate of this Division has a hot and exhausting for most part of the year, the temperature ranging from 18° to 42° and the annual rainfall ranges from 700-1040 mm through South West and North East Monsoons.

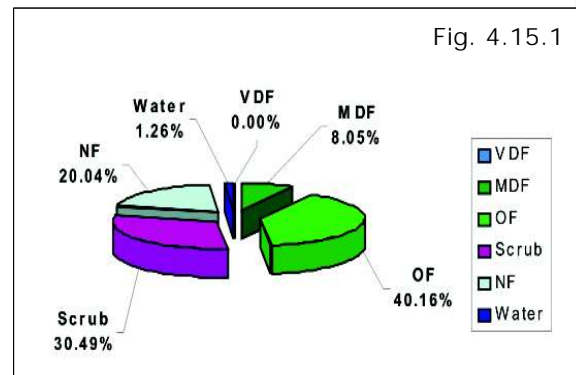
The Division is under laid by two types of the oldest rocks, Schistose and Quartzite's of the Dharwar System. The Peninsular gneisses, Closepet granite and Pegmatite are also found intruding into the Schistose series, the north-west portion of the Dharwarian belt of Nellore devoid of Pegmatite intrusions but the southern Eastern portion, Gudur, Rapur areas is traversed by many intrusions and they contain Deposits of Muscovite mica. The soil types found mainly are Sandy soils, Red soils Lateritic soils, Murram, Clayey and Alluvial soils.

The Division & District Population is 2.91 million (2011 Census). The Per capita forest area is 0.8 ha. The population density is 223 persons per Km². The livestock population is 2.5 million.

4.15.2 Recorded Forest Area:

The total notified forest area of the Division is 2519.37 Km², which is 19.26% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 2,500.01 Km² (99.23%), 14.46 Km² (0.57%) 4.90 Km² (0.19%) of the total forest area respectively.

As per Champion and Seth's classification, this Division is having 5 major forest types Dry Red Sanders bearing Forest, Southern Tropical Dry Mixed Deciduous Forests, Hardwikia Binata Forest, Southern Tropical Thorn Forest, Southern Topical Dry Evergreen Forest.



4.15.3 Protected Area:

The Nellore District itself comprises the Division is one of the 3 constituent Divisions of Guntur Circle. Out of 2519.37Km² of notified forest area, 1030 Km² is included in the Peninsula Narasimha WLS, 500 Km² is included in Pulicat Bird Sanctuary, 4.58 Km² is included in Nelapattu Bird Sanctuary.

4.15.4 Community Forest Management:

There are 292 Vana Samrakshana Samities (VSSs) in the Division. An area of 645.93 Km² forests, which is 25.63 % of the notified forests, is under the management of the VSSs.

4.15.5 Forest Cover:

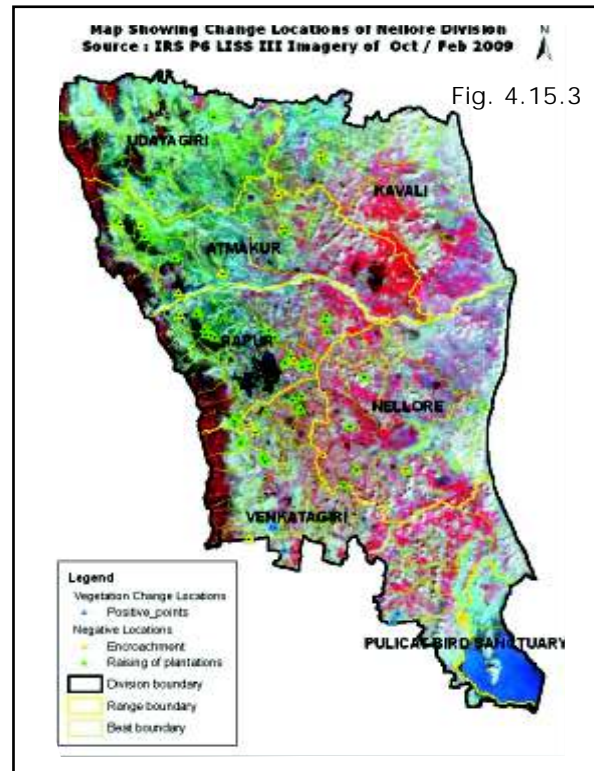
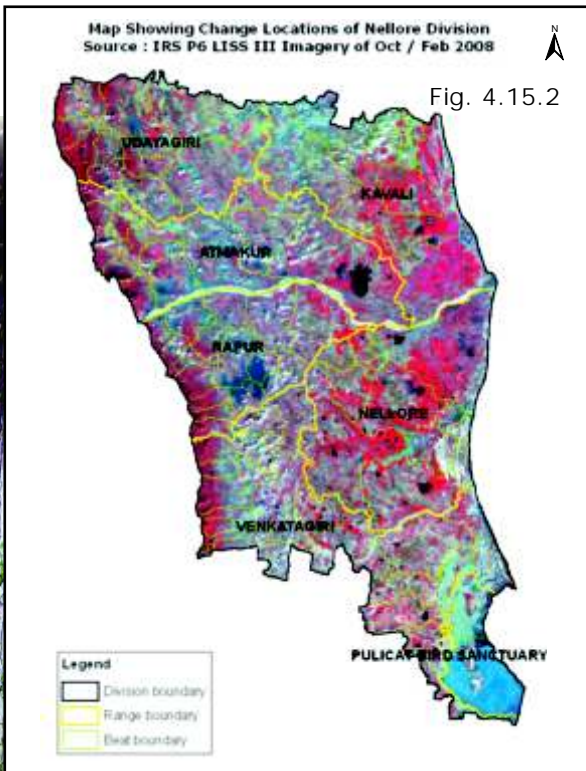
The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Oct2009) is 1149.61 Km², which is 8.8% of the total Geographical area. In terms of the forest cover canopy density classes the Division has 191.55 Km² of Moderately Dense Forests, and 955.77 Km² of Open Forests. The area of the Scrub is 725.69 Km², Non-Forest 477.00 Km² and Water Bodies 29.95 Km². The distribution of the forest cover of the division is shown in Fig 4.15.1

4.15.6 Change in Forest Cover:

The satellite images of 2008 and 2009 are shown in Fig (4.15.2 & 4.15.3), the changes during this period has been shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009 – Feb 2010) with that of previous assessment (Satellite data of Oct 2008 – Feb 2008), shows a negative change in forest cover of 1083.80 Ha and positive change of 247.33 Ha. The forest cover change matrix, given in Table 4.14.2 reveals that there has been a decrease of 164 Ha of open forest and 647 Ha of scrub.

The positive change is on account of rising of or growth in raised plantations. Of the total negative change 850.59 Ha on account of Raising of Plantations and 23.41 Ha on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 23.41 Ha only.



The simplified forest cover change matrix is given in Table 4.15.3 and Table 4.15.4

There are **85 beats** in the Division. Negative change in Forest Cover is noticed in 27 Beats, 2 Beats are Positive change and 2 beats having both changes. There is no change in the remaining 54 Beats.

Details of Forest Cover changes in the 31 Beats where Forest Cover is changed is shown in Table 4.15.5

Table 4.15.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Oct 2008–Feb 2009)	2009 (Data of Oct 2009 – Feb 2010)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	191.55	0.00	0.00	0.00	0.00	191.55
Open Forest	0.00	0.00	955.26	0.37	1.78	0.00	957.41
Scrub	0.00	0.00	0.00	723.36	8.80	0.00	732.16
Non-Forest	0.00	0.00	0.51	1.96	466.42	0.00	468.89
Water	0.00	0.00	0.00	0.00	0.00	29.95	29.95
Total of 2009	0.00	191.55	955.77	725.69	477.00	29.95	2379.96
Net Change	0.00	0.00	-1.64	-6.47	8.11	0.00	

Table 4.15.3: Forest Cover change matrix (Good and Degraded Forest)				(Area in Km ²)
2008 (Data of Oct 2008 – Feb 2009)	2008 (Data of Oct 2009 – Feb 2010)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1146.81	2.15	0.00	1148.96
Degraded Forest	0.51	1200.54	0.00	1201.05
Water	0.00	0.00	29.95	29.95
Total of 2009	1147.32	1202.69	29.95	2379.96
Net Change	-1.64	1.64	0.00	

Table 4.15.4: Forest Cover change matrix (Rejuvenation and Barren)				(Area in Km ²)
2008 (Data of Oct 2008 – Feb 2009)	2009 (Data of Oct 2009 – Feb 2010)			Total of 2008
	Green	Barren	Water	
Green	1870.54	10.58	0.00	1881.12
Barren	2.47	466.42	0.00	468.89
Water	0.00	0.00	29.95	29.95
Total of 2009	1873.01	477.00	29.95	2379.96
Net Change	-8.11	8.11	0.00	



Table 4.15.5: Beat wise Forest Cover

(Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
Atmakur Range								
Bata	0.00	792.99	2162.81	848.89	77.77	3896.70	0.00	0.00
Bommavaram	0.00	70.89	868.64	112.28	0.08	1051.89	0.00	0.00
Brahmanapalli	0.00	434.67	1171.82	468.16	118.62	2202.77	- 42.44	0.00
Gowravaram	0.00	211.25	1879.88	1198.82	118.31	3413.76	-37.79	0.00
Gudigunta	0.00	971.60	3432.03	1382.52	37.70	5857.42	0.00	0.00
Gudipadu	0.00	1.62	176.20	597.09	1308.40	2099.28	-10.53	0.00
K.N. Palli N	0.00	241.12	1967.67	418.20	11.18	2638.80	0.00	0.00
Kampasamudram	0.00	0.00	23.68	519.95	220.61	771.13	0.00	0.00
Ponguru	0.00	0.34	783.29	2992.53	390.18	4179.45	- 7.80	0.00
Rajavolu	0.00	0.58	102.90	1243.09	550.17	1898.03	-31.37	0.00
Rajupalem-Atma	0.00	393.36	1509.52	333.23	211.02	2455.50	-20.33	0.00
Sangam	0.00	79.95	432.68	1501.62	1022.90	3065.34	0.00	0.00
Singanapalli	0.00	209.55	1440.50	1141.55	204.56	2996.16	0.00	0.00
T. Talupur	0.00	104.34	2087.69	1192.69	105.21	3497.90	0.00	0.00
Venkatapuram	0.00	1094.40	1918.15	689.93	135.34	3840.48	0.00	0.00
Total	0.00	4606.66	19957.46	14640.55	4512.05	43864.61	150.26	0.00
Kavali Range								
Bitragunta	0.00	2.37	57.27	204.05	667.16	930.85	0.00	0.00
Chinnannaluru	0.00	3.97	57.09	708.49	1281.64	2051.19	-70.29	0.00
Dagadarthi	0.00	211.96	735.54	763.19	1454.50	3166.77	0.00	0.00
Gollapalem	0.00	12.94	576.41	253.39	891.75	1734.91	0.00	0.00
Kavali	0.00	10.46	141.02	415.79	2052.27	2626.20	0.00	0.00
Kesawaram	0.00	0.00	14.11	850.40	683.47	1547.98	0.00	0.00
Kothapalli	0.00	12.09	91.84	667.95	1395.84	2196.68	0.00	0.00
Racherlapadu	0.00	16.94	267.08	281.31	737.40	1302.73	0.00	0.00
Total	0.00	270.73	1940.36	4144.57	9164.03	15557.31	- 70.29	0.00
Nellore Range								
Dontali	0.00	0.00	224.25	377.96	677.80	1283.73	0.00	0.00
Gudur	0.00	33.21	1192.48	755.55	962.71	2943.95	-71.28	0.00
I Puru	0.00	0.00	31.29	63.84	119.39	216.55	0.00	0.00
Kadivedu	0.00	10.23	887.99	340.82	662.15	1908.60	-26.72	0.00
Kondlapudi	0.00	3.98	269.33	444.01	951.60	1706.67	0.00	0.00
Kothapatnam	0.00	0.74	99.77	100.21	586.55	796.86	0.00	0.00
Marupur	0.00	26.93	801.48	740.16	912.04	2480.61	0.00	0.00
Tammenapatnam	0.00	0.00	26.83	24.21	360.65	412.67	0.00	0.00
Teegapalem	0.00	0.00	70.47	45.22	292.87	408.56	0.00	0.00
Vadlapudi	0.00	28.56	906.15	1311.67	1727.07	3973.98	-15.14	0.00
Varagali	0.00	0.98	53.06	71.14	521.00	646.18	0.00	0.00
Venkatachalam	0.00	23.57	784.81	899.41	1369.52	3097.48	0.00	0.00
Total	0.00	128.20	5347.91	5174.20	9143.35	19875.84	-113.14	0.00
Rapuri Range								
Pernadu	0.00	19.31	686.25	91.48	347.20	1157.24	0.00	0.00
Venadu	0.00	0.70	76.34	45.31	240.17	362.52	0.00	0.00



Pulicat Bird Sanctuary	0.00	20.01	762.59	136.79	587.37	1519.76	0.00	0.00
Adurpalli	0.00	0.00	43.04	956.43	420.93	1458.22	-68.28	0.00
Ammavaripalem	0.00	12.39	202.14	1021.45	778.03	2035.33	-48.27	0.00
Chipini	0.00	412.21	1666.72	771.16	142.11	3002.19	-121.05	0.00
Epuru	0.00	372.40	1583.51	473.24	86.93	2516.08	0.00	0.00
Gonupalli	0.00	517.89	4824.88	1758.24	82.79	7216.66	0.00	0.00
Kaluvoya	0.00	273.17	1561.47	919.84	383.10	3197.83	-51.92	0.00
Koturupalli	0.00	105.07	1761.84	887.05	53.95	2809.30	0.00	0.00
Penubarthi	0.00	35.32	716.67	1514.24	396.18	3253.72	0.00	0.00
Pulikollu	0.00	0.00	65.05	608.53	116.49	1359.23	-15.26	0.00
Rajupalem-Rapur	0.00	133.07	1834.77	1331.37	211.66	3536.66	0.00	0.00
Rapur	0.00	858.14	2442.63	447.52	209.58	3972.93	-74.03	0.00
Tagecherla	0.00	51.03	1635.50	586.48	122.36	2395.37	0.00	0.00
Thumaya	0.00	1.40	429.28	1120.79	229.86	2612.86	0.00	0.00
Turpukambampadu	0.00	0.00	240.73	1349.32	66.26	1661.85	0.00	0.00
Valasa	0.00	783.10	2241.99	477.65	59.44	3562.18	0.00	0.00
Vavintaparthi	0.00	1.79	510.15	1152.97	549.88	2358.19	-132.51	0.00
Total	0.00	3556.98	21760.37	15376.28	3909.55	46948.60	-511.32	0.00
Udayagiri Range								
Arlapadia	0.00	712.37	3885.39	3354.77	264.77	8217.30	0.00	0.00
Chinnanagampalle	0.00	136.56	1114.80	637.85	31.63	1920.84	0.00	0.00
Devammacheruvu	0.00	2040.54	5394.27	406.20	20.73	7861.74	0.00	0.00
Duttalur	0.00	5.42	776.02	2669.92	437.60	3888.96	0.00	0.00
Kottapalli	0.00	572.00	3100.79	1107.01	95.03	4874.83	0.00	0.00
Nandipadu	0.00	45.66	954.44	1956.13	559.52	3520.52	-19.10	0.00
Pandrangi	0.00	738.37	3166.44	919.23	37.84	4861.88	-6.68	0.00
Sekunalapalli	0.00	51.87	1997.08	1281.42	60.50	3390.87	0.00	0.00
Sitatampuram	0.00	708.04	1504.98	92.81	1.34	2307.17	0.00	0.00
Udayagiri (West)	0.00	84.92	1709.56	509.52	116.20	2425.92	-23.02	0.00
Udayagiri West	0.00	662.16	1617.11	289.61	10.34	2579.22	0.00	0.00
Varikuntapadu	0.00	2.44	528.21	2051.98	744.22	3326.85	-45.49	0.00
Total	0.00	5760.35	25749.09	15276.45	2379.72	49176.10	-94.29	0.00
Venkatagiri Range								
Alturpad	0.00	1096.99	3813.09	1018.10	627.88	6557.34	0.00	0.00
Attiwaram	0.00	80.87	184.56	557.26	1361.02	2187.31	0.00	0.00
Balayapalli	0.00	4.04	94.75	1455.74	2621.10	4192.96	0.00	0.00
Chaganam	0.00	22.64	1978.35	2465.98	132.14	4615.30	-59.18	11.38
Chilamanur	0.00	79.16	266.09	515.94	1469.91	2395.31	0.00	0.00
Chilamuru	0.00	109.73	1691.76	1085.14	2600.63	5521.22	0.00	0.00
Dachuru	0.00	416.50	905.21	504.82	39.04	1865.57	0.00	0.00
Dakkili	0.00	0.00	98.50	1012.09	1437.15	2595.38	-40.11	0.00
Davulapalli	0.00	805.79	2628.62	375.46	134.18	3958.26	-12.03	12.03
Doravari Satram	0.00	16.88	583.80	688.28	1479.11	2786.61	0.00	0.00
Gilakapadu	0.00	75.41	1355.70	978.95	297.42	2709.28	-14.51	0.00
Jayampu	0.00	138.80	525.32	831.35	1118.62	2696.90	-21.08	0.00



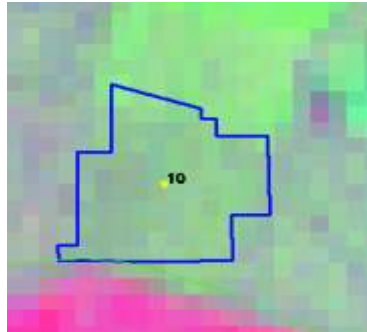
Andhra Pradesh State of Forests - 2011

Jorepalli	0.00	0.00	207.06	1572.19	806.82	2619.53	-11.71	0.00
Kurjagunta	0.00	260.53	999.29	1519.57	518.14	3297.53	37.85	0.00
Marlapudi	0.00	0.00	57.99	14.61	40.38	114.69	0.00	0.00
Naidupeta	0.00	0.37	198.27	322.93	752.29	1274.62	0.00	0.00
Palem Kota	0.00	913.58	1442.83	604.09	107.55	3068.05	0.00	0.00
Sullurupet	0.00	0.00	0.00	0.21	3.86	4.07	0.00	0.00
Teelthampadu	0.00	581.52	808.94	261.84	74.00	1726.30	0.00	0.00
Uggumudi	0.00	32.19	623.88	802.54	1476.42	2936.48	158.28	0.00
Vembulur	0.00	163.01	1351.40	486.93	283.66	2287.89	0.00	0.00
Yatalur	0.00	14.01	206.96	674.21	731.79	1643.98	51.20	0.00
Total	0.00	4812.02	20022.37	17748.23	18113.11	61054.58	88.71	0.00
Division Total	0.00	19154.95	95540.15	72497.07	47809.18	237996.80	-850.59	23.41

* Beat wise total area including water bodies.

Satellite Imageries

2008



2009



Longitude	79.62218
Latitude	14.79631
Area	5.28 Ha
Change	SF to NF
Compartment No.	366
Beat	Gudipadu
Range	Atmakur
Division	Nellore



Chapter IV

4.16 HYDERABAD DIVISION

4.16.1 Introduction:

Hyderabad Forest Division consists of Hyderabad & Rangareddy Districts. Hyderabad forest division lies between latitudes 16° 50' 39" to 17° 42' 28" in the North & Longitudes 77° 21' 49" to 78° 49' 49" in the East. The Geographical Area of the Division is 7,710 Km². The average altitude is 536 m above MSL. The highest point in the city is Banjara Hills, which is 665 m above MSL. The contour level falls gradually from west to east creating almost a trough near the Musi River which runs through the city.

The climate of this Division is generally dry with temperatures ranging from 12° C to 42° C and the normal rain fall of the Dist. Is 786.8 mm, received mainly from Southwest monsoons.

Granites are found in the Division. The soil types found mainly are Black cotton, Red and Brown sandy loam.

The total population of the Division and District is 8.14 millions (2011 Census), which constitutes about 9.71 % of the total population of the AP. The Per capita forest area is 0.009 ha. The population density is 1055 persons per Km². The livestock population is 1.6 million.

Table 4.16.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	7710	9.48
Forest including Scrub	730.75	76.77
Agriculture	5916.47	5.64
Land with Scrub	435.56	0.18
Fallow Lands	14.15	0.01
Grasslands	0.79	5.50
Settlements	424.91	0.35
Not available for cultivation	27.36	2.07
Rivers/Streams/Tanks	160.01	

4.16.2 Recorded Forest Area:

The total notified forest area of the Division is 730.75 Km², which is 9.48% of the total geographical area.

Reserved, Protected and Un-classed Forests Constitute 379.96 Km² (52%), 244.70 Km² (33.49%) and 106.09 Km² (14.52%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous and Tropical Thorn Forest types.

4.16.3 Protected Area:

No protected areas are found in this Division.

4.16.4 Community Forest Management:

There are 123 Vana Samrakshana Samities (VSSs) in the Division. An area of 353.49 Km² forests which is 48.37 % of the notified forests is under the management of the VSSs.

4.16.5 Forest Cover:

The forest cover in the Division based on the Interpretation of IRS P6 LISS III 2009 data (Oct 2009) is **338.19 Km²**, which is 4.39% of the total Geogra phical area. In terms of the forest canopy density classes, the Division has 122.06 Km² of Moderately Dense Forest, and 214.67 Km² of Open Forest. The area of the Scrub is 387.20 Km², Non-Forest 32.19 Km² and Water Bodies 2.75 Km². The distribution of the forest cover of the division is shown in Fig 4.16.1

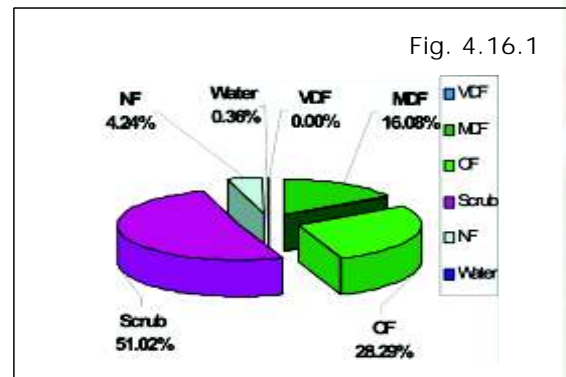


Fig. 4.16.1

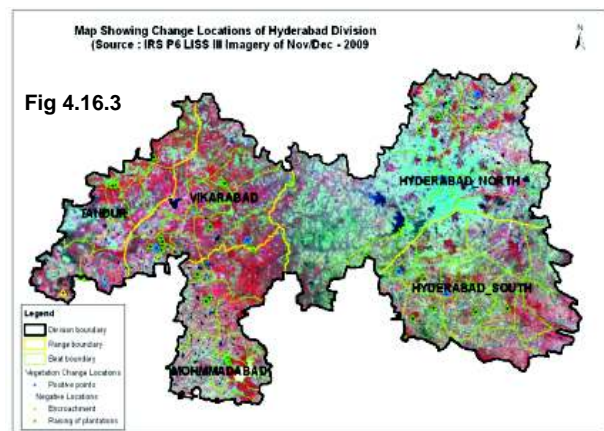
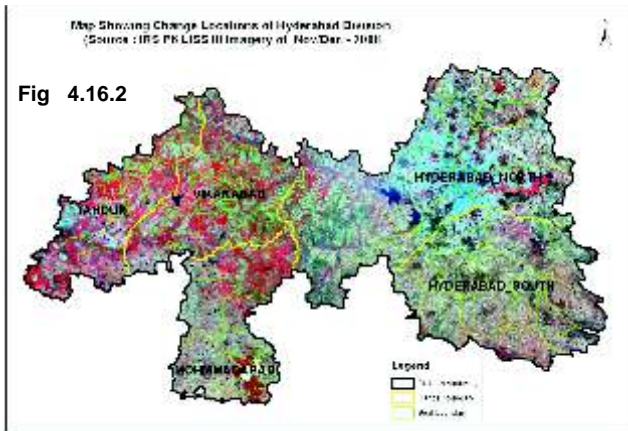


4.16.6 Change in Forest Cover:

The satellite images of 2008 and 2009 are shown in Fig (4.16.2 & 4.16.3), the changes during this period has been shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov / Dec 2009) with that of previous assessment (Satellite data of Nov / Dec 2008), shows a negative change in forest cover of 391.30 Ha and positive change of 27.23 Ha. The forest cover change matrix, given in Table 4.16.2 reveals that there has been a decrease of 4 Ha of moderately dense forest, 147 Ha of open forest and 225 Ha of scrub.

The positive change is on account of rising of or growth in raised plantations. Of the total negative change 364.07 Ha on account of Raising of Plantations and 16.76 ha on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 16.76 Ha only.



The simplified forest cover change matrix is given in Table 4.16.3 and 4.16.4

There are **62 beats** in the division. Negative change in forest cover is noticed in 18 beats, positive change in forest cover is noticed in 2 beats and both changes in 3 beats. There is no change in the remaining beats 39.

Details of Forest Cover changes in the 23 beats where forest cover is changed, is shown in Table 4.16.5.

Table 4.16.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Oct 2008 Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	122.06	0.00	0.00	0.04	0.00	122.10
Open Forest	0.00	0.02	214.49	0.00	1.59	0.00	216.08
Scrub	0.00	0.00	0.09	387.04	2.28	0.00	389.48
Non-Forest	0.00	0.00	0.09	0.09	28.28	0.00	28.46
Water	0.00	0.00	0.00	0.00	0.00	2.75	2.75
Total of 2009	0.00	122.06	214.67	387.20	32.19	2.75	758.87
Net Change	0.00	-0.04	-1.41	-2.28	3.73	0.00	0.00

Table 4.16.3: Forest Cover change matrix (Good and Degraded Forest)				(Area in Km ²)
2008 (Data of Oct 2008 – Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	336.55	1.63	0.00	338.18
Degraded Forest	0.18	417.76	0.00	417.94
Water	0.00	0.00	2.75	2.75
Total of 2009	336.73	419.39	2.75	758.87
Net Change	-1.45	1.45	0.00	

Table 4.16.4: Forest Cover change matrix (Rejuvenation and Barren)				(Area in Km ²)
2008 (Data of Oct 2008 – Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	723.75	3.91	0.00	727.66
Barren	0.18	28.28	0.00	28.46
Water	0.00	0.00	2.75	2.75
Total of 2009	723.93	32.19	2.75	758.87
Net Change	-3.73	3.73	0.00	

Table 4.16.5: Beat wise Forest Cover								(Area in Ha)
BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
Hyderabad-North Range								
Amberpet	0.00	21.58	78.63	1,774.55	316.36	0.00	0.00	0.00
Ganganpahad	0.00	0.00	3.97	385.82	114.63	0.00	- 16.63	0.00
Keesra	0.00	49.46	117.48	1,351.95	442.57	35.97	0.00	0.00
Laxmapur	0.00	125.03	157.19	365.24	43.07	1.80	- 3.40	0.00
Medchal	0.00	0.61	28.31	574.16	223.15	0.00	0.00	0.00
Medpally	0.00	0.56	28.44	773.64	99.27	0.00	0.00	0.00
Mudmiyal	0.00	9.71	105.81	1,216.96	99.59	0.00	0.00	0.00
Pochampally	0.00	22.26	287.23	627.33	106.91	0.00	- 73.04	0.00
Shamirpet	0.00	5.21	144.80	664.49	36.75	0.00	- 1.57	0.00
Suraram	0.00	0.00	22.42	448.28	142.39	0.00	- 39.79	0.00
Turkapally	0.00	320.28	490.00	849.06	225.51	0.00	1.69	0.00
Total	0.00	554.69	1,464.27	9,031.46	1,850.19	37.77	-132.74	0.00
Hyderabad-South Range								
Dardumailaram	0.00	34.14	240.72	1,500.54	49.36	0.00	0.00	0.00
Gollur	0.00	22.43	122.91	564.18	2.44	0.00	7.89	0.00
Gungal	0.00	55.33	451.85	732.96	69.88	0.00	- 12.17	0.00
Ibrahimpattam	0.00	0.67	10.20	895.56	99.46	0.00	0.00	0.00
Kongrakalan	0.00	31.08	173.61	1,347.86	53.96	0.00	- 22.37	0.00
Lemoor	0.00	1.57	80.98	988.73	9.09	0.00	8.97	0.00
Mankhal	0.00	0.66	46.93	584.50	21.69	0.00	0.00	0.00



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Nalavelly	0.00	21.30	74.02	702.15	6.89	0.00	0.00	0.00
Pahadishareef	0.00	92.72	142.93	1,363.19	287.17	14.24	0.00	0.00
Phulmamidi	0.00	81.19	454.69	706.34	48.14	0.00	-22.05	0.00
Rachnoor	0.00	16.07	299.82	845.45	104.92	0.00	-15.51	0.00
Rangapur	0.00	37.05	328.41	835.63	10.19	0.00	0.00	0.00
Tatparthy	0.00	199.17	868.75	547.93	4.82	4.47	0.00	0.00
Yacharam	0.00	58.60	467.63	718.95	36.55	0.00	0.00	0.00
Total	0.00	651.95	3,763.45	12,333.96	731.45	18.71	55.24	0.00
Mohammadabad Range								
Ananthasagar	0.00	446.17	569.85	325.35	23.93	0.00	-16.65	0.00
Gadisingapur	0.00	164.08	1,042.21	332.33	25.24	2.34	-23.75	0.00
Gadriyal	0.00	433.71	1581.0	149.05	0.51	3.20	0.00	0.00
Ibrahimpur	0.00	52.92	694.49	562.93	25.69	0.00	-23.14	0.00
Kalman Kalva	0.00	658.14	299.18	84.12	1.18	0.00	0.00	0.00
Komreddypally	0.00	43.80	472.38	1,296.73	8.23	0.00	0.00	0.00
Kothapally	0.00	832.60	250.26	55.90	0.00	0.00	0.00	0.00
Kulkacherla	0.0	399.08	783.33	309.12	2.46	1.34	0.00	0.00
Mohammabad	0.00	1,172.22	608.92	160.19	1.82	1.40	0.00	0.00
Mujahidpur	0.00	321.36	220.54	22.66	0.00	0.00	0.00	0.00
Pargi	0.00	329.34	407.51	918.91	15.84	0.00	0.00	0.00
Rangammaguda	0.00	387.14	138.38	75.16	0.00	0.00	0.00	0.00
Venkatapur	.00	44.39	632.52	261.48	0.67	0.00	0.00	0.00
Total	0.00	5,284.95	6,700.58	4,553.93	105.55	8.27	-63.54	0.00
Tandur Range								
Adikicherla	0.00	250.42	259.94	370.70	6.68	0.00	0.00	0.00
Gingurthy	0.00	652.24	139.52	133.12	0.36	4.90	0.00	0.00
Jundur	0.00	1,280.37	498.67	445.20	67.48	0.00	-44.14	0.00
Juntpally	0.00	88.52	655.76	289.76	17.75	0.00	-5.70	0.00
Kalkhoda	0.00	196.39	384.76	741.03	46.20	0.00	-29.97	0.00
Mailwar	0.00	35.92	666.86	1,141.00	18.67	0.00	-16.76	16.76
Nagulpally	0.00	484.26	484.99	707.48	11.14	9.16	0.00	0.00
Rampally	0.00	112.15	291.20	668.29	37.38	1.65	0.00	0.00
Tandur	0.00	0.00	0.00	239.58	0.96	0.00	0.00	0.00
Tattepally	0.00	129.50	146.28	115.54	2.33	0.00	0.00	0.00
Total	0.00	3,229.76	3,527.97	4,851.70	208.95	15.71	-96.57	16.76
Vikarabad Range								
Adhalpur	0.00	743.36	1,662.64	609.70	12.75	1.63	-11.02	0.00
Dharpur	0.00	77.60	736.14	570.33	3.21	0.63	0.00	0.00
Dornal	0.00	72.54	344.38	505.47	18.09	0.00	0.00	0.00
Ekamamidi	0.00	94.74	448.42	928.31	50.32	0.00	-2.55	0.00
Kothrepally	0.00	248.89	581.18	759.00	5.81	0.00	1.32	0.00
Madanpally	0.00	142.36	328.40	915.76	64.45	3.85	0.00	0.00



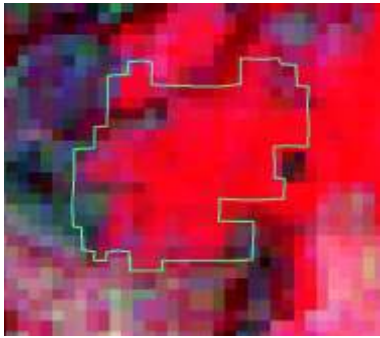
Forest division wise results

Mansanpally	0.00	59.67	355.23	536.23	3.91	2.40	0.00	0.00
Mothukpally	0.00	243.82	394.67	1,006.58	118.15	0.00	0.00	0.00
Munnorsomaram	0.00	122.11	165.11	708.68	79.39	16.26	0.00	0.00
Rasnam	0.00	45.06	181.17	89.51	0.00	0.00	0.00	0.00
Rudraram	0.00	85.13	530.25	554.02	9.25	170.00	0.00	0.00
Vikarabad	0.00	549.97	282.78	699.50	23.35	0.00	-3.73	0.00
Total	0.00	2,485.24	6,010.38	7,883.09	388.67	194.77	-15.98	0.00
Division Total	0.00	12,206.59	21,466.63	38,654.13	3,284.81	275.23	-364.07	16.76

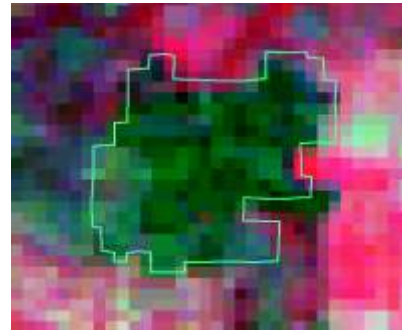
* Beat wise total area including water bodies.

Satellite Imageries

LISS 2008



LISS 2009



Longitude	77.45512
Latitude	17.13474
Area	16.76 Ha
Change	OF to NF
Compartment No.	48
Beat	Mailwar
Range	Tandur
Division	Hyderabad



Chapter-IV

4.17. MAHABUBNAGAR DIVISION

4.17.1 Introduction:

Mahabubnagar Forest Division lies in the West Part of Mahabubnagar District, between latitudes 15° 50' 12" and 17° 14' 13" N and longitudes 77° 14' 55" and 78° 48' 07" E. The Geographical Area of the Division is 13,802.75 Km², which is 74.88 % of the total area of the District. The Division having an altitude of 498 m. The district may be physiographically divided into more or less two distinct regions, the plains region with low lying scattered hills and the extensive Amarabad- Farhabad plateau, a continuous range of hills, of an average, elevation of about 800 meters, extending more or less, east-west along the Krishna river on the southern boundary of the district. The hill range is interspersed by several deep valleys, which are almost inaccessible from the plains. Two important rivers, viz. Krishna and Tungabhadra flow through the district. The River Krishna forms Southern boundary of the Division as well as the District.

Land use pattern of the division is given in Table 4.17.1

The climate of this Division is generally dry with temperatures ranging from 16.9° C to 45° C and the annual rainfall is about 754 mm, received mainly from Southwest monsoons. The soils found in the division are red sandy, Block cotton and Loamy soils.

The total population of the Division is 3.37 million (2011 Census), which constitutes about 77.75 % of the total population of the District. The **Per capita forest area** is 0.50 ha. The population density is 110 persons per Km². The livestock population is 4.82 million.

Land use	Area in Sqkm	Percentage
Total geographical area	13802.75	
Forest including Scrub	616.85	4.47
Agriculture	11560.48	83.76
Land with Scrub	463.22	3.36
Fallow Lands	412.62	2.99
Settlements	36.58	0.26
Not available for cultivation	250.11	3.35
Rivers/Streams	462.38	1.81

4.17.2 Recorded Forest Area:

The total notified forest area of the Division is 573.18 Km², which 4.15% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 442.44 Km² (77.19%), 118.77 Km² (20.72%) and 11.97 Km² (2.09%) of the total forest area respectively.

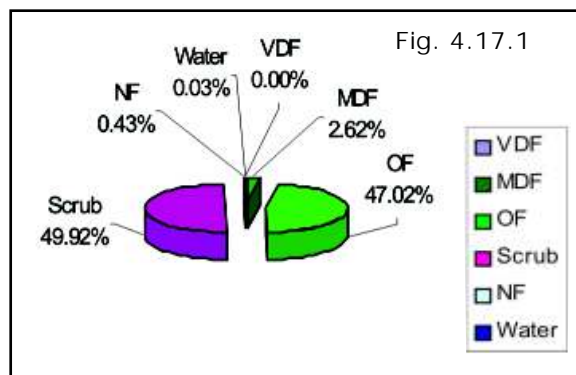
As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical Moist deciduous, Tropical Semi-evergreen and Tropical Thorn Forest types.

4.17.3 Protected Area:

No protected areas are found in this division.

4.17.4 Community Forest Management:

There are 207 Forest Protection Committees (FPCs) or Vana Samrakshana Samities (VSSs) in the Division. An area of 455.62 Km² forests, which is 79.49 % of the notified forests, is under the management of the VSSs.



4.17.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 (Data of Nov 2009 – Dec 2009) is 307.46 Km², which is 2.23% of the total Geographical area. In terms of the forest canopy density classes the Division 16.20 Km² of Moderately Dense Forest and 291.26 Km² Open Forest. The area of the Scrub is 309.12 Km², Non-Forest 2.69 Km² and Water Bodies 0.16 Km². The distribution of the forest cover of the division is shown in **Fig 4.17.1**.

4.17.6 Change in Forest Cover:

The satellite images of 2008 and 2009 are shown in Fig 4.17.2, Fig 4.17.3 and the changes during this period is shown on this image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2009-Dec 2009) with that of previous assessment (Satellite Imagery of Nov 2008-Dec 2008), shows a negative change in forest cover of 5.48 Ha . The forest cover change matrix, given in Table 4.16.2 reveals that there has been a decrease of 0.05 Km² of scrub forest.

Of the total negative change, 5.48 Ha on account of Raising of Plantations and there in no loss of area in encroachment. Thus there is no net loss in forest cover in this division.

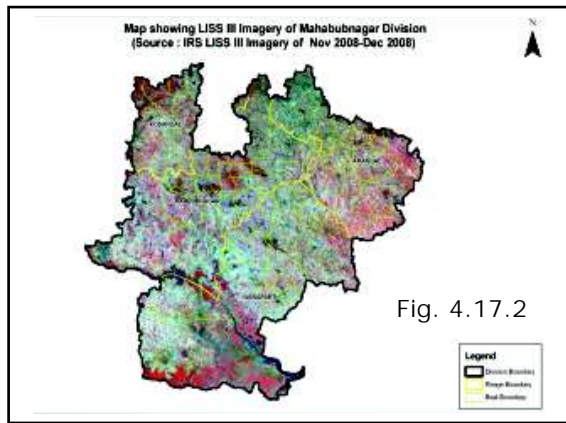


Fig. 4.17.2

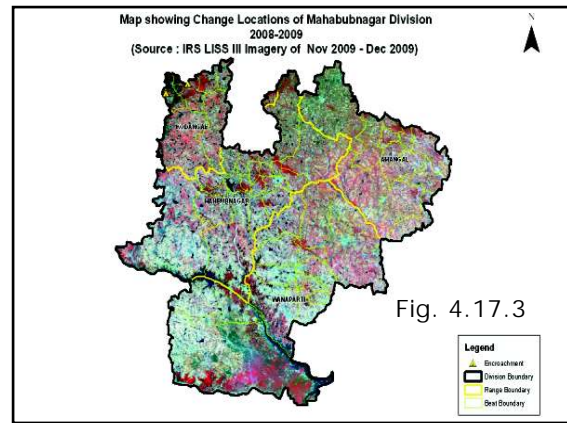


Fig. 4.17.3

The **simplified forest cover change matrix** is given in **Table 4.17.3** and **Table 4.17.4**

On the basis of ground truthing conducted by the officers of the Geomatics Center and the field officers, the main reasons for decrease in the forest cover is due to encroachments.

There are 51 Beats in the Division. Negative change in Forest cover is seen in 02 Beats and no change in 49 Beats. Beat wise forest cover in different forest canopy density classes is not available as there are no changes.

Table 4.17.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Nov 2008 – Dec 2008)	2009 (Data of Nov 2009 – Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	16.20	0.00	0.00	0.00	0.00	16.20
Open Forest	0.00	0.00	291.26	0.00	0.00	0.00	291.26
Scrub	0.00	0.00	0.00	309.17	0.05	0.00	309.22
Non-Forest	0.00	0.00	0.00	0.00	2.64	0.00	2.64
Water	0.00	0.00	0.00	0.00	0.00	0.16	0.16
Total of 2009	0.00	16.20	291.26	309.17	2.69	0.16	619.48
Net Change	0.00	0.00	0.00	-0.05	0.05	0.00	0.00



2008 (Data of Nov 2008 – Dec 2008)	2009 (Data of Nov 2009 – Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	307.41	0.05	0.00	307.46
Degraded Forest	0.00	311.86	0.00	311.86
Water	0.00	0.00	0.16	0.16
Total of 2009	307.41	311.91	0.16	619.48
Net Change	0.05	0.05	0.00	0.00

2008 (Data of Nov 2008 – Dec 2008)	2009 (Data of Nov 2009 – Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	616.63	0.05	0.00	616.68
Barren	0.00	2.64	0.00	2.64
Water	0.00	0.00	0.16	0.16
Total of 2009	616.63	2.69	0.16	619.48
Net Change	- 0.05	0.05	0.00	0.00

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
AMANGAL Range								
Amangal	0.00	0.00	193.88	448.88	1.62	644.38	0.00	0.00
Chandrayanpally	0.00	0.00	52.92	1201.67	46.53	1301.79	0.00	0.00
Charakonda	0.00	3.26	332.76	1360.07	41.13	1737.22	0.00	0.00
Cherikonda	0.00	3.39	857.92	969.47	3.57	1835.44	0.00	0.00
Cherkur	0.00	3.45	36.93	594.34	5.59	642.14	0.00	0.00
Chhepurunthala	0.00	0.00	245.81	571.44	11.06	828.31	0.00	0.00
Gokaram	0.00	3.67	641.38	874.84	4.86	1524.75	0.00	0.00
Kadthal	0.00	4.04	1093.67	466.58	1.72	1566.01	0.00	0.00
Kamadhan	0.00	2.16	343.77	55.28	0.00	401.21	0.00	0.00
Karkalpahad	0.00	1.06	687.14	610.51	0.00	1298.71	0.00	0.00
Mudwin	0.00	1.56	924.68	510.52	0.00	1437.59	0.00	0.00
Total	0.00	22.59	5410.86	7663.60	116.08	13217.55	0.00	0.00
KODANGAL Range								
Bomraspet	0.00	85.29	460.96	484.03	11.90	1042.18	0.00	0.00
Dudyal	0.00	0.50	176.43	201.94	0.00	380.87	0.00	0.00
Gokafaslabad	0.00	0.00	135.67	429.64	0.00	565.31	0.00	0.00
Kodangal	0.00	15.90	490.25	267.71	1.54	775.40	-1.54	0.00
Kothur	0.00	87.06	1289.29	504.57	2.32	1883.24	0.00	0.00
Tekulkote	0.00	11.22	442.01	555.94	17.76	1026.93	-3.94	0.00
Total	0.00	199.97	2994.61	2443.83	33.52	5673.93	-5.48	0.00

MAHABUBNAGR Range								
Acharyapur	0.00	12.87	921.41	846.86	0.00	1781.14	0.00	0.00
Appaipalli	0.00	58.57	898.06	694.71	0.00	1651.34	0.00	0.00
Appannapally	0.00	239.20	1130.01	71.22	0.00	1440.43	0.00	0.00
Boyapally	0.00	169.02	854.45	152.69	9.44	1185.60	0.00	0.00
Chandraspally	0.00	0.00	158.35	899.89	1.71	1059.95	0.00	0.00
Darpally	0.00	5.64	927.21	487.90	1.55	1422.30	0.00	0.00
Dhanwada	0.00	16.68	1149.20	678.76	1.83	1846.47	0.00	0.00
Gaddiguda	0.00	1.43	279.51	452.34	0.00	734.37	0.00	0.00
Gajulpet	0.00	3.34	946.95	519.44	2.44	1472.17	0.00	0.00
Garlapad	0.00	21.18	960.90	770.46	0.95	1753.49	0.00	0.00
Gundiyal	0.00	8.66	666.62	657.64	1.50	1334.42	0.00	0.00
Jatram	0.00	0.00	637.67	1290.56	0.00	1932	0.00	0.00
Kistapur	0.00	25.16	1086.30	1050.76	2.02	2164.24	0.00	0.00
Kotakonda	0.00	12.96	738.27	1844.89	0.61	2598.84	0.00	0.00
Mahaboobnagar	0.00	1.28	722.50	429.11	0.84	1153.73	0.00	0.00
Malkapur-G	0.00	236.84	654.02	61.53	0.00	952.39	0.00	0.00
Malkapur-K	0.00	73.88	995.34	344.99	0.00	1414.21	0.00	0.00
Manikonda	0.00	128.95	1270.88	348.66	0.00	1748.49	0.00	0.00
Teegalpally	0.00	136.62	814.14	18.10	0.00	968.86	0.00	0.00
Total	0.00	1152.28	15811.79	11620.51	22.89	28614.06	0.00	0.00
WANAPARTHY Range								
Aluru	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Agrahar	0.00	3.21	461.20	1150.06	0.66	1616.97	0.00	0.00
Dattaipally	0.00	1.09	65.32	429.29	0.00	495.70	0.00	0.00
Gangaram	0.00	86.24	816.78	173.03	0.00	1076.05	0.00	0.00
Gattu	0.00	0.00	20.12	623.80	31.71	675.63	0.00	0.00
Ghanpur	0.00	1.57	601.07	981.03	0.00	1583.67	0.00	0.00
Gopalpet	0.00	7.70	108.61	245.77	0.65	362.73	0.00	0.00
Gudipally	0.00	0.00	3.35	172.64	4.79	181.58	0.00	0.00
Jangamaiahpally	0.00	104.47	1003.47	401.83	0.00	1509.77	0.00	0.00
Kashimnagar	0.00	6.06	263.52	671.27	1.78	942.63	0.00	0.00
Madhavaopally	0.00	0.00	81.48	511.65	6.31	599.44	0.00	0.00
Pangal	0.00	6.69	81.80	476.89	19.65	585.03	0.00	0.00
Peedagudem	0.00	0.04	143.82	654.86	1.00	799.72	0.00	0.00
Remaddula	0.00	29.15	66.61	1129.33	28.55	1253.64	0.00	0.00
Veeraipally	0.00	0.00	772.15	974.73	2.68	1749.91	0.00	0.00
Wanaparthy	0.00	0.61	406.53	601.56	0.00	1008.70	0.00	0.00
Total	0.00	246.83	4895.83	9197.74	97.78	14441.17	0.00	0.00
Division total	0.00	1621.67	29113.09	30925.68	270.27	61946.71	-5.48	0.00

*Beat wise forest cover total including water bodies.





Chapter-IV

4.18 NALGONDA DIVISION

4.18.1 Introduction:

Nalgonda Forest Division lies in the Southern Part of Telangana region, between latitudes 16° 21' 19" and 17° 48' 42" N and longitudes 78° 36' 43" and 80° 04' 27" E. The Geographical Area of the Division is **12553.70 Km²**, which is 5.8% of the total area of the AP. The Division has an average altitude of 421 m. Major tributaries of Krishna river falling in Division are Musi, Dindi, Pegga vadu, Kangal, Alair, and Halia.

Land use pattern of the division is given in Table 4.18.1

The climate of this Division is generally dry with temperatures ranging from 20° C to 40°C and the annual rainfall is about 772 mm, received mainly from South-west monsoons.

Much of the soil is of red yellow type. Many areas have deep red soil (locally referred to as "erra mannu") derived from the decomposition of the granitic base rock. Riverine tracts have alluvial soil where rice paddy is grown. Due to the semiarid climate, poor soil and lack of adequate irrigation, dry land farming is widely prevalent. Horticulture is also practiced, there are a number of citrus and mango plantations.

The total population of the Division and District is 3.57 millions (2011 Census). The Per capita forest area is 0.01 ha. The population density is 284 persons per Km². The livestock population is 1.35 million.

Table 4.18.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	12553.70	
Forest including Scrub	281.41	2.24
Agriculture	10714.96	85.35
Land with Scrub	837.29	6.67
Fallow Lands	171.14	1.36
Grasslands	104.70	0.83
Settlements	30.79	0.25
Vegetation outside Forest	30.79	0.25
Water body	413.41	3.29

4.18.2 Recorded Forest Area:

The total notified forest area of the Division is **450.29 Km²**, which is 3.6% of the total geographical area.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous Forest types.

4.18.3 Protected Area:

No protected areas are found in this Division.

4.18.4 Community Forest Management:

There are 95 Vana Samrakshana Samities (VSSs) in the Division .An area of 188.41 Km² forests which is 21.19% of the notified forests , is under the management of the VSSs.

4.18.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009), is 198.83 Km², which is 1.40% of the total Geographical area. In terms of the forest canopy density classes, the Division has 1.57 Km² of Moderately Dense Forest and 38.35 Km² of Open Forest. The area of the Scrub is 241.39 Km², Non-Forest 158.33 Km² and Water Bodies 2.36 Km². The distributions of the forest cover of the division is shown in Fig 4.18.1.

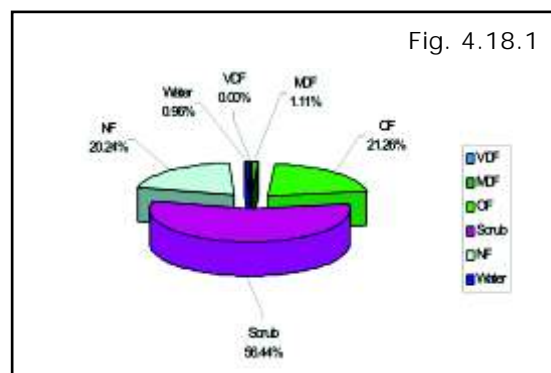


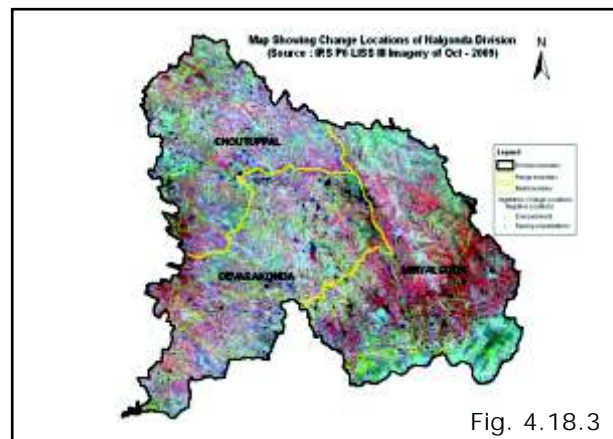
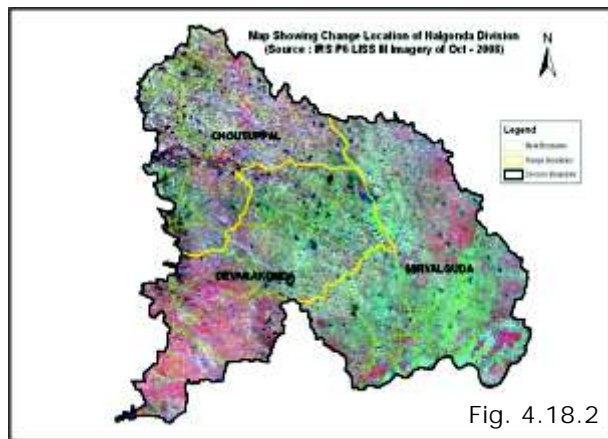
Fig. 4.18.1

4.18.6 Change in Forest Cover:

Comparison of the current forest cover (Satellite data of Nov/Dec 2009) with that of previous assessment (Satellite data of Nov/Dec 2008), shows a negative change in Forest cover of **34.99** Ha and no positive change. The Forest cover change matrix, given in Table 4.89.2 reveals that there has been a decrease of 35 Ha of scrub.

Of the total negative change 16.79 Ha on account of Raising of Plantations and 11.26 on account of encroachment. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 11.26 Ha. only.

The Satellite images of 2008 and 2009 are shown in Fig 4.18.2, Fig 4.18.3 and the changes during this period is shown on the image of 2009.



The simplified forest cover change matrix is given in Table 4.18.3 and Table 4.18.4

There are 36 beats in the division. Negative change in forest cover is noticed in only 05 beats, no positive change in forest cover. There is no change in the remaining 41 beats.

Details of Forest cover changes in the 5 beats where Forest cover is change , is shown in Table 4.18.5.

Table 4.18.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Oct 2008 - Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	1.57	0.00	0.00	0.00	0.00	1.57
0.00Open Forest	0.00	0	38.35	0.00	0.00	0.00	38.35
0.00Scrub	0.00	0.00	0.00	241.39	0.35	0.00	241.74
Non-Forest	0.00	0.00	0.00	0.00	157.98	0.00	157.98
Water	0.00	0.00	0.00	0.00	0.00	2.36	2.36
Total of 2009	0.00	1.57	38.35	241.39	158.33	2.36	442.00
Net Change	0.00	0.00	0.00	-0.35	0.35	0.00	



2008 (Data of –Oct 2008 - Dec 2008)	2009 (Data of Oct 2008 - Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	39.92	0.00	0.00	39.92
0.00.00Degraded Forest	0.00	399.72	0.00	399.72
Water	0.00	0.00	2.36	2.36
Total of 2009	39.92	399.72	2.36	442.00
0.00Net Change	0	0.00	0.00	

2008 (Data of Dec 2008)	2009 (Data of Oct 2009 –Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	281.31	0.35	0.00	281.66
Barren	0.00	157.98	0.00	157.98
Water	0.00	0.00	2.36	2.36
Total of 2009	281.31	158.33	2.36	442.00
Net Change	-0.35	0.35	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
Choutuppal Range								
Allapur	0.00	0.00	34.93	1449.08	815.17	2299.18	0.00	0.00
Bibinagar	0.00	0.00	59.13	629.34	166.92	855.92	0.00	0.00
Choutuppal	0.00	0.00	0.00	34.97	251.67	286.64	0.00	0.00
Dattaipally	0.00	0.00	114.21	481.64	89.85	685.69	0.00	0.00
Jalasingaram	0.00	0.00	147.76	205.39	12.72	365.87	0.00	0.00
Malkapur	0.00	0.00	0.49	202.61	715.60	918.70	0.00	0.00
Narayanpur	0.00	0.95	110.31	1612.07	751.40	2477.24	0.00	0.00
Raigir	0.00	0.00	0.72	137.36	47.53	185.61	0.00	0.00
Tippaiguda	0.00	0.00	73.84	1224.63	878.92	2180.90	0.00	0.00
Vasalamarri	0.00	0.00	303.06	685.17	68.05	1056.28	0.00	0.00
Veerareddypalli	0.00	0.00	320.90	200.70	1.65	523.26	0.00	0.00
Total	0.00	0.95	1165.35	6862.95	3799.49	11835.29	0.00	0.00
Devarakonda Range								
Chityal	0.00	3.91	75.12	178.44	16.95	276.52	0.00	0.00
Goneboinapally	0.00	9.00	90.55	1437.54	1438.81	3017.71	0.00	0.00
Gundlapally	0.00	2.37	51.74	1055.54	783.28	1918.76	0.00	0.00
Marriguda	0.00	0.00	101.65	611.64	123.73	838.58	0.00	0.00
Mohammadapur	0.00	0.00	9.41	1.22	94.71	325.45	0.00	0.00
Mudigonda	0.00	11.97	24.64	554.80	279.78	871.19	0.00	0.00
Nalgonda	0.00	1.47	11.81	18.33	6.83	38.43	0.00	0.00
Takkadlapally	0.00	1.28	231.08	690.13	115.99	1038.99	0.00	0.00
Yelgapally	0.00	0.00	48.16	983.86	283.02	1315.60	0.00	0.00
Total	0.00	30.00	644.16	5751.60	3143.09	9641.22	0.00	0.00
Miryalguda Range								
Adavidevulapally	0.00	34.43	130.19	1009.66	106.73	1315.64	0.00	0.00
Chintlammaguda	0.00	0.00	4.47	139.67	1530.84	1674.97	0.00	0.00
Damercherla	0.00	1.58	35.29	1071.07	674.62	1797.98	0.00	0.00

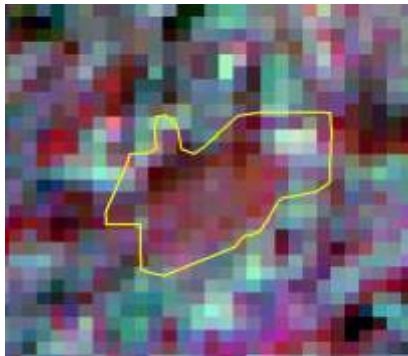


Forest division wise results

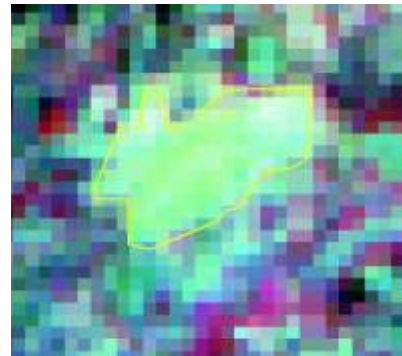
Gorlaguda	0.00	2.16	9.58	822.13	247.60	1211.47	0.00	0.00
Gundlapahad	0.00	0.00	38.07	614.04	346.93	999.82	-2.50	2.50
Indergonda	0.00	5.16	152.63	327.83	19.06	504.69	0.00	0.00
Janpahad	0.00	0.00	21.58	876.00	1535.66	2433.24	-6.10	6.10
Kallepally	0.00	0.00	20.65	1367.07	232.98	1620.71	0.00	0.00
Mallareddigudem	0.00	22.32	87.50	1505.69	1641.57	3261.58	0.00	0.00
Miryalguda	0.00	2.20	46.76	453.35	38.92	547.48	0.00	0.00
Mulkacherla	0.00	0.58	405.87	880.47	19.21	1327.58	-6.93	2.66
Ragadapa	0.00	0.84	232.06	1898.38	91.72	2223.00	-11.82	0.00
Raghunathapalem	0.00	6.75	9.84	750.97	1288.29	2064.78	0.00	0.00
Veeralapalem	0.00	2.08	97.72	1469.16	1075.78	2664.62	0.00	0.00
Total	0.00	78.08	1422.22	13185.49	8849.90	23647.55	-27.35	11.26
Grand Total	0.00	109.03	3231.73	25800.04	15792.48	45124.05	-27.35	11.26

Satellite Imageries

LISS 2008



LISS 2009



Longitude	78.72784
Latitude	16.56327
Area	7.60 Ha
Change	SF to NF
Compartment No.	168
Beat	Devarakonda
Range	Devarakonda
Division	Nalgonda





Chapter-IV

4.19 BHADRACHALAM NORTH DIVISION

4.19.1 Introduction:

Badrachalam North Forest Division lies in the north part of Khammam District, between latitudes 17° 35' 47" and 18° 37' 46" N and longitudes 80° 22' 22" and 81° 09' 40" E. The Geographical Area of the Division is 2406 Km², which is 15.01 % of the geographical area of the District. The important rivers, which drain in this Division are, the Godavari and the Taliperu.

Land use pattern of the Division is given in Table 4.19.1

The average highest temperature in the summer is 50° C in the month of May and the minimum average temperature in December is 11° C. The average rainfall in this Division is 1361.22 mm.

The soil types found mainly are Black soil and Red loams. The Rock found in this Division is Gneiss. The Mineral resources in this division are Iron, Coal, Kankar and Lime stone.

The total population of the Division is 0.234 million (2011 Census). The Per capita forest area is 0.61 ha. The population density is 97 persons per Km².

Table 4.19.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	2406.00	
Forest including Scrub	1307.66	54.35
Agriculture	649.69	27.00
Land with Scrub	85.74	3.56
Fallow Lands	184.48	7.67
Grasslands	34.10	1.42
Settlements	7.88	0.33
Vegetation outside Forest	69.52	2.89
Water body	66.93	2.78

4.19.2 Recorded Forest Area:

The total notified forest area of the Division is 1863.82 Km², which is 77.46% of the total geographical area. Reserved-, Protected- and Un-classed forests constitute 1418.72 Km² (76.12%), 333.70 Km² (17.9%) and 111.40 Km² (5.98%) of the total forest area, respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical moist deciduous, Tropical Semi-evergreen, Dry Teak and Tropical Thorn Forest types.

4.19.3 Protected Area:

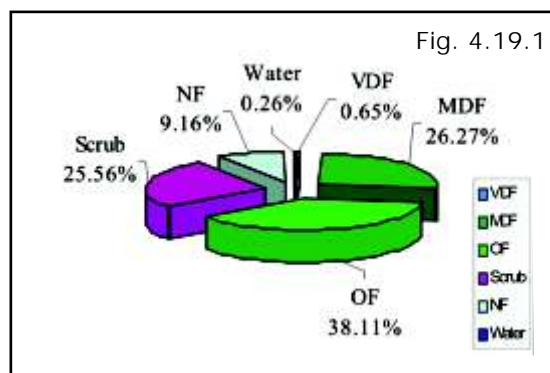
There is no protected area in the Division.

4.19.4 Community Forest Management:

There are 64 JFPCs or Vana Samrakshana Samithies (VSSs) in the Division. 118.81 Km² forest area, which constitutes 8.28 % of forest area, is under the management of VSSs.

4.19.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009), is 933.50 Km², which is 38.79% of the total Geographical area. In terms of the forest canopy density classes, the Division has 9.26 Km² of Very Dense Forests, 377.17 Km² Moderately Dense Forests, and 547.07 Km² Open Forest. The area of the Scrub is 366.89 Km², Non-Forest 131.44 Km² and Water Bodies 3.74 Km². The distribution of the forest cover of the Division is shown in Fig 4.19.1



4.19.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 are shown in Fig (4.19.2 & 4.19.3), the changes during this period have shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment year (Satellite data of Oct 2008 - Dec 2008), shows a negative change of 153.66 Ha. The forest cover change matrix, given in Table 4.19.2 reveals that there has been a decrease of 87 Ha of moderately dense forest and 67 Ha of open forest.

Of the total negative change 94.90 Ha is on account of Raising of Plantations and 58.76 Ha on account of encroachment. Harvesting of plantations and Raising of Plantations are Forest Management interventions and hence not considered as loss of forest cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore, the **net loss of Forest Cover is 58.76 Ha.**

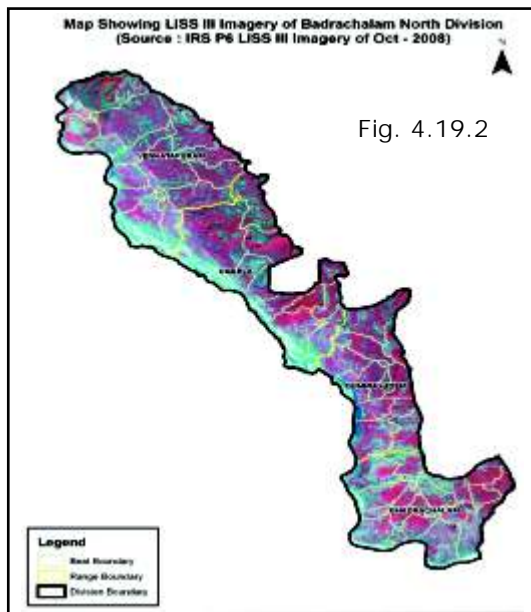


Fig. 4.19.2

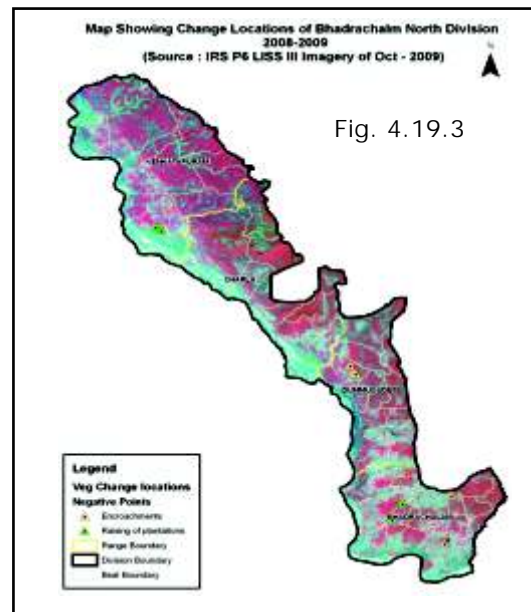


Fig. 4.19.3

The simplified forest cover change matrix is given in Table 4.19.3 and Table 4.19.4

There are 52 Beats in the Division. Negative change in Forest Cover is noticed in only 6 Beats.

There is no change in the remaining 46 Beats.

Details of Forest Cover changes in the 6 Beats where Forest Cover is lost, is shown in Table 4.19.5

2008 (Data of Oct 2008 – Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	9.26	0.00	0.00	0.00	0.00	0.00	9.26
Moderately Dense Forest	0.00	377.17	0.00	0.20	0.67	0.00	378.04
Open Forest	0.00	0.00	547.07	0.00	0.67	0.00	547.74
Scrub	0.00	0.00	0.00	366.69	0.00	0.00	366.69
Non-Forest	0.00	0.00	0.00	0.00	130.10	0.00	130.10
Water	0.00	0.00	0.00	0.00	0.00	3.74	3.74
Total of 2009	9.26	377.17	547.07	366.89	131.44	3.74	1435.57
Net Change	0.00	-0.87	-0.67	0.20	1.34	0.00	



Table 4.19.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Oct 2008 – Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	933.50	1.54	0.00	935.04
Degraded Forest	0.00	496.79	0.00	496.79
Water	0.00	0.00	3.74	3.74
Total of 2009	933.50	498.33	3.74	1435.57
Net Change	-1.54	1.54	0.0	

Table 4.19.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Oct 2008 – Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	1300.39	1.34	0.00	1301.73
Barren	0.00	130.10	0.00	130.10
Water	0.00	0.00	3.74	3.74
Total of 2009	1300.39	131.44	3.74	1435.57
Net Change	-1.34	1.34	0.00	

Table 4.19.5: Beat wise Forest Area in 2009 (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
BHADRACHALAM Range								
Arlagudem	0.00	440.07	579.14	204.59	198.06	1423.64	-15.31	15.31
Bandirevu N	1.17	976.53	431.44	238.97	9.11	1657.22	0.00	0.00
Bandirevu S	0.00	988.13	547.57	194.71	12.13	1744.26	0.00	0.00
Cherupalli	0.00	450.83	519.57	302.91	116.58	1399.71	0.00	0.00
Jaggaram	0.00	1705.71	536.12	583.43	51.45	2876.87	0.00	0.00
K.N. Purram	0.00	138.76	332.81	162.02	158.57	792.16	0.00	0.00
Kallerukunta	0.00	653.58	182.61	364.07	68.39	1268.65	-8.92	8.92
Kondepally	0.00	252.28	427.81	142.93	50.88	873.90	0.00	0.00
Madhavaopet	0.00	263.04	502.29	304.21	67.84	1137.38	0.00	0.00
Nallakunta	0.00	395.41	762.19	326.62	111.93	1596.15	0.00	0.00
Nellipaka	0.00	23.96	317.18	392.48	184.90	920.13	-8.88	8.88
Nimmalagudem	0.00	637.64	497.29	204.36	74.09	1413.38	0.00	0.00
Palamadugu	0.00	460.69	602.52	299.45	94.25	1456.91	0.00	0.00
Singaram	0.00	444.83	331.32	342.10	489.92	1608.17	0.00	0.00
Tunikicheruvu	0.00	469.29	487.67	230.96	167.82	1355.74	-53.73	0.00
Vissapuram	0.00	347.59	904.49	861.37	277.50	2405.30	0.00	0.00
Total	1.17	8648.34	7962.02	5155.18	2133.42	23929.57	-86.84	33.11
CHERLA Range								
Alubaka	0.00	63.95	713.43	506.87	197.08	1481.33	0.00	0.00
Chalamala	292.75	1744.16	1787.74	1274.52	465.14	5565.81	0.00	0.00
Cherla	0.00	149.55	384.62	422.29	179.49	1247.86	0.00	0.00
Doli	52.27	1335.54	1835.56	2060.02	942.08	6225.47	0.00	0.00
Edira	2.89	579.71	1141.17	342.17	64.84	2130.78	0.00	0.00



Forest division wise results

Gannavaram Colony	72.16	1022.38	985.98	328.71	8.05	2417.28	0.00	0.00
Oddipeta	5.53	697.12	920.43	656.91	194.74	2506.49	0.00	0.00
Pusuguppa	0.00	1090.26	673.35	177.52	31.54	1983.28	0.00	0.00
Ramachandrapuram	153.90	2988.73	4774.79	3439.21	1328.45	12699.90	0.00	0.00
Subbampeta	26.77	1265.56	780.24	303.84	63.96	2440.78	0.00	0.00
Suraveedu	0.00	170.02	774.47	793.54	375.52	2136.61	0.00	0.00
Total	606.27	11106.98	14771.78	10305.60	3850.89	40835.59	0.00	0.00
DUMMUGUDEM Range	0.00	230.06	107.04	67.32	94.58	499.00	0.00	0.00
Anjubaka	10.58	1353.00	878.50	376.37	26.79	2645.24	0.00	0.00
Bodanelly	0.00	271.02	1197.53	704.04	190.01	2362.60	0.00	0.00
Devarapally	0.00	729.88	599.01	708.76	229.44	2268.21	0.00	0.00
Kothuru	0.00	633.36	643.58	427.97	48.73	1763.81	0.00	0.00
Kurnapalli	10.17	633.36	643.58	427.97	48.73	1763.81	0.00	0.00
Mulakanapalli	0.00	286.25	390.10	187.13	24.55	888.03	0.00	0.00
Parnasala	0.00	197.49	437.31	103.54	18.95	759.03	0.00	0.00
Parnasala	1.55	1153.85	1338.35	557.36	52.33	3103.44	0.00	0.00
Pedamidisileru	0.00	212.57	894.29	444.16	79.33	1631.02	0.00	0.00
R.Kothagudem	0.00	584.18	639.97	680.85	299.53	2206.25	-25.65	25.65
Tyagada	31.80	2192.60	2201.75	1716.70	148.39	6361.34	0.00	0.00
Uyyalamadugu	54.10	7844.26	9327.43	5974.20	1212.63	24487.97	-25.65	25.65
Total								
VENKATAPURAM Range	4.21	1481.06	3268.98	1753.80	736.02	7254.76	0.00	0.00
Arunachalapuram	0.00	67.18	552.83	361.72	106.34	1088.61	0.00	0.00
Bhuvanapalli	0.00	0.07	24.58	83.45	42.31	150.41	0.00	0.00
Cherukuru	0.00	221.44	1145.30	689.42	464.38	2528.67	0.00	0.00
Dulapuram	0.00	221.44	1145.30	689.42	464.38	2528.67	0.00	0.00
Dulapuram	0.57	1335.48	5264.89	2927.87	821.51	10359.11	0.00	0.00
Kadaikal	0.57	1335.48	5264.89	2927.87	821.51	10359.11	0.00	0.00
Kadaikal	0.00	42.41	239.88	328.58	251.33	878.93	0.00	0.00
Nuguru	0.00	42.41	239.88	328.58	251.33	878.93	0.00	0.00
Nuguru	7.40	1087.73	2034.58	842.71	109.50	4081.92	0.00	0.00
Pavanoor N	68.20	1034.88	1740.62	1646.27	643.13	5156.10	0.00	0.00
Pavanoor S	101.82	1638.37	2397.53	1763.42	855.18	6756.32	0.00	0.00
Penugolu N	49.72	887.10	1662.16	945.16	168.51	3712.65	0.00	0.00
Penugolu S	0.00	332.14	861.78	176.21	41.25	1411.38	0.00	0.00
Pragallapally	0.00	132.27	604.74	466.88	206.96	1410.85	0.00	0.00
Pusuru	0.00	132.27	604.74	466.88	206.96	1410.85	0.00	0.00
Pusuru	31.86	1599.98	2434.12	3133.06	1410.30	8616.65	0.00	0.00
Tekulagudem	1.16	256.88	414.30	135.65	89.99	897.98	-41.17	0.00
Venkatapuram	264.94	10116.99	22646.29	15254.20	5946.71	54304.34	-41.17	0.00
Total	926.48	37716.57	54707.52	36689.18	13143.65	143557.47	-153.66	58.76
Grand Total								

* Beat wise total area including water bodies.





Chapter-IV

4.20 BHADRACHALAM SOUTH DIVISION

4.20.1 Introduction:

Badrachalam South Forest Division lies in the eastern part of Khammam District, between latitudes 17° 27' 42" and 17° 54' 05" N and longitudes 81° 05' 45" and 81° 48' 47" E. The Geographical Area of the Division is 1737.52 Km², which is 10.84 % of the geographical area of the District. The main rivers of the division are Godavari, Sabari, Sileru. The Godavari river forms the southern boundary and Sileru river forms northern boundary of the division.

Land use pattern of the Division is given in Table 4.20.1

The climate of this Division is generally cool and pleasant with temperatures ranging from 11°C to 49°C and the annual rainfall is about 1362 mm, received mainly from Southwest monsoons.

The soil types found mainly are Black soil, Teak soil and Red loams. The Rock found in this Division is Gneiss. The Mineral resources in this division are Iron, Coal, Kankar and Lime stone.

The total population of the Division is 0.093 million (2011 Census). The Per capita forest area is 1.40 ha. The population density is 53 persons per Km².

Table 4.20.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	1738	
Forest including Scrub	1255.59	72.24
Agriculture	203.03	11.68
Land with Scrub	37.40	2.15
Fallow Lands	178.75	10.28
Grasslands	1.04	0.06
Settlements	0.49	0.03
Vegetation outside Forest	37.34	2.15
Water body	24.35	1.40

4.20.2 Recorded Forest Area:

The total notified forest area of the Division is 1632.27 Km², which is 93.92% of the total geographical area. Reserved-, Protected- and Un-classed forests constitute 1076.69 Km² (65.96%), 479.53 Km² (29.38%) and 76.05 Km² (4.66%) of the total forest area, respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical moist deciduous, Tropical Semi-evergreen, Dry Teak and Tropical Thorn Forest types.

4.20.3 Protected Area:

The Division is one of the 4 constituent Divisions of Papikonda Wildlife Sanctuary. Out of 1523.52 Km² of notified Forest area, 271.94 Km² is included in the Papikonda Wildlife Sanctuary.

4.20.4 Community Forest Management:

There are 40 Vana Samrakshana Samithies (VSSs) in the Division. 86.88 Km² forest area, which constitutes 6.72 % of forest area, is under the management of the VSSs.

4.20.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2008 data (Oct 2008-Jan 2009), is 1076.42Km², which is 61.93% of the total Geographical area.

In terms of the forest canopy density classes, the Division has 83.57 Km² of Very Dense Forests, 619.91 Km² Moderately Dense Forests, and 372.94 Km² Open Forest. The area of the Scrub is 177.13 Km², Non-Forest 37.11Km² and Water Bodies 3.00 Km². The distribution of the forest cover of the Division is shown in Fig 4.20.1

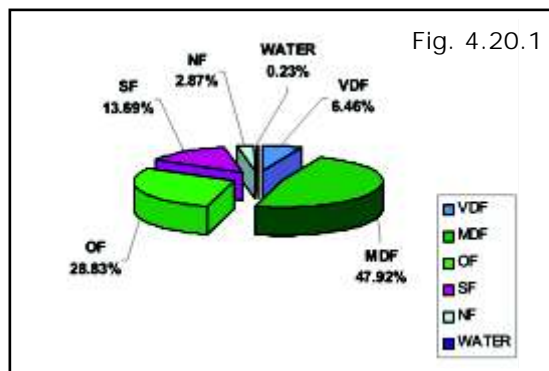


Fig. 4.20.1

4.20.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 are shown in Fig (4.20.2 & 4.20.3) and the changes during the period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009 – Mar 2010) with that of previous assessment (Satellite data of Oct 2008 – Jan 2009), shows a negative change in forest of 90.65Ha and positive change of 18.09Ha. The forest cover change matrix, given in Table 4.20.2 reveals that there has been a decrease of 40 Ha of moderately dense forest and 29 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. The total negative change 90.65Ha is on account of encroachment. Thus the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 90.65 Ha only.

The simplified forest cover change matrix is given in Table 4.20.3 and Table 4.20.4

There are 48 Beats in the Division. Negative change in Forest Cover is seen in only 6 Beats, and positive change in only 1 beat. There no change in 41 Beats.

Details of forest changes in the 7 beats where forest cover is changed, is shown in Table 4.20.5

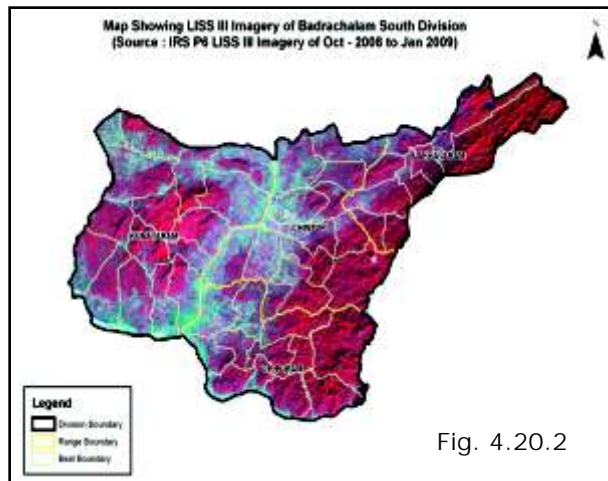


Fig. 4.20.2

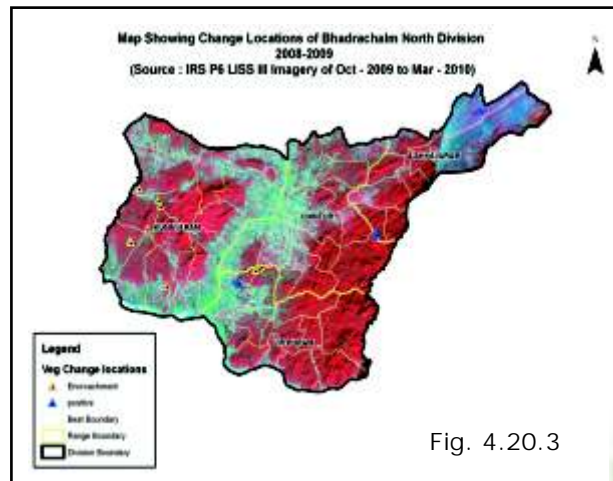


Fig. 4.20.3

Table 4.20.2: Forest Cover change matrix

(Area in Km²)

2008 (Data of Oct 2008 – JAN 2009)	2009 (Data of Oct 2009-Mar 2010)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	83.57	0.00	0.00	0.00	0.00	0.00	83.57
Moderately Dense Forest	0.00	619.77	0.00	0.03	0.51	0.00	620.31
Open Forest	0.00	0.00	372.90	0.00	0.33	0.00	373.23
Scrub	0.00	0.08	0.00	177.10	0.03	0.00	177.21
Non-Forest	0.00	0.06	0.04	0.00	36.24	0.00	36.34
Water	0.00	0.00	0.00	0.00	0.00	3.00	3.00
Total of 2009	83.57	619.91	372.94	177.13	37.11	3.00	1293.66
Net Change	0.00	- 0.40	-0.29	-0.08	0.77	0.00	



Table 4.20.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Oct 2008 – JAN 2009)	2009 (Data of Oct 2009-Mar 2010)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1076.24	0.87	0.00	1077.11
Degraded Forest	0.18	213.37	0.00	213.55
Water	0.00	0.00	3.00	3.00
Total of 2009	1076.42	214.24	3.00	1293.66
Net Change	-0.69	0.69	0.00	

Table 4.20.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Oct 2008 – JAN 2009)	2009 (Data of Oct 2009-Mar 2010)			Total of 2008
	Green	Barren	Water	
Green	1253.45	0.87	0.00	1254.32
Barren	0.10	36.28	0.00	36.34
Water	0.00	0.00	3.00	3.00
Total of 2009	1253.51	37.15	3.00	1293.66
Net Change	-0.77	0.77	0.00	

Table 4.20.5: Beat wise Forest Area in 2009 (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
CHINTUR Range								
Chadalawada	325.55	1063.56	471.29	237.58	37.02	2135.00	0.00	0.00
Chintur	38.87	573.08	379.73	184.08	62.45	1240.38	0.00	0.00
Choppalli	0.00	318.53	840.10	118.49	12.46	1289.58	0.00	0.00
Eruwada	606.72	4581.04	807.71	81.84	1.87	6079.18	0.00	0.00
Guduru	21.92	760.54	960.31	691.97	87.92	2526.91	0.00	0.00
Guletiwada	621.25	1804.14	661.94	625.68	125.52	3838.53	0.00	0.00
Kalleru	0.00	475.38	1151.52	1378.63	479.49	3522.48	0.00	0.00
Kansulur	28.66	845.21	569.64	209.01	29.08	1681.60	0.00	0.00
Kondapalli	77.69	673.67	754.20	329.65	57.15	1894.11	0.00	0.00
Kundulur	464.51	1139.75	461.14	312.12	64.65	2442.17	0.00	0.00
Pothampalli	39.26	1079.56	1020.69	252.29	17.60	2409.40	0.00	0.00
Tellavarigudem	38.09	741.91	1033.13	662.54	163.25	2638.92	0.00	0.00
Total	2262.52	14056.37	9111.40	5083.88	1138.46	31698.26	0.00	0.00
KUNAVARAM Range								
Bodanuru	5.81	533.24	575.71	272.56	59.94	1449.04	0.00	0.00
Buradagudem	58.55	825.86	820.41	821.24	201.10	2730.45	0.00	0.00
Chinanarsingapet	0.00	1074.83	1093.45	237.16	91.65	2505.45	-3.70	3.70
E.D. Pally	16.16	1542.27	1919.60	2371.53	840.75	6696.86	-9.53	9.53
G.K.Gudem	0.00	263.17	291.68	205.07	28.96	788.88	0.00	0.00
Kuturu	170.88	1119.22	844.32	528.62	71.87	2736.53	0.00	0.00
Maddigudem	324.39	1396.69	1090.21	234.77	21.49	3067.55	-15.28	15.28
Murumuru	1.06	1352.16	762.20	207.16	40.32	2362.90	-5.83	5.83



Forest division wise results

Narakonda	86.24	1295.59	873.09	1319.43	171.86	3750.20	0.00	0.00
Pochavaram	3.18	1181.91	968.20	209.05	9.46	2374.90	0.00	0.00
Sarivela	192.16	982.65	1283.53	1063.35	89.27	3613.21	0.00	0.00
Singannagudem	1.66	406.45	397.54	77.42	1.22	884.29	0.00	0.00
Tekulabore	21.76	876.92	320.08	128.43	18.36	1365.55	0.00	0.00
Thatilanka	21.08	1528.22	1117.95	274.63	43.45	2987.36	-3.14	3.14
Uppanapalli	218.28	1449.17	950.21	209.01	30.70	2857.37	0.00	0.00
Total	1121.21	15828.35	13308.18	8159.43	1720.40	40170.54	-37.48	37.48
LAKKAVARAM Range								
Dabbagudem North	169.39	1145.63	458.75	112.85	15.06	1902.46	0.00	0.00
Dabbagudem South	133.86	978.02	349.36	201.92	13.96	1677.12	0.00	0.00
Devarapally	58.64	550.01	570.08	274.31	17.21	1501.04	0.00	0.00
Gondigudem	55.23	1175.95	496.33	86.42	7.27	1821.20	0.00	0.00
Lakkavaram	353.42	1541.37	750.63	471.09	101.24	3219.14	0.00	0.00
Mittawada	206.42	953.02	463.58	25.00	20.20	1668.37	7.81	0.00
Sukkumamidi(North)	516.98	2840.67	967.23	461.15	69.49	5021.48	0.00	0.00
Sukkumamidi(Soth)	754.53	5478.31	2503.35	975.18	108.51	9834.33	0.00	0.00
Surawada	189.32	1108.49	293.36	63.14	9.68	1663.99	0.00	0.00
Total	2437.79	15771.47	6852.67	2671.06	362.62	28309.13	7.81	0.00
V.R.PURAM Range								
Buruguwada	325.25	2219.90	660.31	198.81	23.84	3428.78	0.00	0.00
Chintaregupalli	0.00	238.16	375.05	154.88	72.50	840.59	-42.89	53.17
Darapalli	95.87	1285.04	571.95	35.23	3.10	1991.19	0.00	0.00
Gonduru	1250.13	4397.10	1374.52	287.40	46.32	7356.52	0.00	0.00
Jeediguppa	16.06	537.56	319.05	50.96	11.61	935.24	0.00	0.00
Kalthanuru	16.28	1013.63	635.67	88.59	12.37	1766.54	0.00	0.00
Maredupudi	174.71	1286.38	228.11	18.78	0.00	1707.98	0.00	0.00
Peddammattapalli	0.00	515.76	1075.29	523.60	264.79	2382.51	0.00	0.00
Pocharam	141.99	1814.77	816.93	88.00	6.72	2868.41	0.00	0.00
Tummileru	513.41	2013.59	751.75	90.33	18.50	3388.32	0.00	0.00
Ummadivaram	1.50	669.81	759.05	156.98	13.71	1602.81	0.00	0.00
V.R. Puram	0.00	342.68	452.87	105.72	16.02	918.21	0.00	0.00
Total	2535.20	16334.38	8020.55	1799.28	489.48	29187.10	-42.89	53.17
Grand Total	8356.72	61990.57	37292.80	17713.65	3710.96	129365.03	-72.56	90.65

* Beat wise total area including water bodies.





Chapter-IV

4.21 KHAMMAM DIVISION

4.21.1 Introduction:

Khammam Forest Division lies in the Southern part of Khammam District, between latitudes 16° 46' 2" and 17° 33' 35" N and longitudes 79° 48' 10" and 81° 16' 37" E. The Geographical Area of the Division is 6027 Km², which is 37.6 % of the geographical area of the District. The rivers in this division are Munneru, Paleru, Akheru and Wyrta.

Land use pattern of the Division is given in Table 4.21.1

The average highest temperature in the summer is 47° and the minimum average temperature in December is 14° and the average annual rainfall is 997.96mm, received mainly from Southwest monsoons.

The Soil types found mainly in this Division are Sandy soils, Black soils, Red loamy soils and Skeletal soils. The Rock formations found in this Division are Archaens, Puranas and Gondwanas. The Mineral resources in this Division are Coal, Iron ore, Lime stone and Marble, Barytes, Graphite, Chromite, Mica, Garnet, Kyanite and Building stones.

The total population of the Division is 1.60 million (2011 Census). The Per capita forest area is 0.82 ha. The population density is 266 persons per Km².

4.21.2 Recorded Forest Area:

The total notified forest area of the Division is 1246.19 Km², which is 20.68% of the total geographical area. Reserved-, Protected- and Un-classed forests constitute 1131.25 Km² (90.78%), 112.74 Km² (9.04%) and 2.2 Km² (0.18%) of the total forest area, respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical moist deciduous, Tropical Semi-evergreen, Dry Teak and Tropical Thorn Forest types.

4.21.3 Protected Area:

There is no protected area in the Division.

4.21.4 Community Forest Management:

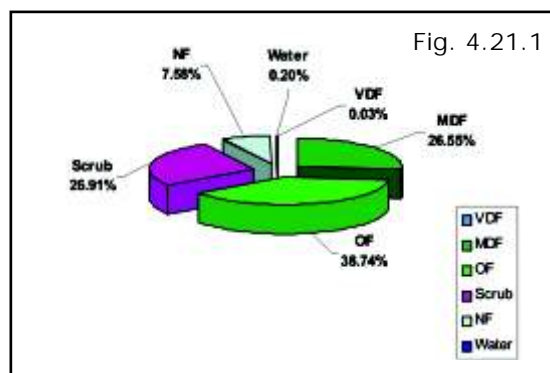
There are 110 Vana Samrakshana Samithies (VSSs) in the Division. 238.76 Km² forest area, which constitutes 18.06 % of forest area, is under the management of VSSs.

4.21.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2008 data (Oct 2008-Dec 2008), is 863.74 Km², which is 14.33% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.41 Km² of Very Dense Forests, 351.05 Km² Moderately Dense Forests, and 512.28 Km² Open Forest. The area of the Scrub is 355.85 Km², Non-Forest 100.17 Km² and Water Bodies 2.58 Km². The distribution of the forest cover of the Division is shown in Fig 4.21.1

Table 4.21.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	6027	
Forest including Scrub	1242.49	20.62
Agriculture	4166.08	69.12
Land with Scrub	126.96	2.11
Fallow Lands	18.75	0.31
Grasslands	0.00	0.00
Settlements	78.02	1.29
Vegetation outside Forest	303.10	5.03
Water body	91.61	1.52



4.21.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 have shown in Fig(4.21.2 & 4.21.3), the changes between this period have shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment year(Satellite data of Oct 2008-Dec 2008), shows a positive change of 5.17 Ha and negative change of 1334.81 Ha The forest cover change matrix, of forest cover during the period of one year given in Table 4.21.2 reveals that there has been a decrease of 57 Ha of moderately dense forest, 12.22 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 755.78 Ha on account of Raising of Plantations, 3.81 Ha is on account of Harvesting of plantations and 47.73 Ha is on account of Forest land diversion to the Non Forestry purpose and 527.49Ha on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 527.49 Ha only.

The simplified forest cover change matrix is given in Table 4.21.3 and Table 4.21.4

There are 82 Beats in the Division. Negative change in Forest Cover is noticed in only 34 Beats, and positive change in only 1 beat. There is no change in the remaining 47 Beats.

Details of Forest cover changes in the 34 beats where forest cover is changed , is shown in Table 4.21.5

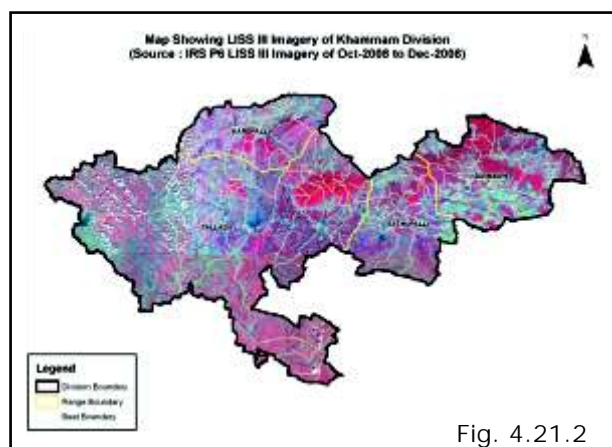


Fig. 4.21.2

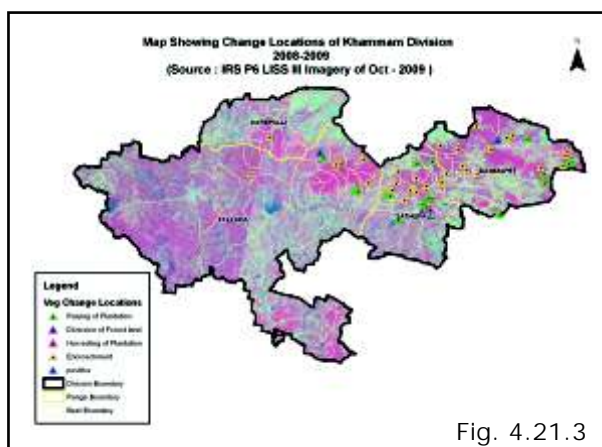


Fig. 4.21.3

Table 4.21.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Oct 2008- Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.41	0.00	0.00	0.00	0.00	0.00	0.41
Moderately Dense Forest	0.00	351.05	0.41	0.07	0.09	0.00	351.62
Open Forest	0.00	0.00	511.82	2.17	10.51	0.00	524.50
Scrub	0.00	0.00	0.05	353.61	0.10	0.00	353.76
Non-Forest	0.00	0.00	0.00	0.00	89.47	0.00	89.47
Water	0.00	0.00	0.00	0.00	0.00	2.58	2.58
Total of 2009	0.41	351.05	512.28	355.85	100.17	2.58	1322.34
Net Change	0.00	- 0.57	- 12.22	2.09	10.70	0.00	



Table 4.21.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Oct 2008- Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	863.69	12.84	0.00	876.53
Degraded Forest	0.05	443.18	0.00	443.23
Water	0.00	0.00	2.58	2.58
Total of 2009	863.74	456.02	2.58	1322.34
Net Change	-12.79	12.79	0.00	

Table 4.21.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Oct 2008- Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	1219.59	10.70	0.00	1230.29
Barren	0.00	89.47	0.00	89.47
Water	0.00	0.00	2.58	2.58
Total of 2009	1219.59	100.17	2.58	1322.34
Net Change	-10.70	10.70	0.00	

Table 4.21.5: Beat wise Forest Area in 2009 (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
DAMMAPET Range								
Achutapuram	1.87	250.81	785.12	576.21	173.77	1788.34	0.00	0.00
Anantharam	1.85	888.38	944.38	392.36	111.06	2350.98	-37.33	13.86
Ankampalem	0.00	1370.80	1056.09	287.49	20.90	2736.29	0.00	0.00
Aswaraopet	0.00	266.35	1147.64	597.97	248.64	2261.61	-69.71	0.00
Dammapet	0.00	308.24	529.63	418.97	150.28	1407.84	-5.57	5.57
Durdapadu	0.00	537.54	1884.56	946.88	79.12	3448.10	-6.96	6.96
Gandugulapalli	0.00	274.42	772.34	355.73	483.64	1887.47	-63.45	63.45
Gopannagudem	0.00	663.28	595.60	537.49	101.99	1899.09	-23.67	0.00
Katkur	0.00	2121.33	618.52	24.74	3.87	2771.32	0.00	0.00
Maddulamada	0.00	1392.60	1189.05	194.39	6.36	2782.75	2.96	0.00
Mandalpalli	1.12	241.95	358.44	103.34	21.52	726.37	-5.06	0.00
Mustibanda	11.15	471.55	359.10	142.32	62.40	1047.42	0.00	0.00
Nagupalli	0.00	881.91	1194.70	136.23	92.80	2307.27	-8.20	8.20
Nallamudi	3.08	728.33	1820.23	492.19	141.84	3185.67	-5.12	5.12
Narayanapuram	0.00	603.59	1480.97	641.89	94.30	2834.69	-38.97	0.00
Patwarigudem	0.00	659.30	492.38	140.25	32.82	1324.75	-4.04	4.04
Pusakunta	0.00	2724.31	658.89	31.24	23.98	3438.42	-5.34	5.34
Tirumalkunta	0.00	3109.72	1283.27	150.39	30.81	4574.19	-41.40	41.40
Vinayakapuram	0.00	883.77	1652.53	589.06	249.73	3375.09	-65.82	5.17
Total	19.07	18378.18	18823.44	6759.14	2129.83	46147.66	-377.68	159.11
KAREPALLI Range								
Burdaraghavapuram	0.00	288.95	1146.93	401.75	49.13	1886.76	0.00	0.00
Cheemalapadu	0.04	6.42	422.40	407.16	40.30	876.32	0.00	0.00



Forest division wise results

Gadepadu	1.57	19.36	85.55	596.71	144.65	847.84	0.00	0.00
Kesupalli	0.00	74.02	772.05	941.63	165.41	1953.11	0.00	0.00
Madampalli	0.78	3.95	43.32	449.24	144.19	641.48	0.00	0.00
Maddulapalli	0.00	231.85	504.91	727.31	88.73	1557.56	0.00	0.00
Muthyalampadu	0.00	6.10	143.66	1779.79	413.38	2342.93	0.00	0.00
N.S. Kothur	0.00	1.72	37.80	1107.61	314.87	1462.72	0.00	0.00
Ootokur	0.00	503.79	541.05	790.84	107.61	1943.29	0.00	0.00
Papkol	0.00	201.95	1549.17	824.83	77.67	2653.62	0.00	0.00
Rajaraopet	0.00	152.61	1077.21	470.71	25.47	1726.00	0.00	0.00
Ramannapalem	0.00	0.13	399.69	1297.99	178.80	1876.61	0.00	0.00
Regaboinagudem	0.00	20.33	292.46	1368.28	297.28	1979.81	0.00	0.00
Relakayalapalli	0.00	18.12	693.11	747.10	28.34	1486.67	0.00	0.00
Singareni/Karepalli	0.00	2.30	60.01	122.03	7.08	191.42	0.00	0.00
Tadkalpudi	0.00	8.54	65.54	384.73	34.74	493.55	0.00	0.00
Timmaraopeta	0.00	369.45	457.84	417.67	75.94	1320.90	-2.35	2.35
Total	2.39	1909.59	8292.70	12835.38	2193.59	25240.59	-2.35	2.35
SATHUPALLI Range								
Annapureddipalli	0.00	514.88	457.94	52.82	52.74	1078.38	0.00	0.00
Bhavanapalem	0.00	72.92	299.76	303.64	123.17	800.18	-31.25	31.25
Buggapadu	0.00	126.90	651.96	410.64	214.47	1415.18	-40.25	40.25
Chandraipalem	0.00	503.98	377.84	27.47	5.36	914.65	0.00	0.00
Cherukupalli	0.00	416.27	627.64	371.51	253.64	1678.14	-154.81	154.81
Chowdaram	0.00	15.32	288.46	337.23	111.99	753.00	-42.62	5.70
Gollagudem	0.00	2.75	176.66	239.87	222.81	704.65	-33.94	0.00
Kakarlalipalli	0.00	104.84	650.19	697.85	343.51	1797.45	-102.87	25.79
Kistaram	0.00	20.85	223.87	142.36	57.12	444.20	-4.69	4.69
Kompalli	0.00	43.10	659.06	382.04	53.72	1153.63	0.00	0.00
Lankapalli	0.00	0.60	151.61	386.35	286.18	824.82	0.00	0.00
Pentalam	0.00	526.30	931.43	299.86	404.04	2161.63	-112.56	0.00
R.C. Puram	0.00	201.61	459.61	218.91	140.65	1079.46	-68.72	21.95
Rajapuram(Namaram)	0.00	99.18	1172.83	634.51	233.07	2139.59	0.00	0.00
Rudrakshapalli	1.79	519.22	1033.27	242.63	186.28	1987.92	-30.06	30.06
Sathupalli	0.00	18.99	437.69	391.51	372.51	1222.15	-75.15	0.00
Yatalkunta	0.00	673.15	477.71	183.07	222.89	1556.82	-4.92	4.92
Total	1.79	3860.86	9077.53	5322.27	3284.15	21711.85	-701.84	319.42
TALLADA Range								
Arkalpadu	0.00	192.94	293.66	695.37	65.35	1249.98	0.00	0.00
Bhimaram	0.00	184.71	827.45	410.03	57.55	1484.71	0.00	0.00
Buchireddipalem	0.00	0.00	139.89	306.77	44.04	490.70	0.00	0.00
Burugugudem	0.00	761.01	779.01	355.03	40.49	1935.54	-17.50	17.50
Chintagurthi	0.00	80.63	200.31	748.55	229.96	1281.27	0.00	0.00
Erlapudi	6.01	302.47	349.24	810.52	162.24	1632.37	-1.19	1.19
Gopalpet	0.00	992.15	479.28	116.92	39.28	1627.63	0.00	0.00
Gowraram	0.00	227.21	1248.92	493.81	51.93	2021.87	0.00	0.00
Gubbagurthi	0.00	301.36	642.20	427.80	52.68	1424.77	0.00	0.00
Gudur	1.52	810.93	419.64	305.08	134.02	1671.19	0.00	0.00
Gundepudi	0.00	62.13	372.63	633.33	269.00	1337.78	-58.98	0.00
Guntipalligoparam	0.00	37.38	540.45	207.50	23.64	808.97	0.00	0.00



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Kacharam	0.00	20.85	470.44	589.10	90.32	1170.71	0.00	0.00
Kallur	0.00	1017.38	721.65	395.65	161.89	2299.20	0.00	0.00
Lingagudem	0.00	174.97	358.39	283.72	86.34	903.42	0.00	0.00
Lokaram	7.41	1504.57	469.69	103.16	13.15	2097.98	0.00	0.00
Maddukur	0.00	602.41	1657.55	336.08	49.42	2645.46	-23.01	23.01
Mekalkunta	1.55	144.27	467.68	862.14	168.01	1644.47	0.00	0.00
Nacharam	0.00	508.47	702.56	396.27	65.32	1672.62	-1.09	1.09
Nallabandabodu	0.00	1067.24	1002.08	319.10	61.72	2450.14	-3.82	3.82
Pangidi	1.19	15.97	46.43	98.67	5.85	168.11	0.00	0.00
Ravikampad	0.00	213.71	1000.53	469.52	104.47	1788.23	0.00	0.00
Remidicherla	0.00	84.73	412.98	189.25	19.89	706.85	0.00	0.00
Tallapenta	0.00	1130.47	628.34	206.42	199.17	2170.29	-142.18	0.00
Tummalapalli	0.00	98.64	349.00	578.69	156.83	1187.88	0.00	0.00
Venkatagiri	0.00	417.59	307.90	163.59	32.83	922.75	0.00	0.00
Venkatapuram	0.00	2.38	147.32	165.53	23.84	339.07	0.00	0.00
Total	17.68	10956.57	15035.22	10667.60	2409.23	39133.96	-247.77	46.61
Grand Total	40.93	35105.20	51228.89	35584.39	10016.80	132234.06	-1329.64	527.49

* Beat wise total area including water bodies.





Chapter IV

4.22 KOTHAGUDEM DIVISION

4.22.1 Introduction:

Kothagudem Forest Division lies in the Western part of Khammam District, between latitudes 17° 19' 55" and 18° 4' 49" N and longitudes 80° 02' 46" and 80° 50' 44" E. The Geographical Area of the Division is 2503 Km², which is 15.62 % of the geographical area of the District. The highest peak of pancha pandvulu in this Division is 729.38 m. The area is undulated and interrupted with hills and hillocks of igneous with elevation ranging from 12m to 500 m. Kalakandavagu which forms major sources of water for Bayyaram cheruvu. Morredru river and Kinnerasani river are the perennial sources of water in this Division.

Land use pattern of the Division is given in Table 4.22.1

The climate of this Division is generally dry with temperatures ranging from 28° C to 50°C and the annual rainfall is about 934.69 mm, received mainly from Southwest monsoons.

The most important mineral deposit in the Division is Coal, which is being exploited by M/s. Singareni Collieries Company Ltd. The other minerals are Iron Ore, Barytes, Graphite, and Copper Ore. The Rocks found in the Division are Lime Stone, Marble, and Garnet. Dolomite deposits occur in Bayyaram Range and are being exploited by M/s Steel Authority of India Limited (SAIL). The soil types found mainly are Sandy soils, Black cotton, Red alluvial loam, and Skeletal soils. The soils are rich in fertility.

The total population of the Division is 0.477 million (2011 Census). The Per capita forest area is 0.35 ha. The population density is 337 persons per Km².

4.22.2 Recorded Forest Area:

The total notified forest area of the Division is 1538.04 Km², which is 61.45% of the total geographical area. Reserved-, Protected- forests constitute 1321.03 Km² (85.89%), 217.01 Km² (14.11%) of the total forest area, respectively. However, 103.50 Km² of notified forest area of the Division is constituted as Paloncha WLM Division.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical moist deciduous, Tropical Semi-evergreen, Dry Teak and Tropical Thorn Forest types.

4.22.3 Protected Area:

Out of 1538.04 Km² of notified forest area of old Kothagudem Division, **103.50 Km²** of notified forest area is constituted as Paloncha WLM Division.

4.22.4 Community Forest Management:

There are 106 Vana Samrakshana Samithies (VSSs) in the Division. 238.62 Km² forest area, which constitutes 14.17 % of forest area, is under the management of VSSs.

Table 4.22.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	2503	
Forest including Scrub	1412.13	56.42
Agriculture	879.50	35.14
Land with Scrub	72.86	2.91
Fallow Lands	22.30	0.89
Grasslands	0.49	0.02
Settlements	20.80	0.83
Vegetation outside Forest	75.75	3.03
Water Bodies	19.17	0.77

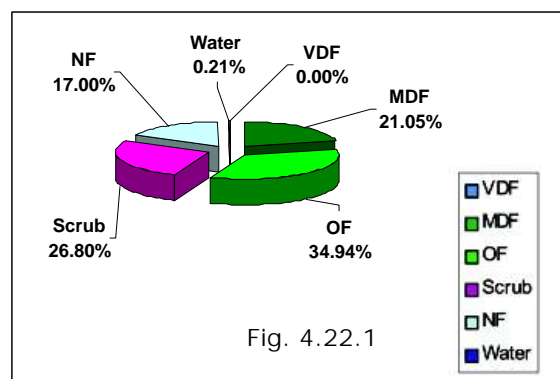


Fig. 4.22.1



4.22.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009), is **942.86 Km²**, which is 37.66% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.04 Km² of Very Dense Forests, 354.40 Km² Moderately Dense Forests, and 588.42 Km² Open Forest. The area of the Scrub is 451.22 Km², Non-Forest 286.29 Km² and Water Bodies 3.51 Km². The distribution of the forest cover of the Division is shown in Fig 4.22.1.

4.22.6 Change in Forest Cover:

The satellite images of 2008 and 2009 are shown in Fig(4.22.2 & 4.22.3), the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment (Satellite data of Oct 2008-Dec 2008), shows a positive change of 15.91 Ha and negative change of 896.75Ha. The forest cover change matrix, of forest cover during the period of one year given in Table 4.22.2 reveals that there has been a decrease of 214 Ha of moderately dense forest, 592 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 316.50 Ha on account of Raising of Plantations and 580.25 on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 580.25 Ha only.

The simplified forest cover change matrix is given in Table 4.22.3 and Table 4.22.4

There are 76 Beats in the Division. Negative change in Forest Cover is noticed in only 44 Beats, and positive change in only 1 beat. There is no change in the remaining 31 Beats.

Details of Forest cover changes in the 45 beats where forest cover is changed, is shown in Table 4.22.5

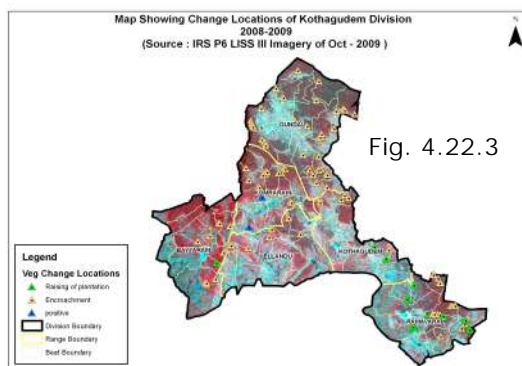
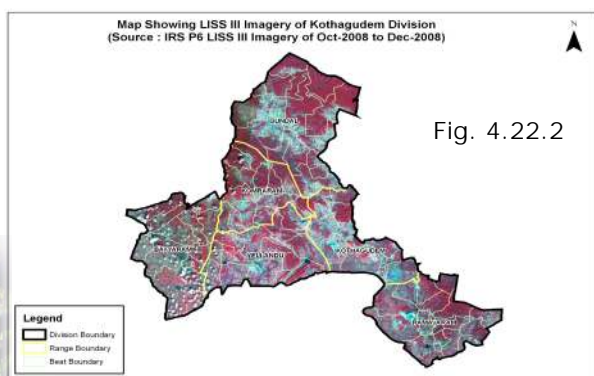


Table 4.22.2: Forest Cover change matrix

(Area in Km²)

2008 (Data of Oct 2008 Dec - 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.04	0.00	0.00	0.00	0.00	0.00	0.04
Moderately Dense Forest	0.00	354.40	0.75	0.84	0.55	0.00	356.54
Open Forest	0.00	0.00	587.51	2.54	4.29	0.00	594.34
Scrub	0.00	0.00	0.16	447.84	0.00	0.00	448.00
Non-Forest	0.00	0.00	0.00	0.00	281.45	0.00	281.45
Water	0.00	0.00	0.00	0.00	0.00	3.51	3.51
Total of 2009	0.04	354.40	588.42	451.22	286.29	3.51	1683.88
Net Change	0.00	-2.14	- 5.92	3.22	4.84	0.00	

2008 (Data of Oct 2008- Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	942.70	8.22	0.00	950.92
Degraded Forest	0.16	729.29	0.00	729.45
Water	0.00	0.00	3.51	3.51
Total of 2009	942.86	737.51	3.51	1683.88
Net Change	- 8.06	8.06	0.00	

2008 (Data of Oct 2008- Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	1394.08	4.84	0.00	1398.92
Barren	0.00	281.45	0.00	281.45
Water	0.00	0.00	3.51	3.51
Total of 2009	1394.08	286.29	3.51	1683.88
Net Change	- 4.84	4.84	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
BAYYARAM Range								
Bayyaram	0.00	252.76	1151.26	705.79	324.38	2435.70	0.00	0.00
Gowararam	0.00	26.32	77.33	282.21	425.54	815.08	0.00	0.00
Kachanpalli	0.00	599.62	427.76	209.73	131.55	1369.27	-5.96	5.96
Karukonda	0.00	216.04	701.62	1144.07	714.82	2779.55	-7.05	7.05
Laxmipuram	0.00	459.44	776.63	551.31	172.25	1960.93	-8.00	8.00
Miryalapenta	0.00	492.49	625.95	468.07	281.36	1869.65	0.00	0.00
Motlatimmapuram (N)	0.00	1243.59	1393.22	860.26	330.34	3866.70	0.00	0.00
Motlatimmapuram (S)	0.00	704.36	896.91	656.80	218.35	2511.59	0.00	0.00
Nagaram	0.00	371.63	967.06	956.70	472.09	2776.24	-14.02	14.02
Namalapadu	0.00	469.80	397.95	209.24	152.64	1238.82	-1.86	0.00
Pandipampula	0.00	548.92	792.61	569.32	266.06	2177.51	0.00	0.00
Total	0.00	5384.97	8208.30	6613.50	3489.38	23801.04	-36.89	35.03
GUNDAL Range								
Adiviramavaram	0.00	2857.51	1150.75	153.70	3.09	4165.05	-33.15	33.15
Damaratogu East	0.00	826.36	860.19	153.45	33.27	1874.33	0.00	0.00
Damaratogu North	0.00	1373.47	1039.42	189.91	58.68	2661.48	-4.22	4.22
Damaratogu West	0.00	1364.77	1155.74	387.01	49.44	2956.96	-12.08	12.08
Dongatogu	0.00	3317.84	1507.14	525.78	179.55	5541.07	-20.81	20.81
Gundala	0.00	400.23	2894.59	1332.01	933.00	5573.35	-81.18	81.18
Jinnelagudem	0.00	73.81	637.76	414.11	106.65	1232.33	-7.05	7.05
Kachanpalli	0.00	614.48	1447.64	1181.24	762.66	4011.78	-13.96	13.96
Karnigudem	0.00	2498.52	1029.59	735.36	581.17	4846.41	-19.37	19.37
Kodavatancha	0.00	322.51	1241.78	1207.71	988.47	3772.56	-21.51	21.51
Mamakannu	0.00	177.53	933.73	600.91	426.84	2140.96	0.00	0.00



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Narsapuram	0.00	76.47	1377.99	1011.50	247.69	2713.65	-18.28	18.28
Ravigudem	0.00	76.08	696.71	252.46	66.8	1091.93	-11.71	11.71
Sayanpalli	0.00	127.87	422.56	1099.72	1286.84	2958.37	0.00	0.00
Suddarevu	0.00	2810.14	420.70	243.17	46.17	3520.18	-18.68	18.68
Valasala	0.00	187.11	608.12	1114.56	998.72	2918.88	-5.53	5.53
Total	0.00	17104.70	17424.41	10602.60	6768.92	51979.29	-267.53	267.53
KOMARARAM Range								
Anantharam	0.00	743.05	798.98	347.42	557.97	2450.14	-9.25	9.25
Chinaregulagudem	0.00	727.56	808.62	269.80	64.51	1870.49	-5.21	5.21
Komraram	0.00	28.99	219.14	387.02	535.43	1171.70	0.00	0.00
Manikyaram	0.00	865.22	798.64	379.95	482.64	2526.45	-0.41	2.53
Mittapalli	0.00	96.76	672.68	1374.07	1046.60	3208.21	13.79	0.00
Polaram	0.00	355.46	1306.32	1084.39	931.83	3678.00	-10.15	10.15
Shammunigudem	0.00	1110.46	647.59	187.76	44.80	1992.04	-4.33	4.33
Shatpalli	0.00	1304.92	1083.47	344.05	108.26	2840.70	-17.02	17.02
Vennelbail	0.00	628.72	1363.94	255.43	104.69	2353.33	-12.30	12.30
Yedapalagudem	0.00	391.28	575.41	363.41	214.93	1545.03	0.00	0.00
Yellapuram	0.00	583.30	1164.99	527.71	166.06	2442.06	-14.12	14.12
Total	0.00	6835.72	9439.78	5521.01	4257.72	26078.15	-59.00	74.91
KOTHAGUDEM Range								
Ansetpalli	0.00	108.06	485.28	1106.88	528.40	2228.62	0.00	0.00
Bodu	0.00	72.89	332.60	994.59	940.50	2340.58	0.00	0.00
Chatakonda	0.00	0.00	140.80	1122.95	566.16	1832.70	0.00	0.00
Hemachandrapuram	0.00	0.83	15.72	143.26	190.31	318.68	-113.57	0.00
Kistaram	0.00	1017.38	782.51	287.32	205.78	2298.41	0.00	0.00
Koppurai	0.00	409.73	660.30	945.70	480.65	2508.06	-4.44	4.44
Koyagudem	0.00	12.40	193.71	474.86	1160.19	1842.22	0.00	0.00
Medlamadugu	0.00	115.64	1034.77	588.59	223.48	1962.48	-18.39	6.61
Murlipad	0.00	317.51	1044.21	479.34	180.23	2024.92	-33.17	33.17
Total	0.00	2054.44	4658.46	6143.49	4475.70	17356.67	-169.57	44.22
RAMAVARAM Range								
Abbugudem	0.00	12.74	459.16	254.96	166.44	893.30	0.00	0.00
Annaram	0.00	35.51	1269.11	471.89	68.93	1848.78	-32.29	32.29
Chaparalapally_East	0.00	62.66	981.90	487.01	54.77	1586.34	-79.09	38.68
Chaparalapally_West	0.00	24.33	535.62	225.89	179.82	965.66	0.00	0.00
Damarachrla	0.00	2.12	348.87	439.46	254.72	1094.72	0.00	0.00
Gareebpet	0.00	0.00	415.35	749.40	404.46	1569.21	0.00	0.00
Kamalapuram	3.85	60.25	884.44	945.84	130.32	2029.67	0.00	0.00
Marrigudem	0.00	19.11	705.05	485.80	287.11	1497.07	-14.31	14.31
Musalivarre	0.00	172.44	87.31	384.97	123.42	1868.14	0.00	0.00
Penagadapa	0.00	2.28	266.96	112.97	714.33	1096.54	-4.20	0.00
Penuballi	0.00	165.64	1323.74	891.85	296.52	2677.75	-65.93	0.00
Ramavaram	0.00	0.00	2.70	632.85	697.53	1337.49	-26.67	0.00
Sandrukunta	0.00	36.27	758.33	305.61	79.41	1179.62	-43.73	0.00
Satyampet	0.00	470.08	1812.75	282.15	76.07	2641.05	-47.84	47.84
Thippanpalli	0.00	0.00	164.37	782.80	870.19	1817.36	-8.35	0.00
Total	3.85	1063.43	11115.66	7453.45	4404.04	24102.70	-322.41	133.12



Forest division wise results

YELLANDU Range								
Daniyalapadu	0.00	5.35	55.85	390.27	127.77	579.24	0.00	0.00
Dharmapur	0.00	549.55	1342.64	546.41	275.81	2716.13	-7.63	7.63
Jodbouli	0.00	248.16	646.61	748.88	630.83	2281.55	-5.09	5.09
Kollapur	0.00	323.21	660.60	577.96	181.77	1744.43	0.00	0.00
Kommugudem	0.00	299.40	709.52	877.38	619.45	2509.21	-9.53	9.53
Kunterla	0.00	219.62	609.51	613.17	203.64	1665.18	0.00	0.00
Madharam	0.00	12.70	56.96	596.39	358.37	1026.48	0.00	0.00
Patharalagadda	0.00	212.12	1024.66	796.47	659.14	2694.38	0.00	0.00
Perepalli	0.00	7.35	129.17	509.80	331.87	978.61	0.00	0.00
Pubally	0.00	175.28	592.61	790.35	393.69	1958.34	0.00	0.00
Pusapalli	0.00	459.50	648.07	772.09	494.23	2377.68	-3.19	3.19
Thummalachelka	0.00	414.95	1282.52	801.38	552.96	3057.29	0.00	0.00
Todtalagudem	0.00	69.78	191.29	497.65	243.02	1001.74	0.00	0.00
Urugutta	0.00	0.58	44.35	270.12	160.68	479.57	0.00	0.00
Total	0.00	2997.55	7994.36	8788.32	5233.23	25069.83	-25.44	25.44
Grand Total	3.85	35440.81	58840.97	45122.37	28628.99	168387.68	-880.84	580.25

* Beat wise total area including water bodies.





Chapter-IV

4.23 PALONCHA DIVISION

4.23.1 Introduction:

Paloncha Forest Division lies in the Central part of Khammam District, between latitudes 17° 19' 4" and 18° 09' 10" N and longitudes 80° 25' 56" and 81° 30' 17" E. The Geographical Area of the Division is 2530 Km², which is 15.78 % of the geographical area of the District. The elevation varies from 12mts to 600mts above Mean Sea Level in this Division. The Godavari River, which forms the North-eastern boundary of this Division is the only perennial river in this Division. Other rivers are Kinnerasani, Pamleru and Morredy which almost dry up in summer. Besides these rivers, few big tanks Tummalachervu, Parentalacheruvu also exist in this Division. Some important projects are Kinnerasani and Mukamamidi.

Land use pattern of the Division is given in Table 4.23.1

The climate of this Division is generally cool fresh and pleasant with the maximum temperature is 49° C and the minimum is 10°C and the average annual rainfall is ranging from 934.96 to 1334 mm, received mainly from Southwest monsoons.

The Soil types found mainly in this Division are Red Sandy Loam, Red Loam, Black-cotton, Alluvium and Saline. The Rock formations found in this Division are Quartzite, Gneiss, Sandstone, Granite, Schist and Marble. The important mineral deposit in this Division is coal which is being exploited by the Singareni Collieries Company Ltd. The other minerals found in this Division are Barytes, Graphite, Hematite (Iron ore) and soapstone.

The total population of the Division is 0.42 million (2011 Census). The Per capita forest area is 0.51 ha. The population density is 166 persons per Km².

Table 4.23.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	2530	
Forest including Scrub	1413.37	55.86
Agriculture	813.73	32.16
Land with Scrub	54.10	2.14
Fallow Lands	77.87	3.08
Grasslands	2.06	0.08
Settlements	31.88	1.26
Vegetation outside Forest	72.76	2.88
Water body	64.22	2.54

4.23.2 Recorded Forest Area:

The total notified forest area of the Old Division is 2156.62 Km², which is 85.24% of the total geographical area. Reserved-, Protected- and Un-classed forests constitute 1545.8 Km² (71.68%), 498.04 Km² (23.09%) and 112.78 Km² (5.23%) of the total forest area, respectively. However, **582.88 Km²** of notified forest area of the Division is constituted as Paloncha WLM Division.

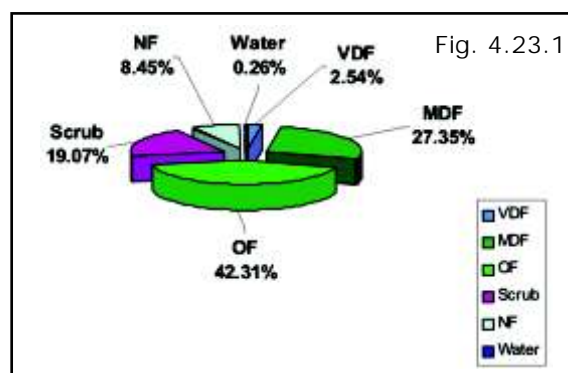
As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical moist deciduous, Tropical Semi-evergreen, Dry Teak and Tropical Thorn Forest types.

4.23.3 Protected Area:

Out of 2156.62 Km² of notified forest area of old Paloncha Division, 579.88 Km² of notified forest area is constituted as Paloncha WLM Division.

4.23.4 Community Forest Management:

There are 137 Vana Samrakshana Samithies (VSSs) in the Division. 284.24 Km² forest area, which constitutes 18.66 % of forest area, is under the management of VSSs.



4.23.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2008 data (Oct 2008-Dec 2008), is 1100.12 Km², which is 43.48% of the total Geographical area. In terms of the forest canopy density classes, the Division has 38.77 Km² of Very Dense Forests, 416.73 Km² Moderately Dense Forests, and 644.62 Km² Open Forest. The area of the Scrub is 290.59 Km², Non-Forest 128.79 Km² and Water Bodies 4.02 Km². The distribution of the forest cover of the Division is shown in Fig 4.23.1

4.23.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 are shown in Fig (4.23.2 & 4.23.3), the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment year (Satellite data of Oct 2008), shows a negative change of 852.98 Ha. The forest cover change matrix, of forest cover during the period of one year given in Table 4.23.2 reveals that there has been a decrease of 154 Ha of moderately dense forest, 658 Ha of open forest.

Of The total negative change 142.05 Ha on account of Raising of Plantations , 88.79 Ha is on account of Harvesting of plantations and 622.14Ha on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 622.14 Ha only.

The simplified forest cover change matrix is given in Table 4.23.3 and Table 4.23.4

There are 65 Beats in the Division. Negative change in Forest Cover is noticed in only 30 Beats. There is no change in the remaining 35 Beats.

Details of Forest cover changes in the 30 beats where forest cover is changed, is shown in Table 4.23.5

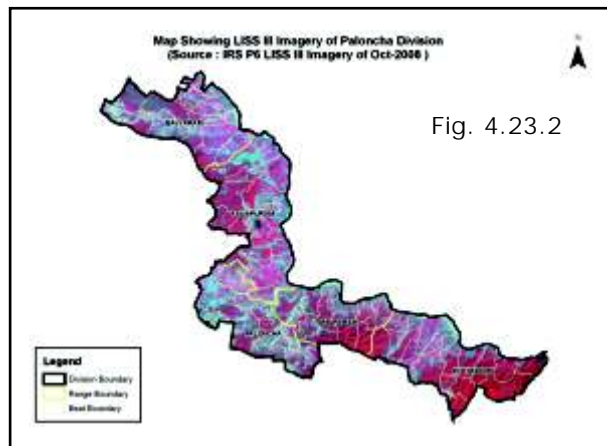


Fig. 4.23.2

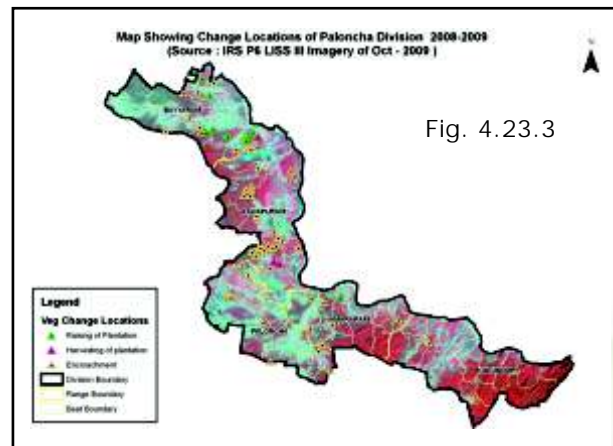


Fig. 4.23.3

Table 4.23.2: Forest Cover change matrix

(Area in Km²)

2008 (Data of Oct 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	38.77	0.00	0.00	0.00	0.00	0.00	38.77
Moderately Dense Forest	0.00	416.73	0.24	1.18	0.12	0.00	418.27
Open Forest	0.00	0.00	644.38	2.81	4.01	0.00	651.20
Scrub	0.00	0.00	0.00	286.60	0.17	0.00	286.77
Non-Forest	0.00	0.00	0.00	0.00	124.49	0.00	124.49
Water	0.00	0.00	0.00	0.00	0.00	4.02	4.02
Total of 2009	38.77	416.73	644.62	290.59	128.79	4.02	1523.52
Net Change	0.00	-1.54	-6.58	3.82	4.30	0.00	



Table 4.23.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Oct 2008)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1100.12	8.12	0.00	1108.24
Degraded Forest	0.00	411.26	0.00	411.26
Water	0.00	0.00	4.02	4.02
Total of 2009	1100.12	419.38	4.02	1523.52
Net Change	-8.12	8.12	0.00	

Table 4.23.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Oct 2008)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	1390.71	4.30	0.00	1395.01
Barren	0.00	124.49	0.00	124.49
Water	0.00	0.00	4.02	4.02
Total of 2009	1390.71	128.79	4.02	1523.52
Net Change	-4.30	4.30	0.00	

Table 4.23.5: Beat wise Forest Area in 2009 (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
AMARARAM RANGE								
Amararam	95.63	2319.89	2122.37	341.70	75.34	4954.93	0.00	0.00
Cheeravalli	0.00	355.39	520.32	56.73	20.72	953.16	0.00	0.00
Damaracherla	44.41	2136.55	1596.70	193.40	25.89	3996.95	0.00	0.00
Gundalapadu	4.69	918.55	1216.77	187.60	13.49	2341.10	-12.97	12.97
Kothur	0.00	1041.51	1764.41	402.70	122.57	3333.31	-18.07	8.43
Raigudem	3.52	99.80	1326.91	317.73	54.40	1802.95	-10.18	10.18
Sridhara	0.00	12.70	1272.18	388.16	180.21	1853.25	-3.20	3.20
Timmampet	4.91	118.64	1439.54	763.95	196.00	2523.04	0.00	0.00
Timmampet Baroon	2.23	124.62	499.53	176.72	77.50	880.60	-1.55	1.55
Vinjaram	0.00	282.93	770.06	186.36	61.87	1301.22	-2.07	2.07
Total	155.39	7410.58	12528.79	3015.05	827.99	23940.51	-48.04	38.40
ASWAPURAM Range								
Aswapuram	6.70	741.00	1350.18	540.09	150.22	2790.61	0.00	0.00
Chinriyala	0.00	3.22	104.05	487.84	179.38	774.49	0.00	0.00
Eravendi	0.00	247.88	369.23	215.34	19.63	852.08	-8.52	8.52
Gondigudem	3.35	914.71	942.89	426.76	182.15	2471.47	-2.77	2.77
Kistasagar	0.00	450.01	1072.62	455.26	142.49	2120.38	-41.24	41.24
Kunavaram	0.00	478.67	2231.23	767.53	161.57	3679.41	-5.53	5.53
Manubothulapadu	0.00	1102.00	4006.91	852.76	66.78	6028.45	-110.86	110.86
Manuguru South	0.00	797.72	963.46	1033.66	893.10	3710.23	-27.92	27.92
Manuguru West	0.00	54.15	1136.49	1689.92	2010.93	4911.19	-76.62	76.62
Musalimadugu	0.00	232.39	1064.19	331.08	33.20	1660.86	-27.45	27.45
Nellipaka	0.00	276.96	967.51	821.92	367.80	2435.32	-29.84	29.84



Forest division wise results

Sarapaka	0.00	193.55	535.30	1071.86	568.31	2369.02	-76.39	28.41
Sompalli	0.00	0.00	17.12	147.65	109.29	274.06	0.00	0.00
Ulavanoor Kothur	0.00	926.65	1782.45	252.92	41.50	3003.52	0.00	0.00
Total	10.05	6418.91	16543.63	9094.59	4926.35	37081.09	-407.14	359.16
BAYYARAM Range								
Anantharam	1.07	52.96	397.87	585.47	426.73	1468.86	0.00	0.00
Chirumalla	0.00	958.41	2794.97	1204.78	85.76	5054.83	-2.72	2.72
Dugnepally	0.00	92.28	141.96	210.70	116.35	561.29	0.00	0.00
Gopalraopet	4.75	502.95	860.11	231.22	137.80	1736.83	-34.77	17.97
Janampet	0.00	613.23	736.23	533.44	419.84	2317.20	-22.19	12.60
Kalvalnagaram	1.73	227.30	847.16	1034.12	317.38	2437.56	-2.08	2.08
Karakagudem	5.72	764.29	834.49	404.53	184.36	2193.39	0.00	0.00
Kondaigudem	0.00	153.71	1390.28	552.39	269.36	2400.53	-96.23	21.92
Pagaderu	16.01	1429.14	962.46	108.95	1.93	2518.49	0.00	0.00
Pathareddipalem	0.00	172.36	494.79	241.82	50.76	962.34	-4.77	0.00
Potlapally	3.62	285.64	412.70	128.81	13.55	844.32	0.00	0.00
Raghunathapalem	0.00	270.52	2389.17	1388.97	222.06	4283.55	0.00	0.00
Seethampet	0.00	942.75	1190.85	348.74	245.75	2732.86	-67.75	0.00
Total	32.90	6465.54	13453.04	6973.94	2491.63	29512.05	-230.51	57.29
KUKUNOOR Range								
Chigurumamidi	82.90	1574.45	1322.61	132.11	11.62	3123.69	0.00	0.00
Gollagudem	30.44	1080.57	644.22	99.34	32.39	1886.96	0.00	0.00
Goparaju Gudem	0.00	105.80	518.52	145.88	98.56	868.76	0.00	0.00
Gummadapally	11.41	1661.73	1597.49	1074.19	445.92	4798.64	0.00	0.00
Gundambore	0.00	136.78	860.58	413.59	64.46	1478.06	0.00	0.00
Kakeshnoor	367.81	1396.62	807.61	227.71	25.93	2833.37	0.00	0.00
Kantlam	356.22	1347.59	267.25	91.68	4.06	2066.80	0.00	0.00
Kavadigundla East	571.26	1940.06	285.53	29.11	4.67	2830.63	-1.19	1.19
Kavadigundla North	10.21	981.57	269.41	161.68	57.69	1481.25	0.00	0.00
Koida	313.49	1690.91	648.89	58.97	9.68	2721.94	0.00	0.00
Kukunoor	0.00	464.51	1127.21	261.42	49.52	1902.66	-8.80	8.80
Lankalapally	0.00	167.88	572.45	231.73	64.54	1037.66	0.00	0.00
Nandipadu	6.31	1904.10	1538.94	194.08	18.36	3661.79	0.00	0.00
Pentapally	1620.33	3617.93	1233.04	97.71	0.02	6569.03	0.00	0.00
Rudramkota	0.00	21.68	416.15	239.52	55.75	733.10	0.00	0.00
Tekupally	308.51	1917.59	753.55	89.24	18.70	3087.59	0.00	0.00
Total	3678.89	20009.77	12863.45	3547.96	961.87	41081.93	-9.99	9.99
PALONCHA Range								
Bangarujal	0.00	0.00	23.85	203.82	178.14	409.10	0.00	0.00
Dantalaboru	0.00	0.00	607.06	273.57	289.79	1170.42	0.00	0.00
Lingareddipalli	0.00	105.03	1272.97	350.67	437.33	2166.00	0.00	0.00
Madharam	0.00	127.78	2070.81	414.11	241.81	2854.51	0.00	0.00
Mulakalapally	0.00	35.37	1012.19	847.02	525.08	2420.83	-4.38	4.38
Muthyalampadu	0.00	940.31	1510.69	713.31	251.85	3431.60	-7.18	7.18
Nagaram	0.00	0.00	6.96	200.75	67.63	275.34	0.00	0.00
Paloncha East	0.00	85.09	1055.09	835.21	172.87	2152.97	0.00	0.00
Pogadlapally	0.00	16.18	290.38	295.79	157.17	761.25	0.00	0.00
Suraram	0.00	0.00	42.56	344.61	402.17	946.20	-27.71	27.71



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Uppusaka	0.00	48.61	637.94	1301.21	726.29	2726.76	-12.89	12.89
Vaddu Ramavaram	0.00	9.56	542.57	647.22	220.57	1421.20	-105.14	105.14
Total	0.00	1367.93	9073.07	6427.29	3670.70	20736.18	-157.30	157.30
Grand Total	3877.23	41672.73	64461.98	29058.83	12878.54	152351.76	-852.98	622.14

*Beat wise total area including water bodies.





Chapter-IV

4.24 PALONCHA WLM DIVISION

4.24.1 Introduction:

Paloncha WLM Forest Division lies in the Central part of Khammam District, between latitudes 17° 35' 11" and 17° 59' 54" N and longitudes 80° 27' 14" and 80° 47' 20" E. The Geographical Area of the Division is 825 Km², which is 5.15 % of the geographical area of the District. The elevation varies from 12mts to 600mts above Mean Sea Level in this Division. Kinnerasani, Pamleru and Morredy are rivers of the District.

Land use pattern of the Division is given in Table 4.24.1

The climate of this Division is generally cool fresh and pleasant ranging from 10° C to 49°C and the annual rainfall is about 1334 mm, received mainly from Southwest monsoons.

The Soil types found mainly in this Division are Red Sandy Loam, Red Loam, Black-cotton, Alluvium and Saline. The Rock formations found in this Division are Quartzite, Gneiss, Sandstone, Granite, Schist and Marble. The minerals found in this Division are Barytes, Graphite, Hematite (Iron ore) and soapstone.

Table 4.24.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	825	
Forest including Scrub	622.00	75.39
Agriculture	137.65	16.69
Land with Scrub	20.08	2.43
Fallow Lands	4.29	0.52
Grasslands	0.12	0.01
Settlements	0.38	0.05
Vegetation outside Forest	17.29	2.10
Water body	23.19	2.81

4.24.2 Recorded Forest Area:

The total notified forest area of the Division is 686.38 Km², which is 83.20% of the total geographical area.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical moist deciduous, Tropical Semi-evergreen, Dry Teak and Tropical Thorn Forest types.

4.24.3 Protected Area:

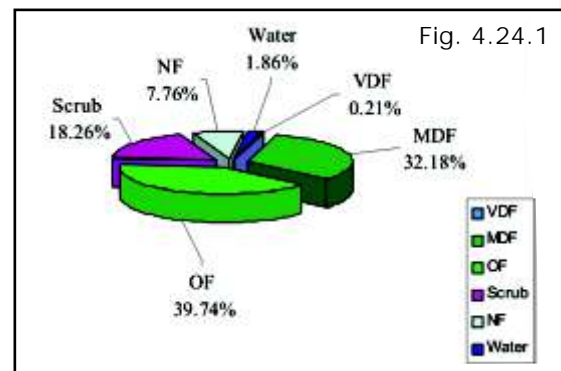
Entire forest area of the Division is included in Kinnerasani WLS.

4.24.4 Community Forest Management:

There are 50 Vana Samrakshana Samithies (VSSs) in the Division. 199.33 Km² forest area, which constitutes 29.04 % of forest area, is under the management of VSSs.

4.24.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009), is 495.07 Km², which is 60% of the total Geographical area. In terms of the forest canopy density classes, the Division has 1.43 Km² of Very Dense Forests, 220.89 Km² Moderately Dense Forests, and 272.75 Km² Open Forest. The area of the Scrub is 125.32 Km², Non-Forest 53.24 Km² and Water Bodies 12.75 Km². The distribution of the forest cover of the Division is shown in Fig 4.24.1



4.24.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 are shown in Fig (4.24.2 & 4.24.3), the changes during this period are shown on the image of 2009.



Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment year (Satellite data of Oct 2008), shows a positive change of 3.27 Ha and negative change of 80.34 Ha. The forest cover change matrix, of forest cover during the period of one year given in Table 4.24.2 reveals that there has been a decrease of 15 Ha of moderately dense forest, 62 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. The total negative change 80.34Ha is on account of encroachment. Thus the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 80.34 Ha only.

The simplified forest cover change matrix is given in Table 4.24.3 and Table 4.24.4.

There are 20 Beats in the Division. Negative change in Forest Cover is noticed in only 6 Beats. There is no change in remaining 14 Beats.

Details of Forest Cover changes in the 6 Beats where Forest Cover is changed, is shown in Table 4.24.5

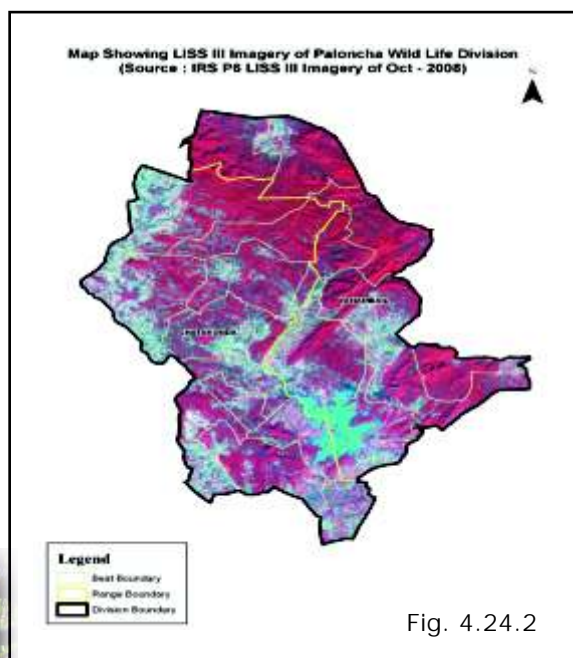


Fig. 4.24.2

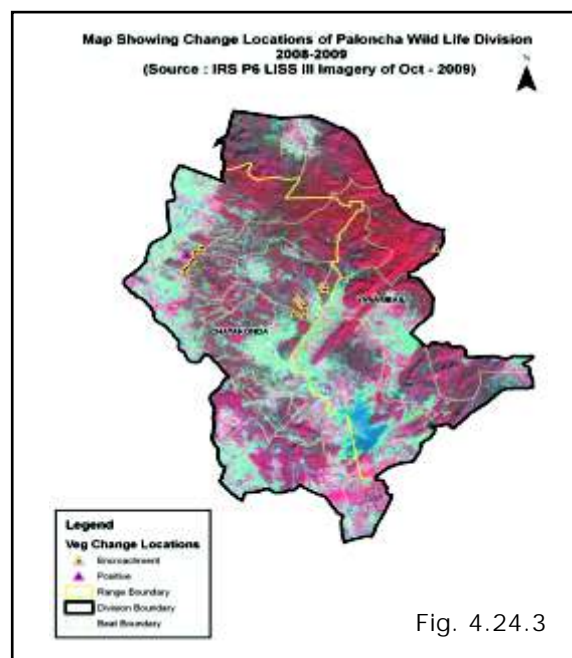


Fig. 4.24.3

Table 4.24.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Oct 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	1.43	0.00	0.00	0.00	0.00	0.00	1.43
Moderately Dense Forest	0.00	220.89	0.00	0.06	0.09	0.00	221.04
Open Forest	0.00	0.00	272.72	0.04	0.61	0.00	273.37
Scrub	0.00	0.00	0.00	125.22	0.00	0.00	125.22
Non-Forest	0.00	0.00	0.03	0.00	52.54	0.00	52.57
Water	0.00	0.00	0.00	0.00	0.00	12.75	12.75
Total of 2009	1.43	220.89	272.75	125.32	53.24	12.75	686.38
Net Change	0.00	-0.15	-0.62	0.10	0.67	0.00	

2008 (Data of Oct 2008)				2009 (Data of Oct 2009)			Total of 2008	
				Good Forest	Degraded Forest	Water		
Good Forest				495.04	0.80	0.00	495.84	
Degraded Forest				0.03	177.76	0.00	177.79	
Water				0.00	0.00	12.75	12.75	
Total of 2009				495.07	178.56	12.75	686.38	
Net Change				-0.77	0.77	0.00		

2008 (Data of Oct 2008)				2009 (Data of Oct 2009)			Total of 2008	
				Green	Barren	Water		
Green				620.36	0.70	0.00	621.06	
Barren				0.03	52.54	0.00	52.57	
Water				0.00	0.00	12.75	12.75	
Total of 2009				620.39	53.24	12.75	686.38	
Net Change				-0.67	0.67	0.00		

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
CHATAKONDA Range								
Allapally	0.00	977.12	1592.14	1407.87	872.74	4861.49	-23.84	27.11
Chinthakunta	0.00	495.17	2554.57	1325.34	674.22	5059.98	-15.89	15.89
Gangaram	0.67	470.18	847.91	340.16	269.95	1928.87	0.00	0.00
Gattumalla	3.00	1116.61	1928.42	940.81	198.80	4187.66	0.00	0.00
Gollagudem	0.00	197.55	866.75	772.71	429.16	2347.12	0.00	0.00
Kothasingaram	2.46	2289.93	1350.78	190.33	17.67	3851.17	0.00	0.00
Mailaram	0.00	181.05	874.77	821.02	384.88	2631.76	0.00	0.00
Markode	16.16	3089.62	1475.31	682.35	260.06	5524.63	-4.99	4.99
Punukula Chelaka	0.00	137.18	733.75	396.64	155.31	1422.88	0.00	0.00
Regalla	0.00	1.28	133.44	928.83	514.27	1580.83	0.00	0.00
Venkatapuram	0.00	1203.11	2221.03	668.28	218.27	4311.30	-25.48	25.48
Total	22.29	10158.80	14578.87	8474.34	3995.33	37707.69	-70.20	73.47
YANAMBAIL Range								
Bangaru Chelaka	0.00	416.30	2215.60	1069.92	459.57	4415.97	0.00	0.00
Karegattu	3.13	1426.71	1761.33	626.15	113.86	3946.35	0.00	0.00
Mallaram	1.06	794.40	1626.58	644.83	296.22	3364.76	-5.42	5.42
Mamillavai	2.18	1320.27	988.14	257.34	68.74	2636.67	0.00	0.00
Pagidapur	20.43	2517.07	1051.39	116.86	8.67	3714.42	0.00	0.00
Regalla	33.77	1963.33	1490.24	255.46	18.25	3761.05	0.00	0.00
Regulagudem	8.60	940.69	878.24	115.71	3.95	1947.19	0.00	0.00
Ulvachelaka	51.08	2176.10	1783.20	141.58	1.45	4153.41	-1.45	1.45
Yanambail	0.00	374.60	902.13	830.42	357.85	2990.49	0.00	0.00
Total	120.25	11929.47	12696.85	4058.27	1328.56	30930.31	-6.87	6.87
Grand Total	142.54	22088.27	27275.72	12532.61	5323.89	68638.00	-77.07	80.34

* Beat wise total area including water bodies.





Chapter-IV

4.25 KADAPA DIVISION

4.25.1 Introduction:

Kadapa Forest Division lies in the middle Part of Kadapa District, between latitudes $13^{\circ} 50' 40''$ and $14^{\circ} 40' 37''$ N and longitudes $78^{\circ} 13' 9''$ and $79^{\circ} 14' 39''$ E. The Geographical Area of the Division is 4521 Km^2 , which is 29.44 % of the total area of the District. This Division lies on the Deccan Plateau. Altitude of North, East and Southeast region is less, while the southern and south-west region is a high plateau with 760 m altitude. The main rivers that flow through Kadapa division are Penna, Papaghni, and Mandavi.

Landuse pattern of the division is given in Table 4.25.1

The climate of this Division is generally dry with temperatures ranging from 21°C to 44°C and the annual rainfall is about 661.22mm.

The soil types found mainly are Red loamy soil, Black Cotton soil, Red sandy soil. The minerals resources in this division are granites, barites, asbestos and lime stone.

The total population of the Division is 0.943 million (2011 Census). The Per capita forest area is 0.018 ha. The population density is 208 persons per Km^2 .

4.25.2 Recorded Forest Area:

The total notified forest area of the Division is $1,928.69 \text{ Km}^2$, which is 25.63% of the total geographical area. Reserved and Protected Forests Constitute $1,914.08 \text{ Km}^2$ (99.24%) and 14.61 Km^2 (0.76%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Southern tropical dry deciduous, Southern tropical thorn mixed, Tropical dry ever green and Dry red sanders bearing forest types. Red Sanders (*Pterocarpus santalinus*), an endemic tree species is available in plenty in this area.

4.25.3 Protected Area:

The Division is one of the two constituent Divisions of Sri Lankamalleswara Wildlife Sanctuary. Out of 1716.54 Km^2 of notified forest area, 246.30 Km^2 is included in Sri Lankamalleswara WLS. The Division also includes Sri Peninsula Narasimha Wildlife Sanctuary. This Division is one of the four constituent Divisions of Sri Peninsula Narasimha WLS. Out of $1,716.54 \text{ Km}^2$ of forest area, 272.53 Km^2 is included in Sri Peninsula Narasimha WLS.

4.25.4 Community Forest Management:

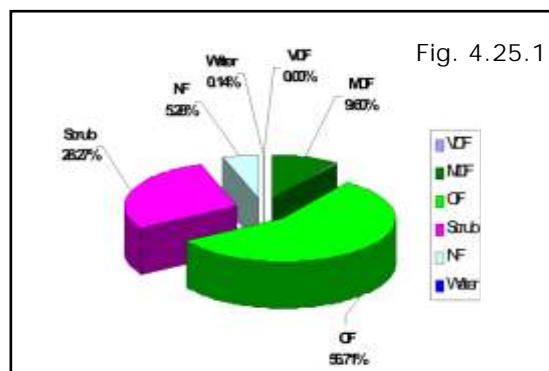
There are 118 Vana Samrakshana Samithies (VSSs) in the Division. 394.08 Km^2 forest area, which constitutes 22.96 % of forest area, is under the management of the VSSs.

4.25.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III (Oct 2009) is 1138.38 Km^2 , which is 25.18% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.03 Km^2

Table 4.25.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	4521	
Forest including Scrub	1625.45	35.95
Agriculture	1721.55	38.08
Land with Scrub	359.63	7.95
Fallow Lands	602.52	13.33
Grasslands	0.25	0.01
Settlements	19.64	0.43
Vegetation outside Forest	140.98	3.12
Water body	50.97	1.13



Very Dense Forest, 164.84 Km² Moderately Dense Forest, and 973.51 Km² Open Forest. The area of the Scrub is 485.20 Km², Non-Forest is 90.65 Km² and Water Bodies is 2.32 Km². the distribution of the forest cover of the division is shown in Fig 4.25.1

4.25.6 Change in Forest Cover:

The satellite images of 2008 and 2009 are shown in Fig (4.25.2 & 4.25.3), the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment (Satellite Imagery of Oct 2008), shows a Negative change in forest cover of 131.26 Ha and positive change of 12.89 Ha. The Forest cover change matrix, given in Table 4.24.2 reveals that there has been a decrease of 5 Ha of open forest & 121 Ha of Scrub.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 118.37 Ha on account of Raising of Plantations and 0.00 on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 0.00 Ha only.

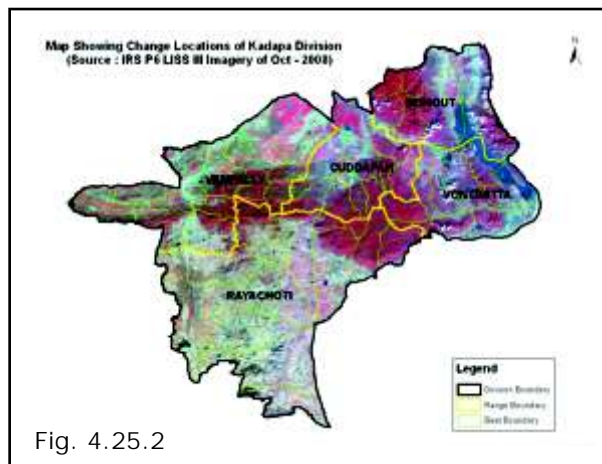


Fig. 4.25.2

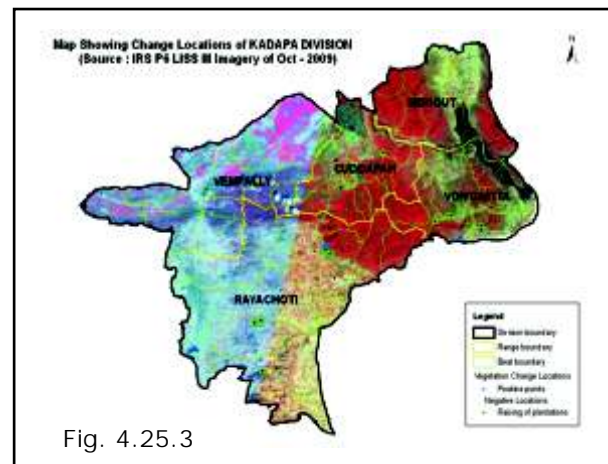


Fig. 4.25.3

The simplified forest cover change matrix is given in Table 4.24.3 and Table 4.25.4

There are **44 Beats** in the Division. Negative change in Forest cover is seen in only 6 beats, 2 beats both changes and no change in 36 beats. Beat wise forest cover in different forest canopy density classes is given in Table 4.25.5

Table 4.25.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Oct 2008 -Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.03	0.00	0.00	0.00	0.00	0.00	0.03
Moderately Dense Forest	0.00	164.84	0.00	0.00	0.00	0.00	164.84
Open Forest	0.00	0.00	973.43	0.00	0.13	0.00	973.56
Scrub	0.00	0.00	0.08	485.15	1.18	0.00	486.41
Non-Forest	0.00	0.00	0.00	0.05	89.34	0.00	39.89
Water	0.00	0.00	0.00	0.00	0.00	2.32	2.32
Total of 2009	0.03	164.84	973.51	485.20	90.65	2.32	1716.5
Net Change	0.00	0.00	-0.05	-1.21	1.26	0.00	



Table 4.25.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Oct 2008 - Dec 2008)	2009 (Data of Oct 2009 – Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1138.30	0.13	0.00	1138.43
Degraded Forest	0.08	575.72	0.00	575.80
Water	0.00	0.00	2.32	2.32
Total of 2009	1138.38	575.85	2.32	1716.55
Net Change	-0.05	0.05	0.00	

Table 4.25.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Oct 2008 – Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	1623.53	1.31	0.00	1624.84
Barren	0.05	89.34	0.00	89.39
Water	0.00	0.00	2.32	2.32
Total of 2009	1623.58	90.65	2.32	1716.55
Net Change	-1.26	1.26	0.00	

Table 4.25.5: Beat wise Forest Cover (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
Cuddapah Range								
Bhakarapet	0.00	247.30	2,639.27	132.38	4.23	3023.18	0.00	0.00
Ippapenta	0.00	227.92	3,753.41	1,423.10	129.60	5582.73	0.00	0.00
K.G.Penta	0.00	299.25	1,756.12	107.57	1.28	2164.22	0.00	0.00
Kanumalopalli	0.00	63.71	2,291.02	863.01	47.35	3265.10	-1.45	0.00
Maddimadgu_East	0.00	203.11	3,069.75	1,302.16	156.96	4754.25	0.00	0.00
Maddimadgu_West	0.00	252.15	2,309.81	1,172.74	236.97	3971.67	0.00	0.00
Mamillapalli	0.00	144.74	1,745.64	1,189.44	210.07	3303.89	0.00	0.00
Rasulpally	0.00	39.64	1,019.67	2,109.21	621.02	3792.35	0.00	0.00
Total	0.00	1,477.83	18,584.68	8,299.61	1,407.48	29857.39	-1.45	0.00
Rayachoti Range								
Gadi_Kota	0.00	404.95	5,549.03	512.23	19.78	6485.99	0.00	0.00
Guvvalacheruvu_East	0.00	686.96	2,493.11	546.43	50.37	3776.86	0.00	0.00
Guvvalacheruvu_West	0.00	402.75	1,521.21	887.92	101.21	2914.37	0.00	0.00
Kesapuram	0.00	16.84	444.76	1,428.07	525.03	2414.70	0.00	0.00
Korthimadugu	0.00	593.88	5,461.45	1,203.82	37.58	7296.73	0.00	0.00
Madhavaram	0.00	0.00	23.76	1,662.51	1,584.12	3271.62	-17.10	0.00
Nadimpalli	0.00	679.24	3,493.90	1,174.86	95.37	5447.63	0.00	0.00
Pandillapalli	1.28	16.42	912.80	2,385.83	766.35	4085.80	0.00	0.00
Saraswathipally	0.00	753.74	3,180.99	1,163.20	113.46	5211.39	-29.68	0.00
Surabhi	0.00	23.68	959.74	1,846.11	277.51	3107.82	0.00	0.00



T.Sakibanda	0.00	12.54	175.95	672.31	524.64	1385.44	-2.36	0.00
Total	1.28	3,591.00	24,216.69	13,483.29	4,095.42	45398.34	-49.14	0.00
Sidhout Range								
Gollapalli	0.00	1,785.58	2,532.92	311.23	11.71	4641.44	0.00	0.00
Kondur	0.00	1,468.23	2,073.74	2,326.96	304.47	6173.40	-13.12	0.00
Maddur	0.00	1,021.91	4,314.97	2,646.44	103.70	8087.01	0.00	0.00
Muthukur	0.00	65.66	2,027.10	1,643.91	491.69	4228.35	0.00	0.00
Ponnepalli	0.00	208.10	3,680.75	727.64	29.26	4651.33	0.00	0.00
Rollabodu	0.00	2,112.58	749.20	18.90	2.56	2883.23	0.00	0.00
Sidhavatam	0.00	1,615.27	3,152.39	203.05	8.36	4979.08	0.00	0.00
Total	0.00	8,277.33	18,531.06	7,878.13	951.74	35643.84	-13.12	0.00
Vempally Range								
Bonagundicheruvu	0.00	27.51	2,379.52	1,869.99	246.83	4523.84	0.00	0.00
Chilekampalli	0.00	317.12	1,919.08	1,093.13	93.44	3423.85	0.00	0.00
Gorlapalli	0.00	11.79	1,166.24	1,114.66	239.36	2532.05	0.00	0.00
Idupulapaya	0.00	264.23	2,493.10	803.43	136.11	3696.87	0.00	0.00
Nandimandalam	0.00	240.17	2,562.38	1,270.36	325.47	4398.38	0.00	0.00
Polathala	0.00	201.99	2,213.65	901.99	57.96	3375.59	0.00	0.00
Rachakuntapally	0.00	0.00	526.94	1,198.86	365.99	2091.78	0.00	0.00
Vempally	0.97	24.54	717.23	1,691.79	470.10	2904.63	0.00	0.00
Yellatur	0.00	446.67	3,287.22	677.81	34.68	4446.39	0.00	0.00
Total	0.97	1,534.01	17,265.36	10,622.01	1,969.93	31393.36	0.00	0.00
Vontimitta Range								
Chintalakunta	0.00	44.62	1,178.87	838.08	32.51	2190.00	0.00	0.00
Chintarajupalli	0.00	207.04	2,158.98	262.34	22.93	2651.29	0.00	0.00
Dasarladoddi	0.50	1,018.09	4,166.70	275.51	49.84	5510.64	0.00	0.00
Madhavaram	0.00	59.18	1,459.03	1,271.30	22.05	2832.43	0.00	0.00
Mantapampalli	0.00	4.30	1,268.88	978.61	34.33	2291.87	0.00	0.00
Nadimpally	0.00	16.86	1,920.43	858.45	104.39	2900.12	-18.70	0.00
Nandalur	0.00	42.80	1,780.17	899.57	214.11	2937.10	-11.72	0.00
Patur	0.00	205.98	2,630.67	889.20	109.76	3839.08	-24.24	0.00
Vontimitta	0.00	4.62	2,189.21	1,963.55	50.80	4208.19	0.00	0.00
Total	0.50	1,603.49	18,752.95	8,236.60	640.72	29360.72	-54.66	0.00
Division Total	2.75	16,483.66	97,350.74	48,519.63	9,065.28	171653.63	-118.37	0.00

* Beat wise total area including water bodies.





Chapter-IV

4.26 KURNOOL DIVISION

4.26.1 Introduction:

Kurnool Forest Division lies in the Western Part of Kurnool District, between latitudes 14°56'49.56" and 15°57'49.68"N and longitudes 76°58'26.04" and 78°29'22.56"E. The Geographical Area of the Division is 12,904 Km², which is 73.07 % of the total area of the District. The Kurnool Division formation consists of shales, Limestone, and quartzite and its distribution continued to western portion of Nallamalais. The average elevation in the division varies from 305 to 579.5 mts above MSL. The elevation of Kurnool town is about 288 Mts above MSL. The River Thungabhadra—a Tributary of River Krishna forms Northern boundary of the Division.

Land use pattern of the Division is given in Table 4.26.1

The climate of this Division is inland tropical monsoonic type with three distinct seasons. Temperatures ranging from 12° C to 45° C and the average annual rainfall in the division are about 523.24 mm.

Important minerals and rocks found in the division are Limestone, iron, red and yellow ochre's, Barytes, Diamond, Black and pink Granite. The soil types found mainly are black cotton, Red and saline soils.

The population of the Division is 2.97 million (2011 Census), which consists of 1.64 million males and 1.328 million females, which constitutes 76.62% of the total population of the District. The per capita forest area is 0.040 ha. The Population density is 230 persons per Km².

Table 4.26.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	12904	
Forest including Scrub	634.11	4.92
Agriculture	10048.40	77.84
Land with Scrub	705.85	5.47
Fallow Lands	1031.6	7.99
Grasslands	83.82	0.65
Settlements	113.53	0.88
Vegetation outside Forest	71.55	0.55
Water body	215.14	1.67

4.26.2 Recorded Forest Area:

The total notified forest area of the Division is 1202.55 Km², which is 9.58 % of the total geographical area. Reserved, Protected and Unclassed Forests constitute 1154.45 Km² (96%), 37.17 Km² (3.09%) and 10.93 Km² (0.91%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, and Tropical Thorn Forest types.

4.26.3 Protected Area:

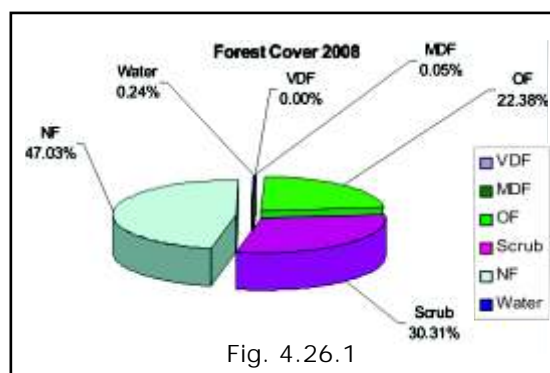
No Protected Area is there in the Division.

4.26.4 Community Forest Management:

There are 149 VSSs in the Division. 392.62 Km² forest area, which constitutes 32.65 % of forest area, is under CFM.

4.26.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Nov2009-Dec 2009), is 269.65 Km², which is 2.15 % of the total Geographical area. In terms of the forest canopy cover density classes, the Division has 0.56 Km² Moderately Dense Forest, and 269.09 Km² Open Forest. The area of the Scrub is 364.11 Km², Non-Forests 565.48 is 565.90 Km² and Water Bodies 2.89 Km². The distribution of the forest cover of the division is shown in Fig 4.26.1

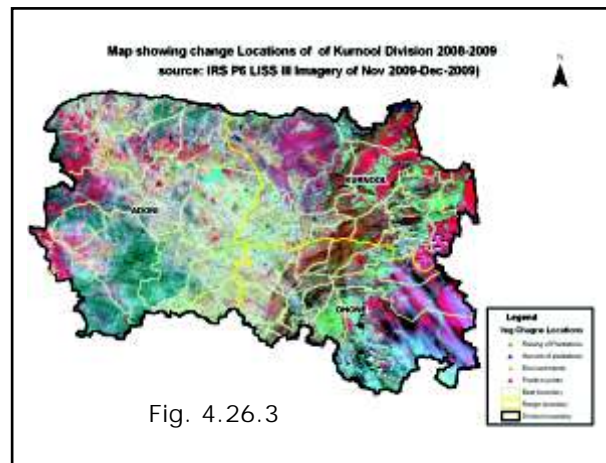
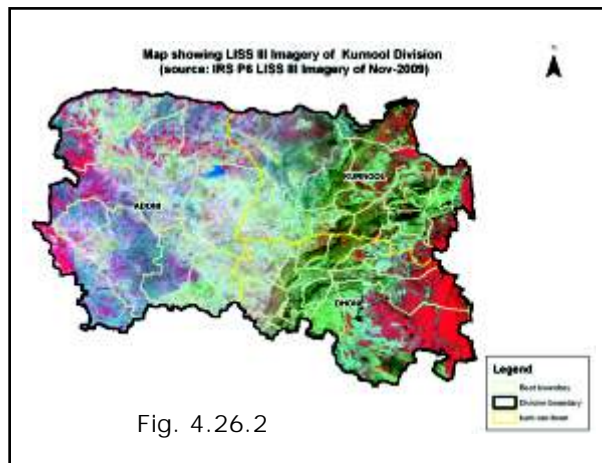


4.26.6 Change in Forest cover:

The satellite images 2008 and 2009 are shown in Fig 4.26.1 and the change during this period are shown in the image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2009-Dec 2009) with that of previous assessment (Satellite Imagery of Nov 2008) shows a negative change in forest cover of 34.69 Ha. The forest cover change matrix, given in Table 4.26.2 reveals that there has been a no loss in Moderately dense and open forests.

Of the total negative change 20.89 on account of Raising of Plantations and 13.80 on account of encroachment. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 13.80 Ha. only.



The forest cover change matrix are given in Table 4.26.2. The simplified forest cover change matrices are given in Table 4.26.3 and Table 4.26.4

There are 40 beats in the division. Negative change in forest cover is noticed in 3 beats. There is no change in the remaining 37 beats.

Details of Forest Cover changes in the 3 Beats where Forest Cover is lost, is shown in Table 4.26.5

Table 4.26.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Nov 2008 – Dec 2008)	2008 (Data of Nov2009 – Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	0.56	0.00	0.00	0.00	0.00	0.56
Open Forest	0.00	0.00	269.09	0.00	0.00	0.00	269.09
Scrub	0.00	0.00	0.00	364.11	0.35	0.00	364.46
Non-Forest	0.00	0.00	0.00	0.00	565.55	0.00	565.55
Water	0.00	0.00	0.00	0.00	0.00	2.89	2.89
Total of 2009	0.00	0.56	269.09	364.11	565.90	2.89	1202.55
Net Change	0.00	0.00	0.00	-0.35	0.35	0.00	



Table 4.26.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Nov 2008 – Dec 2008)	2008 (Data of Nov2009 – Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	269.65	0.00	0.00	269.65
Degraded Forest	0.00	930.01	0.00	930.01
Water	0.00	0.00	2.89	2.89
Total of 2009	269.65	930.01	2.89	1202.55
Net Change	0.00	0.00	0.00	

Table 4.26.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Nov 2008 – Dec 2008))	2008 (Data of Nov2009 – Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	633.76	0.35	0	634.11
Barren	0	565.55	0	565.55
Water	0	0	2.89	2.89
Total of 2009	633.76	565.90	2.89	1202.55
Net Change	-0.35	0.35	2.89	

Table 4.26.5: Beat wise Forest Cover (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
ADONI Range								
Gulyam	0.00	16.51	56.11	123.48	425.11	640.98	-6.80	6.80
Gundlakonda	0.00	0.00	283.44	1263.14	1489.17	3035.98	0	0
Isvi	0.00	0.00	30.08	522.34	2191.49	2743.91	0	0
Jonnagiri	0.00	0.00	288.96	926.87	274.07	1489.90	0	0
Kotekallu	0.00	0.00	5.43	148.99	1207.89	1366.46	-20.89	0.00
Kuppagallu	0.00	3.43	94.99	440.97	827.17	1366.56	-7.00	7.00
Narineki_east	0.00	0.00	37.99	860.29	1256.81	2155.72	0.00	0.00
Narineki_west	0.00	0.00	127.07	1097.48	1313.47	2538.02	0.00	0.00
Pattikonda	0.00	0.00	0.00	48.51	1264.54	1315.22	0.00	0.00
Tuggali	0.00	0.00	1.12	42.52	1773.07	1817.63	0.00	0.00
Tungabadra	0.00	0.00	8.73	58.30	780.50	847.53	0.00	0.00
Total	0.00	19.94	933.92	5532.89	12803.29	19317.91	-34.69	13.80
DHONE Range								
Aliabad	0.00	0.00	418.18	378.02	5170.62	5966.82	0.00	0.00
Chintalapeta	0.00	0.00	1324.29	1316.84	360.03	3001.16	0.00	0.00
Dhone	0.00	1.65	2219.65	765.67	78.03	3065.00	0.00	0.00
Erragudi	0.00	0.04	162.65	210.61	1648.51	2021.81	0.00	0.00
Gulmaliabad	0.00	2.01	350.19	2006.84	3107.78	5550.24	0.00	0.00
Jaladurgam	0.00	0.00	2013.36	2376.93	1051.65	5442.58	0.00	0.00
Madhavaram	0.00	0.00	280.39	1019.03	1095.46	2394.88	0.00	0.00
Malkapuram	0.00	0.00	1329.35	1579.91	477.46	3386.72	0.00	0.00
Malyala	0.00	0.00	294.65	734.66	1116.66	2161.79	0.00	0.00
Narayanapuram	0.00	0.00	686.18	526.65	62.63	1275.46	0.00	0.00



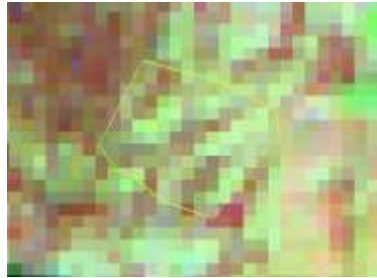
Forest division wise results

Ouk	0.00	14.36	956.56	1522.89	6855.50	9413.47	0.00	0.00
Peapully	0.00	0.00	1626.06	1213.04	321.64	3160.74	0.00	0.00
Peddapaya	0.00	0.00	1313.47	1237.96	376.37	2927.80	0.00	0.00
Racherla	0.00	2.84	1515.76	1723.58	447.73	3691.92	0.00	0.00
Rangapuram	0.00	0.00	350.71	1013.35	1074.26	2440.35	0.00	0.00
Total	0.00	20.90	14841.45	17625.98	23244.33	55900.74	0.00	0.00
KURNOOL Range								
Bethamcherla	0.00	1.70	2090.84	1999.61	570.42	4662.57	0.00	0.00
Bugganipalli	0.00	0.00	24.63	768.55	659.41	1452.59	0.00	0.00
Gani	0.00	0.00	885.15	1383.00	1352.46	3621.98	0.00	0.00
Gargayapuram	0.00	2.30	1262.27	773.88	158.68	2208.90	0.00	0.00
Gorukal	0.00	4.26	99.08	139.85	3545.54	3788.73	0.00	0.00
Konidedu	0.00	1.91	881.75	2435.44	4607.85	7926.95	0.00	0.00
Ianjabanda	0.00	0.00	2125.36	636.15	150.54	2912.05	0.00	0.00
Panyam	0.00	1.45	71.37	384.20	3191.33	3650.17	0.00	0.00
Ramallakota	0.00	1.37	955.60	669.30	342.06	1968.33	0.00	0.00
Ramatheertham	0.00	0.00	76.96	754.57	1938.07	2769.60	0.00	0.00
Somayajulapalli	0.00	0.00	590.37	641.92	798.21	2030.50	0.00	0.00
Thammarajupalli	0.00	1.37	727.98	757.16	2139.30	3625.81	0.00	0.00
Veldurthi	0.00	0.00	43.91	95.55	90.34	298.55	0.00	0.00
Yaparlapadu	0.00	0.31	1298.72	1814.29	997.42	4119.60	0.00	0.00
Total	0.00	14.67	11133.99	13253.47	20541.63	45036.33	0.00	0.00
Division total	0.00	55.51	26909.36	36412.34	56589.25	120254.98	34.69	13.80

*Beat wise forest cover total including water bodies.

Satellite Imageries

LISS 2008



LISS 2009



Longitude	77.23384
Latitude	15.75950
Area_Ha	7
Class	SF TO NF
Comp_No.	32
Beat	Kuppagallu
Range	Adoni
Division	Kurnool





Chapter-IV

4.27 NANDYAL DIVISION

4.27.1 Introduction:

Nandyal Forest Division lies in the South Eastern Part of Kurnool District, between latitudes 14°53'58.56" and 15°40'58.08" N and longitudes 78°20'27.6" and 78° 46'40.08"E. The Geographical Area of the Division is 2,600.00 Km², which is 14.73 % of the geographical area of the District. The Nandyal Division formation consists of Purple shaley lime stone shaley flags Gray lime stone and flags. The Maximum elevation in the division is 908.68 mts above MSL. Important Rivers in this division are Kundu River, Gundlakamma River.

Land use pattern of the Division is given in Table 4.27.1

The climate of this Division is generally dry and enervating with temperatures ranging from 10° C to 46° C and the average annual rainfall is about 914 mm, received mainly from South-west monsoons.

The soil types found mainly are Black, Alluvial soils, Brown loamy soils, and Red soils.

The population of the Division is 0.594 million (2011 Census), which consists of 0.324 million males and 0.270 million females, which constitutes 15.56% of the total population of the District. The per capita forest area is 0.17 ha. The Population density is 228 persons per Km²

Land use	Area in Sqkm	Percentage
Total geographical area	2600.00	
Forest including Scrub	999.59	38.45
Agriculture	1498.64	57.63
Land with Scrub	48.75	1.87
Fallow Lands	7.41	0.29
Grasslands	0.00	0.00
Settlements	11.86	0.46
Vegetation outside Forest	14.21	0.55
Water body	19.54	0.75

4.27.2 Recorded Forest Area:

The total notified forest area of the Division is 1,066.46 Km², which is 41.02 % of the total geographical area. The total forest area is Reserved Forest.

As per Champion and Seth's classification, the forests of Division fall under Tropical Dry Deciduous, Tropical Moist Deciduous and Tropical Thorn Forest types.

4.27.3 Protected Area:

The Division is one of the two constituent Divisions of Gundla Brahmeswaram (GBM) Wildlife Sanctuary. Out of 1,066.46 Km² of notified forest area, 371.81 Km² is included in the GBM WLS.

4.27.4 Community Forest Management:

There are 51 Forest Protection Committees (FPCs) or Vana Samrakshana Samities (VSSs) in the Division. An area of 166.84 Km² forests, which is 15.64 % of the notified forests, is under the management of the VSSs.

4.27.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2008 data (Oct2008-Mar2009) is **928.50 Km²**, which is 35.71 % of the total Geographical area. In terms of the forest canopy density classes the Division has 40.71 Km² of Very Dense Forests, 595.10 Km² of Moderately Dense Forest and 293.98 Km² of Open Forest. The area of the Scrub is 67.67 Km², Non-Forest 65.57 Km² and Water Bodies 3.43 Km². The distribution of the forest cover of the division is shown in Fig 4.26.1

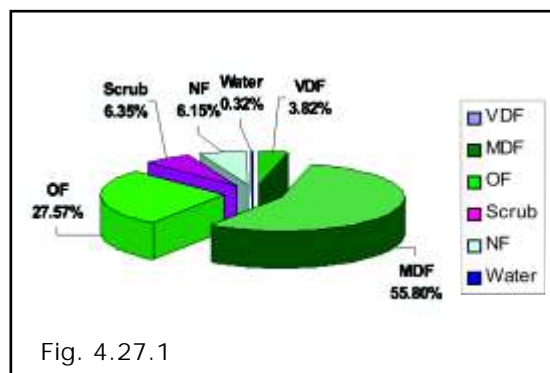


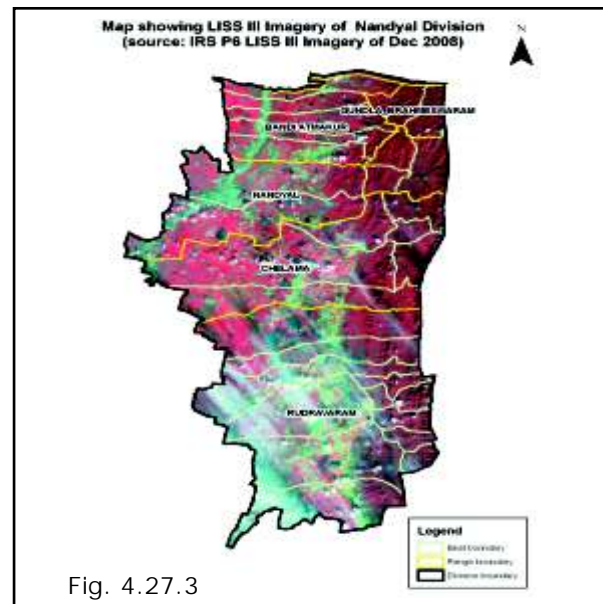
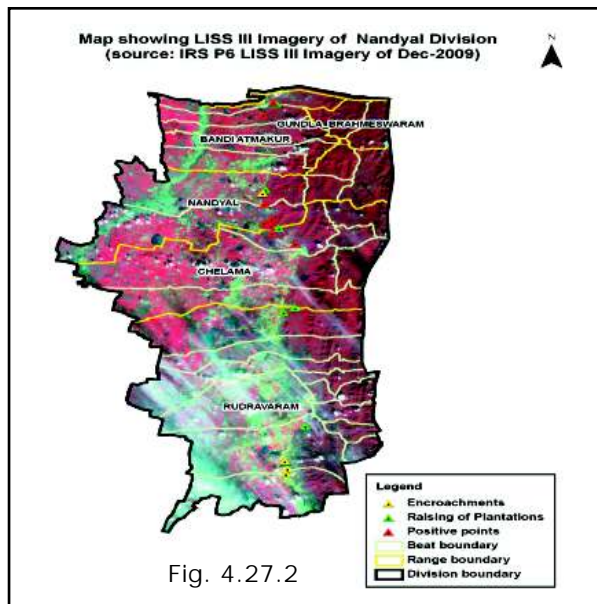
Fig. 4.27.1

4.27.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.27.2, Fig 4.27.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Dec 2009) with that of previous assessment (Satellite data of Dec 2008), shows a negative change in forest cover of 178.25 Ha and positive change is 251.06 Ha. The forest cover change matrix, given in Table 4.26.2 reveals that there has been a decrease of 10 Ha of moderately dense forest and increase in 229 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 54.49 on account of encroachment and positive change 72.41 Ha which change is on account of Raising of plantations Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 54.49 Ha. only.



The simplified forest cover change matrices are given in Table 4.27.3 and Table 4.27.4

There are 29 Beats in the division. Negative change in Forest Cover is noticed in 4 beats, positive change noticed in 3 beats and both changes noticed in one Beat.

Details of Forest Cover changes in the 21 Beats where Forest Cover is changed, is shown in Table 4.27.5.

Table 4.27.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Dec -2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	40.71	0.00	0.00	0.00	0.00	0.00	40.71
Moderately Dense Forest	0.00	595.10	0.00	0.00	1.00	0.00	596.10
Open Forest	0.00	0.00	291.47	0.00	0.22	0.00	291.69
Scrub	0.00	0.00	0.00	67.67	0.57	0.00	68.24
Non-Forest	0.00	0.00	2.51	0.00	63.78	0.00	66.29
Water	0.00	0.00	0.00	0.00	0.00	3.43	3.43
Total of 2009	40.71	595.10	293.98	67.67	65.57	3.43	1066.46
Net Change		-1.00	2.29	-0.57	-0.72		



Table 4.27.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Dec -2008)	2008 (Data of Oct 2009 – Feb 2010)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	927.28	1.21	0.00	928.49
Degraded Forest	2.51	132.02	0.00	134.53
Water	0.00	0.00	3.43	3.43
Total of 2009	929.79	133.23	3.43	1066.45
Net Change	1.30	-1.30	0.00	

Table 4.27.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Dec -2008)	2008 (Data of Oct 2009 – Feb 2010)			Total of 2008
	Green	Barren	Water	
Green	994.95	1.78	0.00	996.73
Barren	2.51	63.78	0.00	66.29
Water	0.00	0.00	3.43	3.43
Total of 2009	997.46	65.56	3.43	1066.45
Net Change	0.73	-0.73	0.00	

Table 4.27.5: Beat wise Forest Cover (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
BANDI ATMAKUR Range								
G.C.Palem	39.86	2,131.00	1,432.59	311.18	323.62	4,238.25	0.00	0.00
Honkaram_ North	107.71	1,489.35	666.44	75.42	37.78	2,376.70	0.00	0.00
Honkaram_South	77.82	1,302.35	448.52	108.10	118.68	2,070.08	0.00	0.00
Narapureddy_Kunta_N	2.84	1,465.33	1,048.40	179.99	214.93	2,911.49	21.74	0.00
Narapureddy_Kunta_S	5.10	1,142.48	646.44	121.28	105.31	2,020.61	20.83	0.00
Total	233.33	7,530.51	4,242.39	795.97	800.32	13,617.13	42.57	0.00
CHELAMA Range								
Basavapuram	101.04	2,686.45	1,623.14	287.89	397.84	5,102.63	36.15	0.00
Chelama	1.18	1,471.13	2,362.40	401.22	65.57	4,301.50	0.00	0.00
Dongabhavi	3.66	820.42	946.93	338.70	101.35	2,211.68	0.00	0.00
Kotakonda	214.82	2,518.97	1,073.62	257.25	262.07	4,326.73	0.00	0.00
Pacherla	510.64	2,545.21	1,232.00	183.21	39.50	4,510.56	0.00	0.00
Peddakambalur	213.31	3,203.22	859.49	88.87	183.96	4,550.31	0.00	0.00
Total	1,044.65	13,245.40	8,097.58	1,557.14	1,050.29	25,003.41	36.15	0.00
GUNDLA_BRAHMESWARAM Range								
Ramanapenta_East	141.52	3,403.64	406.52	7.67	4.39	3,963.74	0.00	0.00
Ramanapenta_West	153.26	3,309.90	591.22	31.96	6.27	4,092.61	0.00	0.00
Total	294.78	6,713.54	997.74	39.63	10.66	8,056.35	0.00	0.00
NANDYAL Range								
Baireni	57.59	2,361.32	2,648.06	894.88	154.21	6,116.06	0.00	0.00
Gadigundaram	560.83	2,554.18	249.24	31.17	5.12	3,400.54	0.00	0.00
Palardam	164.30	2,052.27	357.45	53.52	24.78	2,652.32	0.00	0.0
Prema	92.74	2,049.89	943.83	195.93	144.96	3,432.58	74.81	2.70
Thimmapuram	70.19	1,615.75	538.73	91.77	10.51	2,326.95	64.86	0.00
Total	945.65	10,633.41	4,737.31	1,267.27	339.58	17,928.45	139.67	2.70

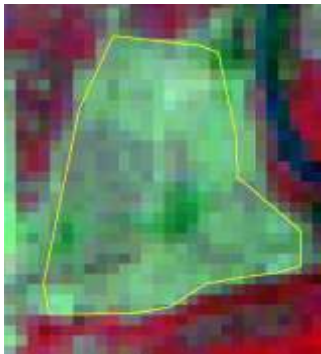


RUDRAVARAM Range								
Ahobilam_North	192.62	2,183.49	959.65	112.84	100.68	3,549.31	0.00	0.00
Ahobilam_South	157.69	2,131.07	603.67	63.33	106.16	3,070.22	0.00	0.00
Bachepalli	41.02	1,436.99	604.87	50.14	3.62	2,136.64	0.00	0.00
D.V.Penta	412.78	2,951.08	2,107.16	774.20	571.60	6,829.05	-29.16	14.80
Madambhavi	70.74	2,464.60	1,757.93	342.01	394.61	5,157.93	0.00	0.00
Mittapalli	1.63	585.97	601.19	628.22	1,697.77	3,519.07	0.00	0.00
Nuthala_North	25.15	1,110.47	895.98	179.44	158.48	2,487.36	0.00	0.00
Nuthala_South	82.26	1,680.50	730.46	60.53	32.25	2,586.00	0.00	0.00
Peddavangli	219.35	1,662.43	979.93	695.73	1,002.88	4,603.20	-42.39	42.39
Rudravaram	308.52	3,988.13	1,428.69	150.26	283.72	6,160.12	-74.43	0.00
Utla	40.92	1,192.54	633.77	72.47	3.73	1,943.43	0.00	0.00
Total	1,552.68	21,387.27	11,303.30	3,129.17	4,355.50	42,042.33	-145.98	57.19
Division total	4,071.09	59,510.13	29,378.32	6,789.18	6,556.35	106,647.67	72.41	54.49

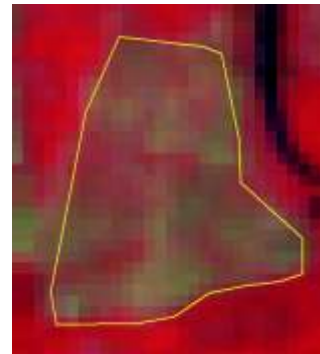
*Beat wise total area including water bodies

Satellite Imageries

LISS 2008



LISS 2009



Longitude	78.60972
Latitude	15.63851
Area_Ha	20.83
Class	NF TO SF
Comp_No.	603/1
Beat	N.R.Kunta
Range	Bandi Atmakur
Division	Nandyal





Chapter-IV

4.28 PRODDUTUR DIVISION

4.28.1 Introduction:

Proddutur Forest Division lies in the Northern Part of Kadapa District, between latitudes 14° 19' 37" and 15° 13' 43" N and longitudes 77° 56' 43" and 79° 17' 38" E. The Geographical Area of the Division is 7,524 Km², which is 48.99% of the Geographical area of the District. The main rivers that flow through the Division are Penna, Chitravathi, Kunderu, Papaghni, Sagileru and Mogamneru.

Land use pattern of the Division is given in Table 4.28.1

The climate of this Division is generally dry with temperatures ranging from 21°C to 44°C and the annual rainfall is about 661.22mm, received mainly from Southwest monsoons.

The soil types found mainly are Red loamy soil, Black Cotton soil, Red sandy soil. The important minerals available are granites, barites, asbestos and lime stone.

The total population of the Division is 1.40 million (2011 Census). The Per capita forest area is 0.11 ha. The population density is 186 persons per Km². The Literacy rate in the district is 70%.

Table 4.28.1: Land use Pattern

Land use	Area in S _{akm}	Percentage
Total geographical area	7524	
Forest including Scrub	1285.95	17.09
Agriculture	4343.95	57.73
Land with Scrub	500.77	6.66
Fallow Lands	1101.21	14.64
Grasslands	1.56	0.02
Settlements	31.78	0.42
Vegetation outside Forest	115.58	1.54
Water body	143.20	1.90

4.28.2 Recorded Forest Area:

The total notified forest area of the Division is 1,663.35 Km², which is 39.13% of the total geographical area. Reserved and Protected Forests Constitute 1,549.48 Km² (93.15%) and 114.07 Km² (6.86%) of the total forest area, respectively.

As per Champion and Seth's classification the Forests of Division fall under Southern tropical dry deciduous, Southern tropical thorn mixed, Tropical dry ever green and Dry red sanders bearing forest types. Red Sanders (*Pterocarpus santalinus*), a highly endemic tree species, is found in plenty in this Division.

4.28.3 Protected Area:

The Division is one of the two constituent Divisions of Sri Lankamalleswara Wildlife Sanctuary. Out of 1,575.11 Km² of notified forest area, 218.12 Km² is included in Sri Lankamalleswara WLS. This Division is also one of the four constituent Divisions of Sri Peninsula Narasimha WLS. Out of 1,575.11 Km² of forest area, 133.74 Km² is included in Sri Peninsula Narasimha WLS. Rajiv Gandhi National Park is also located in this Division. It covers an area of 3.82 Km².

4.28.4 Community Forest Management:

There are 128 Vana Samrakshana Samities (VSSs) in the Division. An area of 456.38 Km² forest area, which is 28.97% of the notified forest area, is under the management of the VSSs.

4.28.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009), is 982.81 Km², which is 13.06% of the total Geographical area. In terms of the forest canopy density classes the Division has 3.58

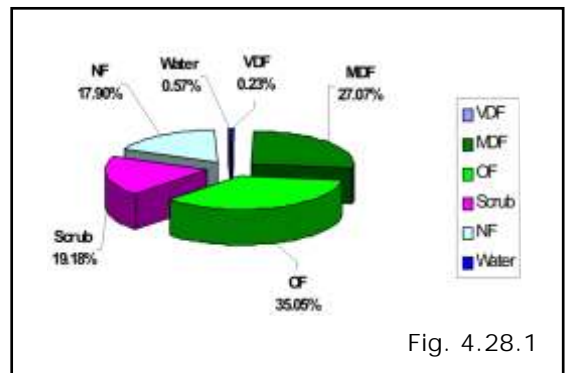


Fig. 4.28.1



Km² of Very Dense Forest, 426.38 Km² of Moderately Dense Forest and 426.38 Km² of Modern Dense Forest and 552.15Km² of Open Forest. The area of the Scrub of 302.07 Km², Non-Forest of 281.98 Km² and Water Bodies 8.95 Km². The distribution of the forest cover of the division is shown in Fig 4.28.1

4.27.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.28.2, Fig 4.28.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of the previous assessment (Satellite Imagery of Oct 2008), shows a negative change in forest cover of **152.05 Ha** and no positive change. The forest cover change matrix, given in table 4.27.2 reveals that there has been a decrease of 70 Ha of open forest and 63 Ha of scrub.

Of the total negative change 152.05 Ha on account of Raising of Plantations. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the no net loss of Forest cover in the division.

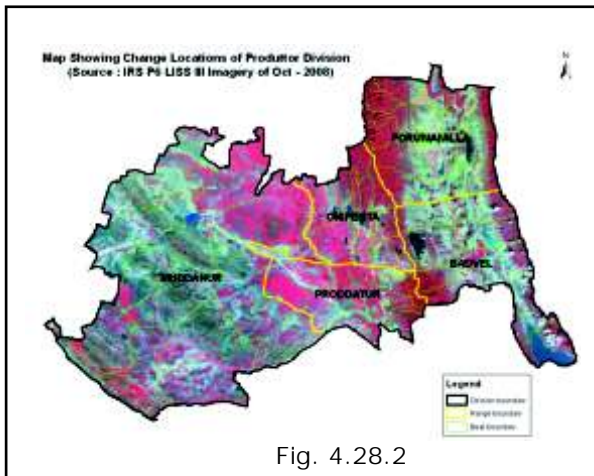


Fig. 4.28.2

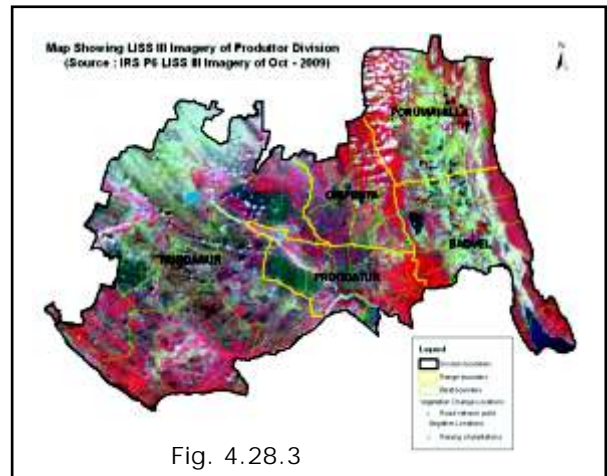


Fig. 4.28.3

The simplified forest cover change matrix is given in Table 4.28.3 and Table 4.28.4

There are 45 beats in the division. Negative change in forest cover is noticed in only 7 Beats. There is no change in remaining 38 beats.

Details of forest cover changes in the 7 beats where Forest cover is change, is shown in Table 4.28.5.

Table 4.28.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Oct 2008 – Feb 2009)	2009 (Data of Oct 2009 – Feb 2010)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	3.58	0.00	0.00	0.00	0.00	0.00	3.58
Moderately Dense Forest	0.00	426.38	0.00	0.00	0.00	0.00	426.38
Open Forest	0.00	0.00	552.15	0.20	0.50	0.00	552.85
Scrub	0.00	0.00	0.00	301.87	0.83	0.00	302.70
Non-Forest	0.00	0.00	0.00	0.00	280.65	0.00	280.65
Water	0.00	0.00	0.00	0.00	0.00	8.95	8.95
Total of 2009	3.58	426.38	552.15	302.07	281.98	8.95	1575.11
Net Change	0.00	0.00	-0.70	-0.63	1.33	0.00	



Table 4.28.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Oct 2008 – Feb 2009)	2009 (Data of Oct 2009 – Feb 2010)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	982.11	0.70	0.00	982.81
Degraded Forest	0.00	583.35	0.00	583.35
Water	0.00	0.00	8.95	8.95
Total of 2009	982.11	584.05	8.95	1575.11
Net Change	-0.70	0.70	0.00	

Table 4.28.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Dec 2008)	2009 (Data of Oct 2009 – Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	1284.18	1.33	0.00	1285.51
Barren	0.00	280.65	0.00	280.65
Water	0.00	0.00	8.95	8.95
Total of 2009	1284.18	281.98	8.95	1575.11
Net Change	-1.33	1.33	0.03	

Table 4.28.5: Beat wise Forest Cover (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
Badvel Range								
Balayapalli	1.18	1550.71	2159.78	1129.07	103.30	4945.10	-19.60	0.00
Boyanapalli	0.00	21.43	2816.53	1534.63	213.89	4689.15	0.00	0.00
Brahmanapalli	0.00	185.12	2269.93	1322.84	43.77	3831.79	0.00	0.00
Gangireddipalli	0.00	308.84	1313.84	374.18	47.45	2044.31	-41.04	0.00
Ganugapenta	0.00	209.75	2668.85	1624.64	220.21	4723.45	0.00	0.00
Jangamrajupalli	0.00	18.07	1536.22	652.07	100.46	2551.16	0.00	0.00
Lothuvanka	0.67	1416.59	2585.70	1496.84	128.98	5628.79	0.00	0.00
Obulam	0.00	434.20	3984.24	1353.83	44.99	5888.37	0.00	0.00
Ramapuram	0.00	15.57	1432.21	1290.00	140.71	2885.56	0.00	0.00
Valleruvaripalli	0.00	85.97	2741.52	2000.48	375.49	5203.46	0.00	0.00
Total	1.85	4346.25	23508.82	12778.59	1419.25	42391.13	-60.64	0.00
Muddanur Range								
Bhanukotamala	0.00	0.00	65.73	735.19	3826.71	4636.70	0.00	0.00
Dhodium	0.00	0.00	2.34	471.63	2911.82	3385.79	0.00	0.00
Dorigallu_East	0.00	5.20	43.28	725.55	1811.54	2585.58	0.00	0.00
Dorigallu_West	0.00	8.65	14.18	108.58	3432.67	3564.59	0.00	0.00
Gundlur	0.00	0.00	6.28	515.09	2146.57	2686.65	0.00	0.00
Kalamala	0.00	0.00	13.00	350.05	2618.76	3029.26	0.00	0.00
Mallela	0.00	0.00	0.00	32.77	1778.02	1810.79	0.00	0.00
Mangapatnam	0.00	0.00	34.81	289.47	1644.15	1968.99	0.00	0.00
Settivaripalli	0.00	0.00	48.06	1286.91	2196.36	3560.63	0.00	0.00
Venkayakalva	0.00	0.00	4.58	33.92	148.00	186.50	0.00	0.00
Total	0.00	13.86	232.27	4549.16	22514.60	27415.47	0.00	0.00



Onipenta Range								
Gangayapalli	0.00	137.12	910.09	413.10	44.39	1510.31	-5.77	0.00
Ganjikunta	5.21	1168.48	676.20	487.31	323.77	2722.52	0.00	0.00
Kothapalli	6.06	2195.04	1377.53	243.93	134.98	4004.35	-39.44	0.00
Maddivaripalli	0.00	317.65	1844.78	408.77	31.93	2632.55	-6.10	0.00
Mudireddipally	4.43	2744.92	1575.88	100.73	1.28	4427.23	0.00	0.00
Neelapuram	23.65	1570.41	977.11	864.11	198.94	3638.02	0.00	0.00
Thippireddipally	16.21	4138.49	694.03	36.39	0.61	4885.72	0.00	0.00
Total	55.55	12272.10	8055.62	2554.34	735.90	23820.69	-51.31	0.00
Porumamilla Range								
Balayapalli	79.83	2396.78	2006.00	1328	653.61	6535.21	0.00	0.00
Itukalapadu	21.96	3595.61	1228.94	11.86	8.88	4867.25	-8.88	0.00
Jyothi	82.20	3932.53	1235.10	49.62	12.94	5312.37	0.00	0.00
Kalasapadu	0.00	397.14	1263.59	694.68	128.25	2487.09	0.00	0.00
Mallepalli	3.30	3650.97	1274.27	244.22	13.32	5186.08	0.00	0.00
Mamillapalli	0.00	435.05	1867.59	745.53	109.23	3177.06	0.00	0.00
Peddabhavi	16.35	1863.01	2460.82	588.34	13.94	4949.66	0.00	0.00
Siddavaram	0.00	156.29	1301.18	1657.91	124.11	3239.49	0.00	0.00
Tekurupet	0.00	274.13	1392.35	1110.32	892.14	3674.41	-31.22	0.00
Thaduku	87.53	4020.27	1554.86	21.63	0.00	5684.29	0.00	0.00
Venkatapuram	0.00	427.38	2032.81	1298.24	358.44	4116.87	0.00	0.00
Total	291.16	21149.16	17617.52	7748.65	2314.85	49229.77	-40.10	0.00
Proddatur Range								
Balasinganapally	0.00	1091.77	1845.33	376.71	23.30	3337.12	0.00	0.00
Byanapalli	0.00	711.44	897.86	415.47	18.87	2043.65	0.00	0.00
Jandlavaram	6.99	1625.17	945.73	197.93	63.06	2839.94	0.00	0.00
Kamalapuram	0.00	0.00	13.84	49.99	62.91	151.09	0.00	0.00
Nagasanipalli	1.02	641.07	777.03	455.88	304.04	2179.04	0.00	0.00
Pattur	1.44	772.15	1267.99	670.27	62.48	2782.18	0.00	0.00
Proddatur	0.00	14.69	73.37	390.57	678.22	1321.58	0.00	0.00
Total	9.46	4856.29	5821.14	2556.81	1212.89	14654.60	0.00	0.00
Division Total	358.02	42637.66	55235.37	30187.55	28197.49	157511.65	-152.05	0.00

* Beat wise total area including water bodies.





Chapter-IV

4.29 KAMAREDDY DIVISION

4.29.1 Introduction:

Kamareddy Forest Division lies in the south eastern Part of Nizamabad District, between latitudes 18° 3' 34" and 18° 42' 11" N and longitudes 77° 53' 45" and 78° 34' 17" E. The Geographical Area of the Division is 2,732 Km², which is 34.04% of the geographical area of the District. This Division lies on the Deccan plateau. Manjira River flowing from Medak District enters Kamareddy Division at Nizamsagar Reservoir and flows in Northerly direction to join Godavari river at the North-west corner of the district. Kappalavagu and peddavagu are other two strems. The Rivers and streams of the district form part of the Godavari basin. The altitude varies between 335 meters to 490 meters above MSL. The highest peak is 635m above MSL situated in Gandhari Block.

Land use pattern of the division is given in Table 4.29.1.

The climate of this Division is generally dry with temperatures ranging from 13°C to 47°C. The north and northwestern regions of the Division receive above 1000 mm. of rainfall while North Eastern, south Eastern and southern regions of the division receive less than 900 mm of rainfall from Southwest monsoons.

The soil types found mainly are Black cotton soil and Sandy loam. The economic minerals known from this Division are the building material clay, iron-ore, manganese ore, mica, semi-precious stones, talc and soap-stones.

The total population of the Division is 1.02 million (2011 Census). The Per capita forest area is 0.08 ha. The population density is 374 persons per Km².

4.29.2 Recorded Forest Area:

The total notified forest area of the Division is 940 Km², which is 34.40% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 598.56 Km² (63.71%), 252 Km² (26.84%) and 88.84 Km² (9.45%) of the total forest area respectively.

As per Champion and Seth's classification the Forests of Division fall under Tropical dry deciduous forests.

4.29.3 Protected Area:

Out of 940 Km² of notified forest area 86.76 Km² area is included in Pocharam WLS.

4.29.4 Community Forest Management:

There are 112 Vana Samrakshana Samities (VSSs) in the Division. An area of 325.66 Km², which is 33.19% of the notified forest area and 19.91 Km² is plantation area, is under the management of the VSSs.

4.29.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Nov2009), is 817.12 Km², which is 29.91% of the total Geographical area. In terms of the forest canopy density classes, the Division has 327.47 Km² of Moderately Dense Forests and 489.65 Km² of Open Forests. The area of the Scrub is 84.83 Km², Non-Forest 75.34 Km² and Water Bodies 4.00 Km². The distribution of the forest cover of the division is shown in Fig 4.29.1

Table 4.29.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	2732	
Forest including Scrub	903.57	33.01
Agriculture	1613.07	58.94
Land with Scrub	84.61	3.09
Fallow Lands	22.45	0.82
Grasslands	0.00	0.00
Settlements	3.00	0.11
Vegetation outside Forest	32.42	1.18
Water body	77.88	2.85

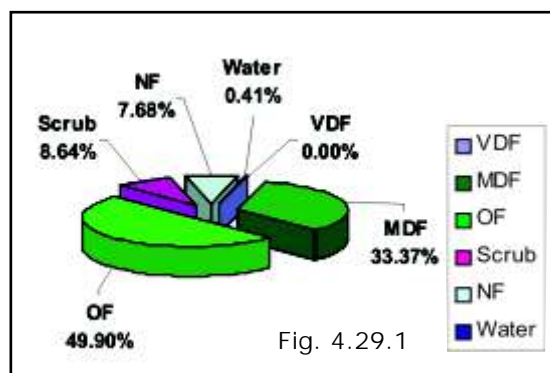


Fig. 4.29.1

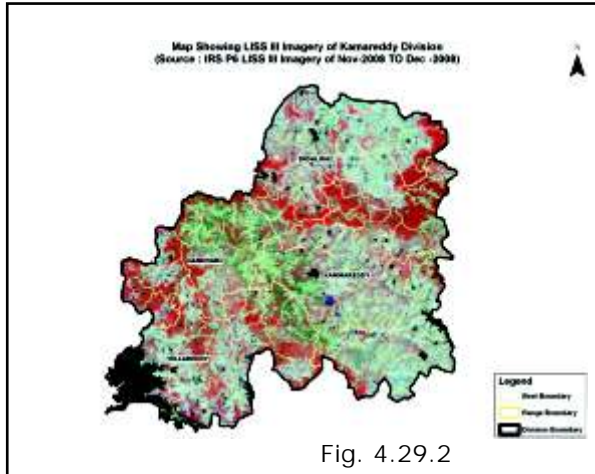


Fig. 4.29.2

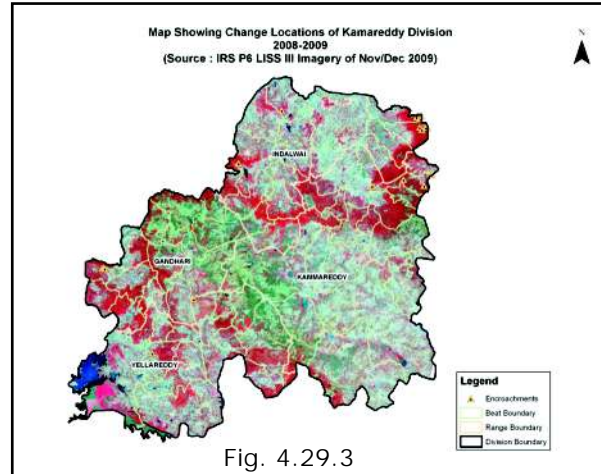


Fig. 4.29.3

4.29.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig (4.29.2, Fig 4.29.3), the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2009) with that of previous assessment year (Satellite data of Nov 2008), shows a negative change of 121.29 Ha. The forest cover change matrix, given in Table 4.28.2 reveals that there has been a decrease of 58 Ha of moderately dense forest and 29 Ha of open forest.

Of the total negative change **121.29 Ha** is on account of encroachments. The negative change due to **encroachments** is taken as loss of Forest Cover. Therefore the **net loss of Forest Cover is 121.29 Ha only.**

There are 68 beats in the division. Negative change in forest cover is noticed in only 8 Beats. Positive Change Noticed in 1 beat. There is no change in remaining 59 beats.

Table 4.29.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Nov 2008)	2009 (Data of Nov 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	327.47	0.00	0.00	0.58	0.00	328.05
Open Forest	0.00	0.00	489.65	0.00	0.29	0.00	489.94
Scrub	0.00	0.00	0.00	84.83	0.34	0.00	85.17
Non-Forest	0.00	0.00	0.00	0.00	74.13	0.00	74.13
Water	0.00	0.00	0.00	0.00	0.00	4.00	4.00
Total of 2009	0.00	327.47	489.65	84.83	75.34	4.00	981.29
Net Change	0.00	-0.58	-0.29	-0.34	1.21	0.00	0.00

Table 4.29.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Nov 2008)	2009 (Data of Nov 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	817.12	0.87	0.00	817.99
Degraded Forest	0.00	159.30	0.00	159.30
Water	0.00	0.00	4.00	4.00
Total of 2009	817.12	160.17	4.00	981.29
Net Change	-0.87	0.87	0.00	0.00



Table 4.29.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Nov 2008)	2009 (Data of Nov 2009)			Total of 2008
	Green	Barren	Water	
Green	901.95	1.21	0.00	903.16
Barren	0.00	74.13	0.00	74.13
Water	0.00	0.00	4.00	4.00
Total of 2009	901.95	75.34	4.00	981.29
Net Change	-1.21	1.21	0.00	0.00

Table 4.29.5: Beat wise Forest Cover (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
GANDHARI Range								
Bhanapur	0.00	111.96	968.71	125.85	36.26	1,242.77	0.00	0.00
Chedmal	0.00	399.36	1,114.42	310.61	551.17	2,375.56	0.00	0.00
Gandhari	0.00	74.43	387.86	157.63	339.48	968.38	0.00	0.00
Gandivate	0.00	743.87	1,551.23	158.60	172.02	2,648.48	0.00	0.00
Gowraram(G)	0.00	914.91	595.84	45.21	52.63	1,609.58	0.00	0.00
Gurjal	0.00	14.37	689.84	167.24	122.30	997.08	0.00	0.00
Kondapur	0.00	49.52	393.04	64.16	48.78	556.86	0.00	0.00
Mombajipet	0.00	276.03	601.89	137.08	137.73	1,191.79	0.00	0.00
Mudhelly	0.00	857.65	661.96	30.22	37.33	1,589.45	-11.25	11.25
Nagloor	0.00	439.32	806.46	191.74	140.33	1,577.85	0.00	0.00
Pothangal	0.00	725.10	1,060.52	153.65	69.68	2,010.67	0.00	0.00
Singitham	0.00	961.18	949.04	43.75	25.96	2,018.03	0.00	0.00
Uthnoor	0.00	55.26	260.17	134.65	199.96	650.70	0.00	0.00
Vellutla	0.00	1,253.88	975.98	60.51	22.05	2,320.01	0.00	0.00
Yacharam	0.00	383.44	677.76	201.26	265.85	1,532.93	0.00	0.00
Total	0.00	7,260.26	11,694.69	1,982.16	2,221.53	23,290.12	-11.25	11.25
INDALWAI Range								
Amsanpally	0.00	390.58	1,165.38	202.42	156.24	1,920.33	0.00	0.00
Dharpally	0.00	193.72	505.40	84.43	42.90	826.45	0.00	0.00
Dubbak	0.00	276.29	1,124.13	308.89	311.70	2,025.77	0.00	0.00
Gannaram	0.00	476.27	823.02	84.15	20.39	1,411.89	0.00	0.00
Gowraram	0.00	433.97	1,002.88	100.63	121.99	1,661.80	0.00	0.00
Indalwai	0.00	871.08	1,004.61	113.54	36.08	2,029.20	-3.64	3.64
Kalwaral	0.00	653.72	318.47	26.21	6.98	1,007.00	0.00	0.00
Koratpally	0.00	116.71	981.94	199.51	176.68	1,490.98	-28.46	28.46
Navanandi	0.00	796.87	322.00	24.83	16.24	1,159.93	0.00	0.00
Pipri	0.00	625.28	131.45	15.29	33.02	805.05	-26.17	26.17
Ravutla	0.00	1,320.46	335.68	28.45	33.28	1,717.86	-17.49	17.49
Sadasivnagar	0.00	545.54	387.46	24.70	12.77	970.47	0.00	0.00
Sirikonda	0.00	1,072.90	294.96	10.93	7.80	1,401.01	0.00	0.00
Sirnappally	0.00	722.64	525.52	61.70	79.60	1,412.05	0.00	0.00
Triyambakpet	0.00	469.69	528.14	13.55	8.08	1,019.45	0.00	0.00
Yanampally	0.00	298.99	776.78	61.38	29.16	1,166.31	0.00	0.00
Total	0.00	9,264.73	10,227.81	1,360.59	1,092.91	22,025.55	-75.76	75.76



KAMMAREDDY Range								
Akkapuram	0.00	82.72	455.53	112.63	70.94	724.93	0.00	0.00
Annaram	0.00	763.06	1,308.63	548.52	701.41	3,334.00	0.00	0.00
Bhiknoor	0.00	554.66	772.62	141.37	99.88	1,568.53	0.00	0.00
Donkal	0.00	1,551.31	732.53	10.15	9.34	2,315.97	0.00	0.00
Esaipet	0.00	60.46	938.66	439.15	384.01	1,828.09	0.00	0.00
Gadkole	0.00	477.14	953.84	62.06	106.77	1,611.91	-7.95	7.95
Ghanpur	0.00	332.09	939.24	299.33	260.14	1,830.90	0.00	0.00
Ghanpur Beroon	0.00	31.19	670.96	530.10	375.02	1,624.68	0.00	0.00
Gidda	0.00	902.43	692.56	15.53	2.66	1,618.20	0.00	0.00
Honnajipet	0.00	538.77	685.11	43.08	52.08	1,319.04	0.00	0.00
Kotalpally	0.00	521.49	695.79	45.90	72.60	1,349.33	0.00	0.00
Machareddy	0.00	60.40	371.15	56.88	35.32	523.74	0.00	0.00
Maddikunta	0.00	483.25	913.88	189.47	92.79	1,679.38	0.00	0.00
Pakhal (North)	0.00	1,166.15	930.77	188.08	184.09	2,469.08	-17.28	17.28
Pakhal South	0.00	577.41	519.14	261.22	190.33	1,549.30	0.00	0.00
Pandimadugu	0.00	424.36	263.57	14.24	12.36	714.53	0.00	0.00
Peddaipally	0.00	272.46	491.17	83.87	199.41	1,046.91	0.00	0.00
Posanipet Beroon	0.00	1.87	83.18	36.86	24.74	146.65	0.00	0.00
Reddypet	0.00	591.41	852.95	78.77	24.07	1,547.20	0.00	0.00
Toompally	0.00	2,183.14	943.58	159.70	152.47	3,443.37	0.00	0.00
Total	0.00	11,575.76	14,214.85	3,316.90	3,050.40	32,245.75	-25.23	25.23
YELLAREDDY Range								
Bhavanipet	0.00	725.65	658.03	40.87	72.59	1,532.61	0.00	0.00
Bollaram	0.00	103.24	1,100.45	259.09	183.69	1,652.04	0.00	0.00
Gundaram	0.00	357.28	1,135.38	184.65	269.02	1,947.55	0.00	0.00
Hasanpally	0.00	107.64	537.47	84.67	33.34	769.06	0.00	0.00
Jaldepally	0.00	232.16	556.74	9.41	11.16	814.39	0.00	0.00
Komatpally	0.00	138.62	765.61	114.29	31.56	1,050.08	0.00	0.00
Kondapur	0.00	419.65	2,119.07	297.91	147.93	2,984.55	0.00	0.00
Laxmapur	0.00	994.25	820.15	52.52	25.61	1,904.08	-7.35	7.35
Mengaram	0.00	387.60	641.70	25.70	37.06	1,092.95	0.00	0.00
Mothe	0.00	103.07	1,092.05	151.75	62.37	1,438.29	-1.70	1.70
Mustapur	0.00	441.85	476.22	62.31	55.37	1,038.71	0.00	0.00
Nagireddypet	0.00	142.77	1,127.08	253.30	158.80	1,683.77	0.00	0.00
Potaipally	0.0	154.36	850.30	158.27	35.34	1,198.26	0.00	0.00
Shetpally	0.00	235.00	674.81	88.20	28.66	1,027.49	0.00	0.00
Yerrapahad	0.00	102.66	272.17	40.47	16.76	433.41	0.00	0.00
Total	0.00	4,645.81	12,827.21	1,823.40	1,169.24	20,567.24	-9.05	9.05
Grand Total	0.00	32,746.55	48,964.56	8,483.06	7,534.06	98,128.65	-121.29	121.29

*Beat wise total area including Water bodies.





Chapter-IV

4.30 MEDAK DIVISION

4.30.1 Introduction:

Medak is located in the North West Part of Andhra Pradesh State, between latitudes 17° 25' 36" and 18° 17' 7" N and longitudes 77° 26' 43" and 79° 7' 37" E. The Geographical Area of the Division is 9699Km². District forms a part of the table land of Deccan plateau and is crisscrossed by different ranges of hills. The ground is mostly flat and undulating with gentle slope. The elevation of ground varies from 500m–600m with occasional hills up to 638m above mean sea level. Medak falls under semi-arid region of peninsular India.

Land use pattern of the Division is given in Table 4.30.1

The climate of this Division is generally dry with temperatures ranging from 6° C to 46° C and the annual rainfall is about 700 mm, receiving mainly from Southwest monsoons.

Red earths comprising loamy sands, sandy loams and sandy clay loams; Ragar, or Black cotton soil comprising clay loams, clay and silt clay are present.

Manjeera River which is a tributary of Godavari River is the main source of water supply. Haldivagu or Pasupuvagu tributary of Manjeera and Kudlair tributary of Manair River are also water sources in the district and all these remain dry in the summer.

The total population of the Division is 2.86 million (2011 Census). The Per capita forest area is 0.03ha. The population density is 294 persons per Km².

4.30.2 Recorded Forest Area:

The total notified forest area of the Division is 905.94 Km², which is 9.96% of the total geographical area. Reserved, Protected and Un-classed Forests constitute 634.22 Km² (70%), 255.63 Km² (28.2%) and 16.09 Km² (0.018%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous and Tropical Thorn Forest types.

4.30.3 Protected Area:

Out of 905.94 Km² of notified forest area 55.47 Km² area is included in Pocharam WLS.

4.30.4 Community Forest Management:

There are 251 Vana Samrakshana Samities (VSSs) in the Division. An area of 678.04 Km² forests, which is 75% of notified forest area is under the management of VSSs. During JFM/CFM project around 45 Km² areas is brought under Plantations.

4.30.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Nov/Dec 2009), is 589.91 km², which is 6.08% of the total Geographical area. In terms of the forest canopy density classes, the Division does not have Very Dense Forest cover, 92.65 Km² of Moderately Dense Forests, 497.26 Km² of Open Forests. The area of the Scrub is 280.93 Km², Non-Forests 43.06 Km² and Water Bodies 2.68 Km². The distribution of the forest cover of the division is shown in Fig 4.30.1

Table 4.30.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	9699.00	
Forest including Scrub	923.13	9.52
Agriculture	7591.99	78.28
Land with Scrub	561.88	5.79
Fallow Lands	11.42	0.12
Grasslands	50.71	0.52
Settlements	293.88	3.03
Vegetation outside Forest	265.99	2.74
Water body	265.99	2.74

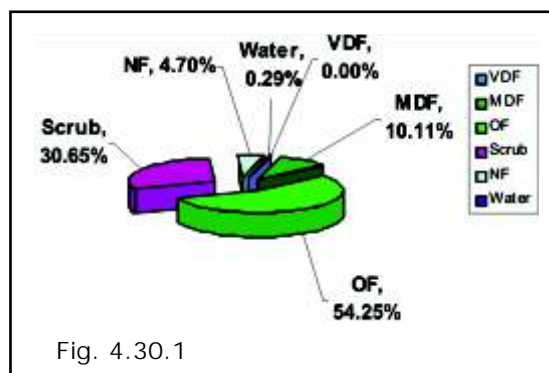


Fig. 4.30.1

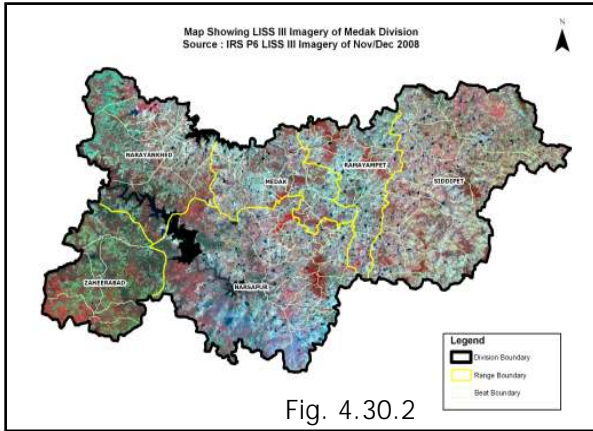


Fig. 4.30.2

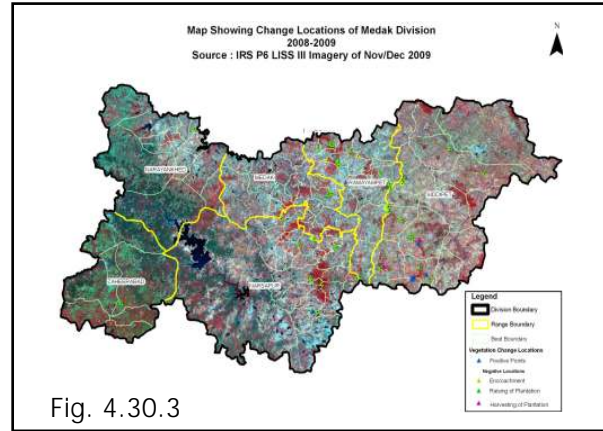


Fig. 4.30.3

4.29.6 Change in Forest Cover :-

The Satellite images of 2008 and 2009 are shown in Fig (4.30.2 & 4.30.3) and the changes during this period are show on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov/Dec 2009) with that of previous assessment year (Satellite data of Nov/Dec 2008), shows a positive change of 122.09 Ha and negative change of 623.62 Ha. The forest cover change matrix, given in Table 4.30.2 reveals that there has been a decrease of 81 Ha of open forest and 420 Ha of scrub forest.

The positive change is on account of raising or growth in raised plantations. Of the total negative change 583.81 Ha on account of Raising of Plantations, 13.46 Ha on account of encroachment and 26.35 Ha of Harvesting of Plantation. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 13.46 Ha only.

The simplified forest cover change matrix is given in Table 4.30.3 and 4.30.4

There are 93 Beats in the Division. Negative change in Forest Cover is noticed in only 24 Beats, and positive change in 2 Beats. There is no change in remaining 67 Beats. Details of forest cover changes in the 26 Beats where forest cover is changed is shown in Table 4.30.5

Table 4.30.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Nov 2008 – Dec 2008)	2009 (Data of Nov 2009 – Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	92.65	0.00	0.00	0.00	0.00	92.64
Open Forest	0.00	0.00	496.82	0.00	1.25	0.00	498.07
Scrub	0.00	0.00	0.00	280.15	4.98	0.00	280.13
Non-Forest	0.00	0.00	0.44	0.78	36.83	0.00	38.05
Water	0.00	0.00	0.00	0.00	0.00	2.68	2.68
Total of 2009	0.00	92.65	497.26	280.93	43.06	2.68	916.58
Net Change	0.00	0.00	-0.81	-4.20	5.01	0.00	0.00



2008 (Data of Nov 2008 – Dec 2008)	2009 (Data of Nov 2009 – Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	589.47	1.25	0.00	590.72
Degraded Forest	0.44	322.74	0.00	323.18
Water	0.00	0.00	2.68	2.68
Total of 2009	589.91	323.99	2.68	916.58
Net change	-0.81	0.81	0.00	0

2008 (Data of Nov 2008 – Dec 2008)	2009 (Data of Nov 2009 – Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	869.62	6.23	0.00	875.85
Barren	1.22	36.83	0.00	38.05
Water	0.00	0.00	2.68	2.68
Total of 2009	870.84	43.06	2.68	916.58
Net Change	-5.01	5.01	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
MEDAK Range								
Amsanpally	0.00	458.15	945.28	173.86	39.91	1,617.20	0.00	0.00
Andugulapally	0.00	20.25	491.00	76.85	2.46	590.56	0.00	0.00
Annaram	0.00	118.36	815.57	257.74	27.87	1,221.54	0.00	0.00
Arkela	0.00	1.22	240.98	468.78	26.59	737.57	0.00	0.00
Bhootpur	0.00	243.46	865.77	208.92	15.84	1,342.00	0.00	0.00
Bujrampet	0.00	140.12	365.51	308.24	28.68	842.55	0.00	0.00
Damarancha	0.00	17.93	549.84	396.85	32.50	997.13	0.00	0.00
Kulcharam	0.00	282.52	533.90	187.51	29.86	1,033.79	0.00	0.00
Manepally	0.00	250.18	803.35	49.57	4.07	1,107.17	0.00	0.00
Mangalparthy	0.00	178.95	979.96	269.54	67.45	1,495.89	-31.30	0.00
Nagsanpally	0.00	88.49	721.58	335.19	34.63	1,181.19	0.00	0.00
Rampur	0.00	111.75	906.26	342.93	31.78	1,392.71	0.00	0.00
S.Kondapur	0.00	135.04	891.68	239.12	12.60	1,280.06	0.00	0.00
Shetpally	0.00	141.93	1,241.88	545.13	156.00	2,101.00	-56.72	0.00
Tekmal	0.00	9.23	656.57	206.30	16.21	888.31	0.00	0.00
Wariguntham	0.00	81.78	329.93	92.48	10.99	515.18	0.00	0.00
Yeldurthy	0.00	317.30	1,403.44	317.51	51.13	2,091.28	0.00	0.00
Total	0.00	2,596.65	12,742.49	4,476.52	588.57	20,435.13	-88.02	0.00
NARAYANKHED Range								
Alladurgu	0.00	23.92	263.54	26.73	2.41	316.60	0	0.00
Bachepally	0.00	0.00	22.62	223.82	108.53	354.97	-8.31	0.00
Bibipet	0.00	0.46	90.80	439.64	113.27	644.84	0.00	0.00
Kadpal	0.00	69.69	379.40	56.26	3.77	509.12	0.00	0.00
Madhwar	0.00	0.67	432.93	603.16	26.08	1,062.84	0.00	0.00
Nagadhar	0.00	50.04	767.40	319.59	33.19	1,170.22	0.00	0.00
Narayanakhed	0.00	0.61	218.32	166.96	6.42	392.31	0.00	0.00
Nizampet	0.00	0.00	210.16	443.98	45.47	705.24	0.00	0.00
Raikode	0.00	17.14	346.75	335.67	24.52	724.09	0.00	0.00



Forest division wise results

Raparthi	0.00	0.00	69.91	195.78	12.86	278.55	0.00	0.00
Sanjeevanraopet	0.00	16.63	333.43	100.29	6.69	457.05	0.00	0.00
Shankarampet_A	0.00	14.13	314.34	135.00	14.31	477.78	0.00	0.00
Tedkal	0.00	0.00	4.51	29.76	113.84	149.49	0.00	0.00
Total	0.00	193.30	3,454.13	3,076.63	511.36	7,243.11	-8.31	0.00
NARSAPUR Range								
Brahmanpally	0.00	46.86	367.51	51.86	2.60	468.82	0.00	0.00
Chippelthurthy	0.00	0.00	267.23	262.38	20.28	549.90	0.00	0.00
Choutkooor	0.00	3.02	759.40	544.80	10.14	1,317.36	0.00	0.00
Gummadidalla	0.00	26.84	863.42	181.27	27.73	1,100.60	0.00	0.00
Ibrahimbad	0.00	67.49	514.54	293.88	5.87	881.79	0.00	0.00
Kanukunta	0.00	39.21	232.35	37.74	13.98	323.28	-13.98	0.00
Khazipally	0.00	0.00	76.99	437.24	147.95	669.95	0.00	0.00
Kowdipally	0.00	59.31	725.54	245.66	34.03	1,064.55	-6.30	0.00
Mangapet	0.00	82.61	753.93	252.39	14.06	1,102.99	0.00	0.00
Mohammadanagar	0.00	583.30	534.23	57.29	18.73	1,193.54	0.00	0.00
Nagsanpally	0.00	54.13	508.98	58.11	1.08	622.30	0.00	0.00
Nallavally	0.00	6.54	696.07	258.18	129.92	1,091.49	0.00	0.00
Narayanapoor	0.00	3.10	292.02	266.93	15.91	577.96	0.00	0.00
Narsapur	0.00	31.62	929.52	244.55	29.47	1,235.15	-17.61	0.00
Nathinaipally	0.00	10.64	332.94	375.39	85.58	804.54	-7.30	0.00
Pilluta	0.00	28.34	374.45	126.05	4.76	533.60	0.00	0.00
Ratnapur	0.00	135.17	1,089.59	172.38	8.34	1,411.04	0.00	0.00
Salabathpooor	0.00	148.26	231.50	25.03	1.11	405.89	0.00	0.00
Shivampet	0.00	198.13	1,146.18	260.81	89.19	1,702.58	-29.83	0.00
Sirpura	0.00	11.35	137.74	40.12	2.93	192.15	0.00	0.00
Somakapet	0.00	9.68	343.11	255.15	41.67	650.55	0.00	0.00
Tirumalpur	0.00	0.50	349.77	433.44	26.41	810.13	-2.70	0.00
Wailal	0.00	74.25	518.24	294.28	76.21	962.98	-15.72	0.00
Total	0.00	1,620.34	12,045.25	5,174.91	807.94	19,673.13	-93.44	0.00
RAMAYAMPET Range								
Akkannapet	0.00	408.99	310.50	61.24	4.16	784.89	0.00	0.00
Baithole	0.00	84.90	270.22	130.02	23.55	508.68	-5.11	0.00
Datharpally	0.00	0.56	545.85	815.38	26.06	1,387.85	0.00	0.00
Dongal	0.00	286.00	192.46	9.95	0.00	488.41	0.00	0.00
Dharmaram	0.00	286.00	192.46	9.95	0.00	488.41	0.00	0.00
Gangapoor	0.00	954.82	640.91	111.13	26.20	1,733.06	-16.64	0.00
Ibrahimpur	0.00	251.29	739.70	85.69	20.54	1,097.21	-16.39	0.00
Jansilingapur	0.00	482.25	695.51	69.84	22.24	1,277.14	-16.80	3.29
Manoharabad	0.00	72.10	619.79	450.81	43.48	1,189.34	0.00	0.00
Narsingi	0.00	341.77	860.47	276.24	41.36	1,522.81	-12.48	8.38
Pathur	0.00	166.66	289.37	113.51	8.42	577.96	0.00	0.00
Ramayampet	0.00	48.69	305.28	119.34	11.24	488.36	0.00	0.00
Rampur	0.00	71.87	549.91	827.04	89.18	1,537.99	-72.03	0.00
Shankarampet	0.00	45.35	571.65	74.09	6.80	697.89	0.00	0.00
T. Mohamadapur	0.00	383.16	922.47	226.43	17.65	1,550.73	0.00	0.00
Valllure	0.00	140.69	485.27	94.46	24.71	745.14	-14.13	0.00
Waddiaram	0.00	17.66	369.26	197.12	26.33	620.11	0.00	0.00
Total	0.00	3,756.76	8,368.62	3,662.29	391.92	16,207.58	-153.58	11.67
SI DD I PET Range								
Valllure	0.00	9.40	348.25	470.00	7.93	847.48	18.22	0.00
DAMARKUNTA	0.00	0.55	94.23	788.98	184.91	1,074.63	0.00	0.00
DOMMAT	0.00	0.00	92.83	356.21	17.10	466.14	-15.94	1.79
DUBBAK	0.00	5.48	577.29	359.86	23.19	968.99	0.00	0.00
GAJWEL	0.00	1.79	774.32	668.18	26.41	1,480.10	11.67	0.00
GAMBHIRPOOR	0.00	0.55	232.89	278.17	6.14	518.46	0.00	0.00
GODGUPALLY	0.00	0.00	221.34	298.98	5.13	525.44	0.00	0.00

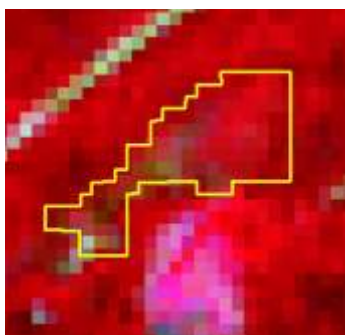


GODGUPALLY	0.00	0.00	221.34	298.98	5.13	525.44	0.00	0.00
INDUPERIAL	0.00	1.79	801.85	1,158.66	86.37	2,062.25	-74.19	0.00
JAGDEVPUR	0.00	0.00	780.99	360.71	9.27	1,151.97	0.00	0.00
KONDAPAK	0.00	0.56	871.47	388.69	42.64	1,308.31	0.00	0.00
MARPADGA	0.00	4.50	921.28	890.56	56.97	1,900.10	-32.72	0.00
MEENAJIPET	0.00	1.79	880.97	1,053.20	55.00	1,991.32	-34.05	0.00
MIRDODDI	0.00	6.92	397.83	141.35	14.79	560.89	-10.45	0.00
MULUG	0.00	24.22	882.02	541.62	96.13	1,548.69	-5.88	0.00
SIDDIPET	0.00	10.90	353.87	993.71	117.68	1,484.72	0.00	0.00
VEMULGHAT	0.00	0.00	1,395.10	725.13	16.99	2,152.90	0.00	0.00
Total	0.00	68.44	9,626.53	9,474.00	766.65	20,042.39	-143.34	1.79
ZAHEERABAD Range								
Siddipet	0.00	2.96	18.68	127.25	211.08	359.96	0.00	0.00
Gudgarpally	0.00	398.05	705.63	223.81	58.05	1,409.86	0.00	0.00
Gudupally	0.00	460.92	949.73	231.83	130.54	1,776.81	0.00	0.00
Husselli	0.00	15.32	286.19	328.73	313.27	943.51	0.00	0.00
Pichargad	0.00	59.81	628.52	615.76	322.98	1,640.93	-14.84	0.00
Sajjapur	0.00	23.36	547.45	403.10	116.62	1,091.86	0.00	0.00
Zaheerabad	0.00	69.38	352.48	297.55	87.55	833.92	0.00	0.00
Total	0.00	1,029.79	3,488.68	2,228.04	1,240.09	8,056.86	-14.84	0.00
Grand Total	0.00	9,265.29	49,725.70	28,092.39	4,306.53	91,658.19	-501.53	13.46

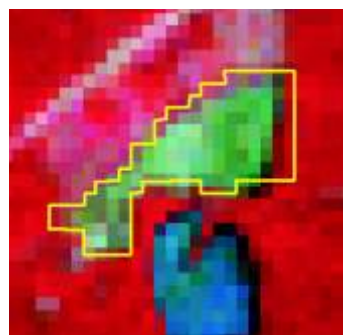
* Beat wise total area including Water bodies.

Satellite Imageries

2008



2009



Longitude	78.32216
Latitude	17.69550
Area	7.30 Ha.
Change	OF to NF
Compartment No.	334
Beat	Nathinaipally
Range	Narsapur
Division	Medak



Chapter-IV

4.31 MEDAK WLM DIVISION

4.31.1 Introduction:

Medak is located in the North West Part of Andhra Pradesh State, between latitudes 18° 6' 59" and 18° 12' 55" N and longitudes 78° 10' 10" and 78° 22' 4" E. The Geographical Area of the Division is **90.70 Km²**. The ground is mostly flat and undulating with gentle slop. The elevation of ground varies from 500m–600m with occasional hills up to 638m above mean sea level. Medak falls under semiarid region of peninsular India.

Land use pattern of the Division is given in Table 4.31.1

The climate of this Division is generally dry with temperatures ranging from 6° C to 46° C and the annual rainfall is about 700 mm, receiving mainly from Southwest monsoons.

Red earths comprising loamy sands, sandy loams and sandy clay loams; Ragar, or Black cotton soil comprising clay loams, clay and silt clay are present.

4.31.2 Recorded Forest Area:

The total notified forest area of the Division is **46.71 Km²**, which is 51.51% of the total geographical area. Reserved and Protected Forests Constitute 4.605 Km² (9.86%) and 42.107 Km² (90.15%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Mixed dry deciduous and Tropical Thorn Forest types.

4.31.3 Protected Area:

Out of 46.71 Km² of notified forest area 42.11 Km² area is included in Pocharam WLS.

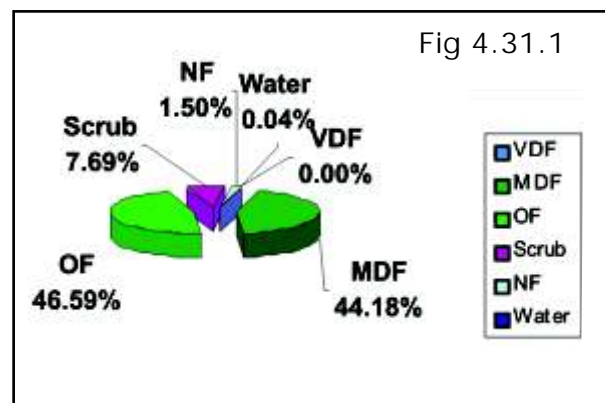
4.31.4 Community Forest Management:

There are 11 Vana Samrakshana Samities (VSSs) in the Division. An area of 21.50 Km² forests, which is 46.02% of notified forest area is under the management of VSSs.

4.31.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Nov/Dec 2009), is **42.24 km²**, which is **46.57%** of the total Geographical area. In terms of the forest canopy density classes, the Division does not have Very Dense Forest cover, **20.56 Km²** of Moderately Dense Forests, **21.68 Km²** of Open Forests. The area of the Scrub is **3.58 Km²**, Non-Forests **0.70 Km²** and Water Bodies **0.02 Km²**. The distribution of the forest cover of the division is shown in Fig 4.31.1

Land use	Area in Sqkm	Percentage
Total geographical area	90.70	
Forests (VDF, MDF, OF, Scrub)	45.82	50.52
Agriculture	26.68	29.41
Land with Scrub (Outside Forests)	5.90	6.50
Settlements	0.29	0.32
Not available for cultivation	11.77	12.98
Waterbody	0.24	0.26



4.31.6 Change in Forest Cover:-

The Satellite images of 2008 and 2009 are shown in Fig (4.31.2 & 4.31.3) and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov/Dec 2009) with that of previous assessment (Satellite data of Nov/Dec 2008), shows that there is no change between this year. The forest cover change matrix, given in Table 4.31.2, 4.31.3 reveals that there has been no decrease of moderately dense forest and open forest.

The simplified forest cover change matrix is given in Table 4.31.3 and Table 4.31.4

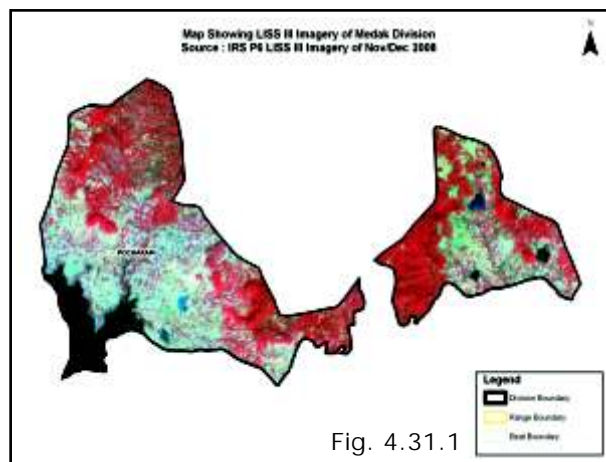


Fig. 4.31.1

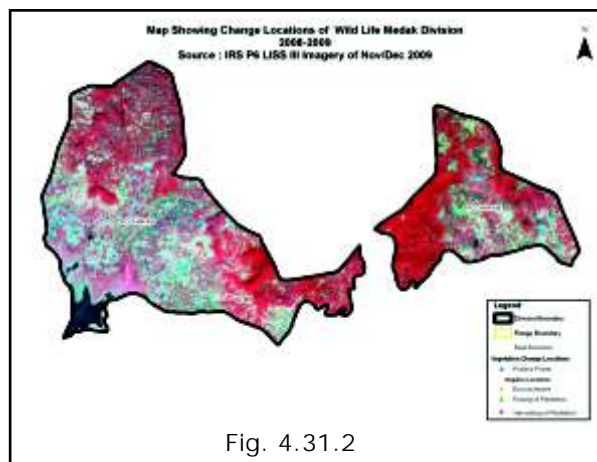


Fig. 4.31.2

Table 4.31.2: Forest Cover change matrix

(Area in Km²)

2008 (Data of Nov 2008 - Dec 2008)	2009 (Data of Nov 2009 - Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	20.56	0.00	0.00	0.00	0.00	20.56
Open Forest	0.00	0.00	21.68	0.00	0.00	0.00	21.68
Scrub	0.00	0.00	0.00	3.58	0.00	0.00	3.58
Non-Forest	0.00	0.00	0.00	0.00	0.70	0.00	0.70
Water	0.00	0.00	0.00	0.00	0.00	0.02	0.02
Total of 2009	0.00	20.56	21.68	3.58	0.70	0.02	46.54
Net Change	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 4.31.3: Forest Cover change matrix (Good and Degraded Forest)

(Area in Km²)

2008 (Data of Nov 2008 Dec 2008)	2009 (Data of Nov 2009 - Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	42.24	0.00	0.00	42.24
Degraded Forest	0.00	4.28	0.00	4.28
Water	0.0	0.00	0.02	0.02
Total of 2009	42.24	4.28	0.02	46.54
Net Change	42.24	0.00	0.00	42.24

Table 4.31.4: Forest Cover change matrix (Rejuvenation and Barren)				(Area in Km ²)
2008 (Data of Nov 2008 Dec 2008)	2009 (Data of Nov 2009 - Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	45.82	0.00	0.00	45.82
Barren	0.00	0.70	0.00	0.70
Water	0.00	0.00	0.02	0.02
Total of 2009	45.82	0.70	0.02	46.54
Net Change	0.00	0.00	0.00	

Table 4.31.5: Beat wise Forest Cover							(Area in Ha)	
Beat	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	Change Compared to 2008	Encroachment
POCHARAM Range								
BURUGUPALLY	0.00	551.39	578.39	74.17	15.02	1,220.64	0.00	0.00
PARVATHAPOOR	0.00	956.47	370.58	168.60	46.57	1,542.21	0.00	0.00
RAJPET	0.00	548.14	1,218.77	115.05	8.41	1,890.36	0.00	0.00
Total	0.00	2,056.00	2,167.74	357.82	69.99	4,653.21	0.00	0.00
Grand Total	0.00	2,056.00	2,167.74	357.82	69.99	4,653.21	0.00	0.00

* Beat wise total area including water bodies.





Chapter-IV

4.32 NIZAMABAD DIVISION

4.32.1 Introduction:

Nizamabad Forest Division lies in the North Western Part of Nizamabad District, between latitudes 18° 10' 10" and 19° 00' 55" N and longitudes 77° 31' 17" and 78° 40' 17" E. The Geographical Area of the Division is 5,219 Km², which is 65.59 % of the total area of the District. This region lies on Deccan Plateau. Godavari enters Andhra Pradesh at Kandhakurthi in Nizamabad Division. Manjira river which flows through thick forests of Nizamabad and Kamareddy divisions towards Northwest direction joins Godavari at Kandhakurthi.

Land use pattern of the Division is given in Table 4.32.1

The climate of this Division is generally dry with temperatures ranging from 13°C to 47°C and the annual rainfall is about 1033.7mm, received mainly from Southwest monsoons.

Red soils are extensive followed by Black soils in Nizamabad Division. Alluvial and Laterite soils are found occasionally and small in extent. Along the banks of Godavari and other big streams soil is loamy or alluvial and more fertile, hence support better forests. Most of the soils have Morrum underneath at different depths, which support some of the good Teak Forests in the division. Verities of colored granites and the Deccan trap rocks and different types of economic minerals are available in this division.

The total population of the Division is 1.54 million (2011 Census). The Per capita forest area is 0.05ha. The population density is 295 persons per Km².

4.32.2 Recorded Forest Area:

The total notified forest area of the Division is 872 Km², which is 16.7% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 530.36 Km² (60.84%), 319 Km² (36.61%) and 22.26 Km² (2.5%) of the total forest area respectively.

As per Champion and Seth's classification, the forests of Division fall under Tropical dry deciduous.

4.32.3 Protected Area:

There are no Protected areas in the Division.

4.32.4 Community Forest Management:

There are 148 Vana Samrakshana Samities (VSSs) in the Division. An area of 423.48Km² forests, which is 48.56% of forest area, is under the management of the VSSs.

4.32.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2008 data (Nov2009) is 620.45Km², which is 11.88% of the total Geographical area. In terms of the forest canopy density classes the Division has 309.80 Km² of Moderately Dense Forests and 310.65 Km² of Open Forests. The area of the Scrub is 80.02 Km², Non-Forests 81.34 Km² and Water Bodies 5.32 Km². The distribution of the forest cover of the division is shown in Fig 4.32.1.

Table 4.32.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	5219	
Forest including Scrub	705.71	13.52
Agriculture	3809.14	72.99
Land with Scrub	192.54	3.69
Fallow Lands	31.84	0.61
Grasslands	0.00	0.00
Settlements	31.74	0.61
Vegetation outside Forest	45.00	0.86
Water body	402.76	7.72

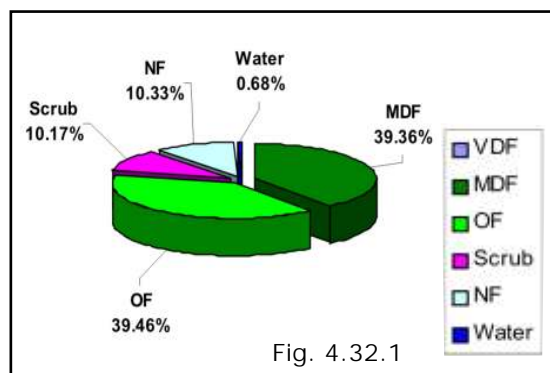


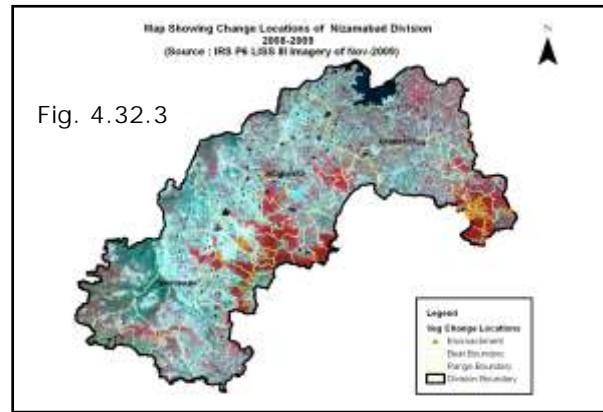
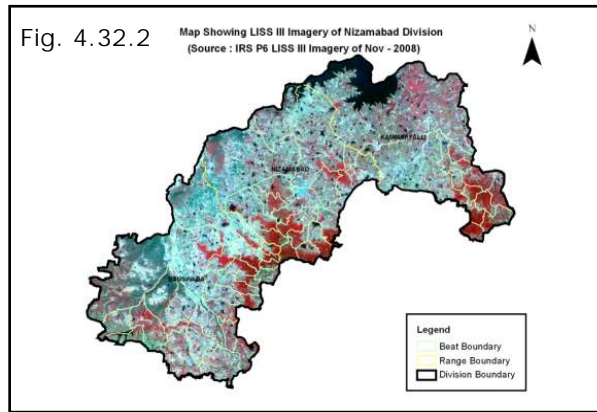
Fig. 4.32.1

4.32.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.32.2, Fig 4.32.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2009) with that of previous assessment year (Satellite data of Nov 2008), shows a negative change in forest cover of 404.47 Ha.

The negative change on account of encroachments alone is considered as loss of Forest Cover. Therefore, the net loss of Forest Cover in this Division is 404.47 Ha.



The simplified forest cover change matrix is given in Table 4.32.3 and Table 4.32.4

There are 55 Beats in the Division. Negative change in Forest Cover is noticed in only 20 Beats. There is no change in the remaining 35 Beats.

Details of Forest Cover changes in the 20 Beats where Forest Cover is changed, is shown in Table 4.32.5

Table 4.32.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Nov 2008)	2009 (Data of Nov 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	309.80	0.00	0.00	1.43	0.00	311.23
Open Forest	0.00	0.00	310.65	0.00	2.44	0.00	313.09
Scrub	0.00	0.00	0.00	80.02	0.17	0.00	80.19
Non-Forest	0.00	0.00	0.00	0.00	77.30	0.00	77.30
Water	0.00	0.00	0.00	0.00	0.00	5.32	5.32
Total of 2009	0.00	309.80	310.65	80.02	81.34	5.32	787.13
Net Change	0.00	-1.43	-2.44	-0.17	4.04	0.00	0.00

Table 4.32.3: Forest Cover change matrix (Good and Degraded Forest)				(Area in Km ²)
2008 (Data of Nov 2008)	2009 (Data of Nov 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	620.45	3.87	0.00	624.32
Degraded Forest	0.00	157.49	0.00	157.49
Water	0.00	0.00	5.32	5.32
Total of 2009	620.45	161.36	5.32	787.13
Net Change	-3.87	3.87	0.00	



Table 4.32.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Nov 2008)	2009 (Data of Nov 2009)			Total of 2008
	Green	Barren	Water	
Green	700.47	4.04	0.00	704.51
Barren	0.00	77.30	0.00	77.30
Water	0.00	0.00	5.32	5.32
Total of 2009	700.47	81.34	5.32	787.13
Net Change	-4.04	4.04	0.00	

Table 4.32.5: Beat wise Forest Area in 2009 (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
BANSWADA Range								
Akbarnagar	0.00	59.22	77.01	8.78	6.02	151.03	0.00	0.00
Banswada	0.00	182.76	381.58	83.88	33.09	686.57	0.00	0.00
Bommandevpally	0.00	1155.10	636.58	80.79	51.01	1961.14	-3.91	3.91
Chandur	0.00	294.24	485.94	103.90	145.47	1029.56	-25.85	25.85
Chillargi	0.00	20.99	1001.84	500.55	557.51	2106.51	0.00	0.00
Dhadgi	0.00	0.00	484.59	498.16	427.64	1421.28	0.00	0.00
Hajipur	0.00	441.43	176.20	27.25	54.91	712.41	-8.33	8.33
Ibrahimpet	0.00	793.14	372.04	28.70	40.74	1234.62	-1.88	1.88
Jalalpur(w)	0.00	878.77	398.04	36.67	26.46	1348.66	-4.34	4.34
Jallapur(e)	0.00	397.78	522.40	78.82	132.88	1145.38	0.00	0.00
Jallapur(s)	0.00	48.13	399.66	128.91	404.20	996.51	0.00	0.00
Jukkal	0.00	0.85	51.50	130.76	276.17	459.29	0.00	0.00
Kodapgal kalan	0.00	2.38	74.54	238.44	331.14	647.21	0.00	0.00
Kowlas	0.00	26.84	1540.86	396.22	367.07	2332.67	0.00	0.00
Lingampally	0.00	2.45	185.49	93.75	429.42	716.01	0.00	0.00
Mainoor	0.00	0.00	87.75	234.06	573.87	903.90	0.00	0.00
Maqdumpur	0.00	71.94	275.77	92.89	41.23	490.51	0.00	0.00
Medpally(n)	0.00	544.02	233.97	61.09	55.45	895.23	-5.88	5.88
Medpally(s)	0.00	438.58	351.75	19.77	27.03	837.14	0.00	0.00
Mohammednagar	0.00	182.13	958.00	168.62	84.29	1413.10	0.00	0.00
Nasrullabad	0.00	935.57	403.40	55.05	126.18	1520.20	-100.37	100.37
Nizamsagar	0.00	3.15	991.21	818.64	597.59	2455.06	0.00	0.00
Rampur	0.00	938.68	424.68	55.39	73.36	1493.58	0.00	0.00
Rampur kalan	0.00	2.78	463.32	414.73	454.28	1386.15	0.00	0.00
Shantapur	0.00	91.63	789.32	263.09	209.91	1386.78	-21.72	21.72
Taglepally	0.00	787.41	496.72	90.76	113.17	1488.06	0.00	0.00
Total	0.00	8299.97	12264.16	4709.67	5640.09	31218.56	-172.28	172.28
KAMMARPALLI Range								
Basheerabad	0.00	380.95	151.10	20.19	1.30	553.54	0.00	0.00
Bheemgal	0.00	963.63	864.44	327.13	238.94	2407.81	-3.84	3.84
Bheemnagar	0.00	1374.75	490.97	90.27	205.03	2181.94	-27.20	27.20
Kammarpally	0.00	146.16	343.76	56.02	43.72	589.65	-10.18	10.18
Karepally	0.00	1008.24	380.87	104.26	101.71	1602.70	-33.84	33.84
Konapur (n)	0.00	1452.88	1344.08	70.17	34.76	2935.96	0.00	0.00
Konapur (s)	0.00	1205.99	1031.82	79.73	109.34	2436.27	-72.74	72.74
Konasamundar	0.00	506.27	609.42	198.31	114.85	1485.31	0.00	0.00
Manal	0.00	939.91	595.24	155.84	153.29	1851.18	-18.46	18.46
Mendora	0.00	418.99	232.62	61.50	99.43	812.53	-3.61	3.61
Tadlapally	0.00	1356.92	421.46	88.24	161.77	2028.38	-46.43	46.43
Tatpally	0.00	1455.64	634.33	104.61	33.89	2228.47	-6.26	6.26
Total	0.00	11210.33	7100.11	1356.27	1298.03	21113.74	-222.56	222.56

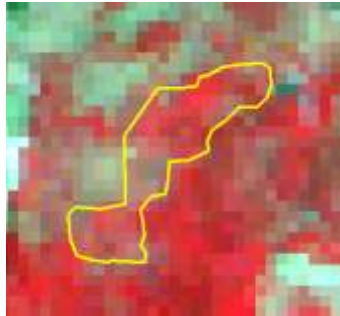


NIZAMABAD Range								
Abbapur	0.00	32.68	361.22	160.79	79.56	634.95	-3.82	3.82
Amrad	0.00	466.88	318.51	11.76	6.08	803.23	0.00	0.00
Badsa	0.00	1268.75	420.95	54.85	11.06	1755.62	0.00	0.00
Kalpote	0.00	1054.67	734.65	37.70	87.99	1915.02	0.00	0.00
Kulaspur	0.00	1033.13	558.10	99.60	32.25	1723.71	0.00	0.00
Mallaram	0.00	357.69	1101.73	30.58	24.69	1514.69	0.00	0.00
Mamidipally	0.00	499.17	995.68	310.29	211.61	2027.00	0.00	0.00
Manchippa	0.00	836.16	787.79	84.60	56.39	1764.94	-2.65	2.65
Mosra	0.00	691.12	712.06	117.00	118.37	1642.24	0.00	0.00
Mudakpally	0.00	782.89	496.01	32.42	39.47	1350.79	0.00	0.00
Munipally	0.00	904.43	838.83	133.11	50.68	1943.57	0.00	0.00
Muthukunta	0.00	619.79	928.79	20.31	9.78	1579.26	0.00	0.00
Secundrapur	0.00	65.37	522.87	75.73	19.03	682.99	0.00	0.00
Sirpur	0.00	1468.98	589.89	44.43	34.54	2137.83	0.00	0.00
Thanakalan	0.00	316.35	1194.53	341.94	123.51	2006.37	-3.16	3.16
Timmapur	0.00	1071.84	946.60	108.17	157.15	2294.30	0.00	0.00
Yamcha	0.00	0.00	192.03	272.48	134.34	604.66	0.00	0.00
Total	0.00	11469.90	11700.24	1935.76	1196.50	26381.17	-9.63	9.63
Grand Total	0.00	30980.20	31064.51	8001.70	8134.62	78713.47	-404.47	404.47

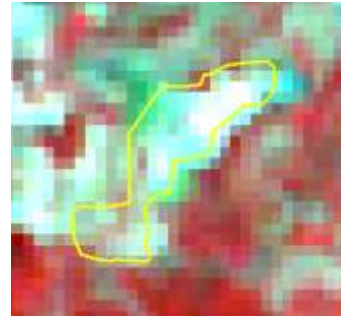
* Beat wise total area including water bodies

Satellite Imageries

2008



2009



Longitude	78.54117
Latitude	18.66461
Area	6.76 Ha.
Change	OF to NF
Compartment No.	81
Beat	Karepally
Range	Kammarpally
Division	Nizamabad





Chapter-IV

4.33 ELURU DIVISION

4.33.1 Introduction:

Eluru Forest Division lies in the North eastern part of Andhra Pradesh, between latitude 16° 18' 05" and 17° 28' 52"N and longitude 80° 52' 04" and 81° 51' 31". The Geographical Area of the Division is 7742 km², which constitutes 100 % of the total area of the District. The Division has two physiographic zones, the plains and Hills. The climate of Eluru division is characterized by high humidity nearly all the year round with oppressive summer and good seasonal rainfall. The major rivers falling in the Division Godavari, Gauthami, Vasita

Land use pattern of the Division is given in Table 4.33.1

Deccantraps, Alluvial deposits, Lower or upper Gondwana ediments, Khondalites and Charcolites occupy the districts. Loamely soils, Latererite soils and black cotton soils are found in the district. Temperatures ranging from 19°C to 37°C and the annual rainfall are about 1076mm. South West monsoon gives more rain than North East monsoon.

The total population of the Division and District is 3.85 millions (2011 census) and the per capita forest is 0.021 Ha. The population density is 497 per Km²

Table 4.33.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	7742.00	
Forest including Scrub	739.36	9.55
Agriculture	5591.90	72.23
Land with Scrub	58.92	0.75
Fallow Lands	40.77	0.53
Grasslands	0.00	0.00
Settlements	143.74	1.86
Vegetation outside Forest	417.04	5.39
Water body	750.27	9.69

4.33.2 Recorded Forest Area:

The total notified forest area of the Division is 773.03 Km², which is 10% of the total geographical area. Reserved and Protected forests Constitute 732.11 Km² (95%), Km² 40.9(5%) of the total forest area respectively.

As per the Champion and Seth's classification forest types are Southern secondary moist mixed deciduous forests, Southern tropical secondary moist mixed deciduous forests, tropical secondary dry deciduous scrub forests and Tropical dry evergreen scrub forests.

4.33.3 Protected Area:

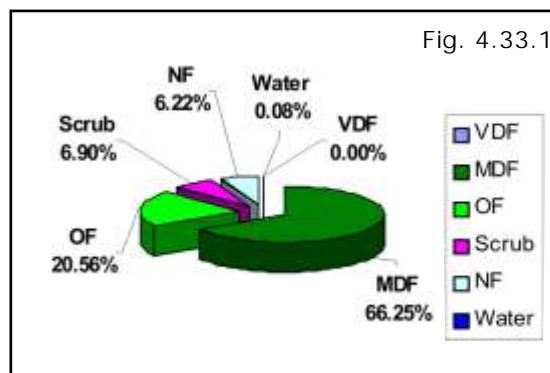
The Division is partly has Kolleru and Papikonda Wild Life Sanctuaries .Out of 773.02 Km² of forest area 308.55 Km² is included in the Kolleru. It is the largest fresh water lake in the Country. It is one of the Ramsar convention wetland sites. Part of 591 Km² Papikonda Wild Life Sanctuary falls in this division

4.33.4 Community Forest Management:

There are 213 VSSs in the Division 414.54Km² forest area, which constitutes 53% of forest area.

4.33.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2008 data (Oct 2008-Mar 2009), is 671.06 Km², which is 8.6% of the total Geographical area. In terms of the forest canopy density classes, the Division has 512.15 Km² of Moderately Dense Forests, and 158.91 Km² Open Forests. The area of the Scrub is 53.32 Km², that of Non-Forest is 48.05 Km² and Water Bodies is 0.59 Km². the distribution of the forest cover of the division is shown in Fig 4.33.1



4.33.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 are shown in Fig (4.33.2 & 4.33.3), the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009-Mar 2010) with that of previous assessment (Satellite Imagery of Oct 2008-Mar 2009), shows a positive change of 1173.31 Ha and negative change of 1853.67 Ha . The forest cover change matrix, given in Table 4.33.2 reveals that there has been a decrease of 373 Ha of moderately dense forest and 808 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 1438.96 Ha on account of Raising of Plantations and 414.71ha on account of encroachments. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 414.71 Ha only.

The simplified forest cover change matrix is given in Table 4.33.3 and Table 4.33.4

There are **43 Beats** in the division. Negative change in Forest cover is noticed in only 12 Beats and positive change in only 10 beats. There is no change in the remaining 21 Beats.

Details of Forest cover changes in the 22 Beats where forest cover is changed, is shown in Table 4.33.5

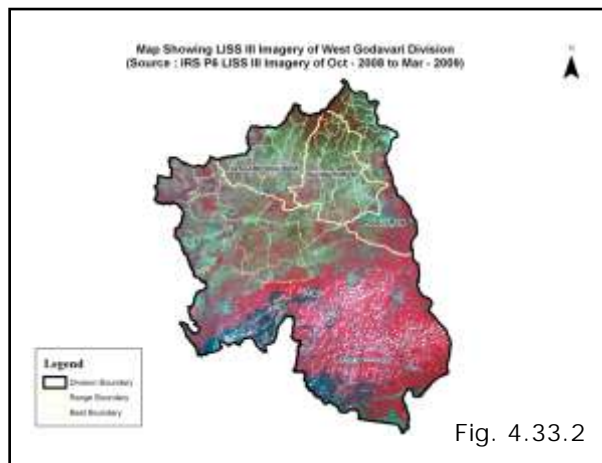


Fig. 4.33.2

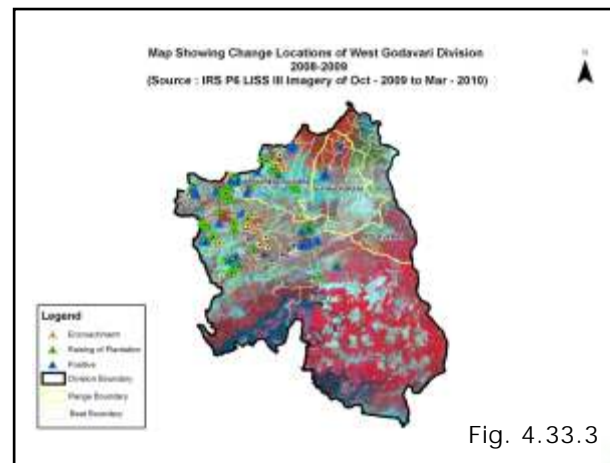


Fig. 4.33.3

Table 4.33.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Oct 2008 - Mar 2009)	2009 (Data of Oct 2009 - Mar 2010)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	512.15	0.18	0.00	3.55	0.00	515.88
Open Forest	0.00	0.00	156.77	0.07	10.15	0.00	166.99
Scrub	0.00	0.00	0.23	43.48	4.59	0.00	48.30
Non-Forest	0.00	0.00	1.73	9.77	29.76	0.00	41.26
Water	0.00	0.00	0.00	0.00	0.00	0.59	0.59
Total of 2009	0.00	512.15	158.91	53.32	48.05	0.59	773.02
Net Change	0.00	-3.73	-8.08	5.02	6.79	0.00	



Table 4.33.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Oct 2008- Mar 2009)	2009 (Data of Oct 2009 - Mar 2010)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	669.10	13.77	0.00	682.87
Degraded Forest	1.96	87.60	0.00	89.56
Water	0.00	0.00	0.59	0.59
Total of 2009	671.06	101.37	0.59	773.02
Net Change	-11.81	11.81	0.00	

Table 4.33.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Oct 2008- Mar 2009)	2009 (Data of Oct 2009 - Mar 2010)			Total of 2008
	Green	Barren	Water	
Green	712.88	18.29	0.00	731.17
Barren	11.50	29.76	0.00	41.26
Water	0.00	0.00	0.59	0.59
Total of 2009	724.38	48.05	0.59	773.02
Net Change	-6.79	6.79	0.00	

Table 4.33.5: Beat wise Forest Area in 2009 (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
ELURU Range								
A R Palem	0.00	430.24	953.15	187.77	125.13	1696.29	-21.53	24.47
Barrikonda	0.00	239.35	860.03	300.92	112.59	1515.44	26.50	13.07
Bhogole	0.00	332.90	606.79	516.63	178.85	1635.17	93.81	0.00
Chintalapudi	0.00	1374.72	806.18	61.90	53.67	2296.47	-46.13	1.74
Dubacherla	0.00	410.20	721.09	106.08	32.64	1270.01	10.30	0.00
M.V.Gudem	0.00	1116.05	876.38	343.17	171.05	2506.65	20.81	8.03
Nallajerla	0.00	89.88	956.28	542.12	-21.82	1566.46	175.54	0.00
R.S.Varam	0.00	261.92	759.72	83.58	276.02	1381.24	-133.61	9.70
Thadikelapudi	0.00	47.31	812.18	388.24	284.18	1531.91	-16.00	29.55
V.R.Gudem	0.00	-39.17	233.51	503.79	514.36	1213.38	-7.98	0.00
Velagalapalli	0.00	38.12	626.49	371.89	970.90	2010.76	-253.29	54.41
Yerraguntapalli	0.00	376.48	430.38	95.16	338.92	1240.94	-189.73	0.00
Total	0.00	4678.00	8642.18	3501.25	3036.49	19864.72	-341.31	140.97
JANGAREDDIGUDEM Range								
Aliveru	0.00	2972.28	49.41	0.00	1.42	3023.11	0.00	0.00
Ankannagudem	0.00	991.54	164.86	21.10	46.59	1224.09	-19.43	6.61
Antarvedigudem	0.00	1488.48	81.84	16.12	17.10	1603.54	-0.79	3.96
Darbhagudem	0.00	12.85	734.20	395.41	186.17	1328.63	164.94	18.81
Doramamidi	0.00	764.25	97.86	14.94	10.43	887.48	0.00	0.00



Forest division wise results

Gullapudi	0.00	3918.14	262.75	4.45	10.28	4197.99	0.00	0.00
Jeelugumilli	0.00	256.18	772.59	387.05	91.22	1507.04	88.88	0.00
Kamaiahpalem	0.00	899.52	716.66	223.46	245.04	2084.68	-58.99	0.00
Marlagudem	0.00	122.90	552.35	-21.03	170.10	824.32	-109.50	0.00
Mulagalampalli	0.00	577.34	879.49	420.25	649.96	2527.04	-423.75	244.36
Total	0.00	12003.48	4312.01	1461.75	1428.31	19207.92	-358.64	273.74
KANNAPURAM Range								
Chinthapalli	0.00	1585.30	28.17	0.57	-3.83	1610.21	3.83	0.00
Dandipudi	0.00	3163.35	248.92	22.83	89.60	3524.70	7.00	0.00
Kallumamidi	0.00	1136.90	15.36	0.00	0.00	1152.26	0.00	0.00
Karakapadu	0.00	444.78	93.01	9.09	14.63	578.86	0.00	0.00
Kopalli	0.00	2146.69	49.79	0.02	1.01	2197.51	0.00	0.00
Kotrupalli	0.00	981.94	30.04	0.00	0.18	1012.16	0.00	0.00
Kovvada	0.00	899.12	440.77	87.57	93.22	1524.67	0.00	0.00
Kunkala	0.00	2221.53	153.44	4.58	8.17	2387.72	0.00	0.00
L N D Pet	0.00	1642.09	347.50	99.0	7.51	2096.13	0.00	0.00
P R Gudem	0.00	2198.79	236.67	6.82	-0.11	2442.17	8.76	0.00
Total	0.00	16420.49	1643.67	230.51	210.38	18526.39	19.59	0.00
POLAVARAM Range								
Chilakaluru	0.00	2753.31	195.46	34.43	36.05	3019.25	0.00	0.00
Kondrukota	0.00	3917.10	183.36	17.99	2.11	4120.56	0.00	0.00
Kothuru	0.00	556.39	107.67	4.14	3.18	671.38	0.00	0.00
Nettappakota	0.00	1918.99	48.36	9.26	7.77	1984.38	0.00	0.00
Polavaram	0.00	1102.94	44.14	6.83	11.74	1165.65	0.00	0.00
Sirivaka	0.00	1593.33	249.62	21.19	45.72	1936.95	0.00	0.00
Sivagiri	0.00	922.44	189.65	3.44	2.47	1119.75	0.00	0.00
Tekuru	0.00	1344.81	72.84	22.96	5.85	1446.46	0.00	0.00
Thutigunta	0.00	2126.86	122.83	17.67	13.42	2280.78	0.00	0.00
Udathapalli	0.00	757.40	-0.31	0.00	0.00	757.09	0.00	0.00
Vinjaram	0.00	1119.24	78.88	2.45	1.50	1202.07	0.00	0.00
Total	0.00	18112.81	1292.50	140.36	129.81	19704.32	0.00	0.00
Grand Total	0.00	51214.78	15890.36	5333.87	4804.99	77303.35	-680.36	414.71

* Beat wise total area including water bodies.





Chapter-IV

4.34. KAKINADA DIVISION

4.34. Introduction:

Kakinada Forest Division lies in the north eastern part of Andhra Pradesh, between latitudes $16^{\circ} 18' 04''$ and $18^{\circ} 00' 54''$ N and longitude $81^{\circ} 30' 08''$ and $82^{\circ} 36' 17''$ E. The Geographical Area of the Division is 10807 Km^2 . Godavari District can be broadly classified into three natural divisions namely the Delta, Up land and Agency or hill tracts. The general elevation of the district varies from a few meters near the sea to about 300 meters in the hills of the agency. The Eastern Ghats rise by gradations from the level of the coast and spread throughout the erstwhile agency Taluks of Rampachodavaram and Yellavaram. The delta portion constituting the whole of Konaseema and portions of Kakinada, Ramachandrapuram and Rajahmundry erstwhile Taluks, presents a vast expanse of rice-fields surrounded by plantain, betel, coconut gardens and innumerable palmyrahs. The erstwhile Taluks of Tuni, Pithapuram, Peddapuram and Portions of Kakinada, Ramachandrapuram and Rajahmundry constitute the upland areas. The main soils in the district are alluvial (clay loamy) red soil, sandy loam and sandy clay. There is mostly alluvial soil in Godavari delta and sandy clay soil at the tail end portions of Godavari river, red loamy soil in upland and agency area of the district. The major rivers falling in the division are Godavari, Pampa and Yeleru.

Land use pattern of the division is given in **Table 4.34.1**

The region mostly has a tropical climate like the rest of the Coastal Andhra region. The summers (March-June) are very hot and humid. The rainy season (July-Jan) is the best time to visit this place with the fields brilliantly green with paddy crops, rivulets flowing with water and the sun shining brightly, but not burning as it does in the summer. Temperatures ranging from 10°C to 48°C and the annual rainfall are about 1280mm.

The total population of the Division & district is 5.28 million (2011 Census), and the per capita forest is 0.056 Ha. The population density is 501 persons per Km^2

4.34.2 Recorded Forest Area:

The total notified forest area of the Division is 3235.39 Km^2 , which 32.71% of the total geographical area. Reserved and Protected Forests Constitute 2701.31 Km^2 (83.3%), 531.13 Km^2 (22.7%) of the total forest area respectively.

As per the Champion and Seth's classification Southern secondary moist mixed deciduous forests, Southern tropical secondary moist mixed deciduous forests and dry deciduous scrub forests.

4.34.3 Protected Area:

The division has Koringa and part of Papikonda Wild Life Sanctuaries. Out of 3235.39 Km^2 of forest area this division Koringa occupies 235.7 Km^2 and it is the largest surviving patch of Mangrove forests in the State with more than 65 Mangrove tree species, Home for the rare, Endangered Smooth Indian Otter, Fishing Cat, Estuarine Crocodile. Part of 591 Km^2 of Papikonda sanctuary located in this division.

Table 4.34.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	2971.09	27.49
Forest including Scrub	5574.51	51.58
Agriculture	331.78	3.07
Land with Scrub	224.00	2.07
Fallow Lands	22.00	0.20
Grasslands	130.19	1.20
Settlements	1149.41	10.64
Vegetation outside Forest	404.02	3.75

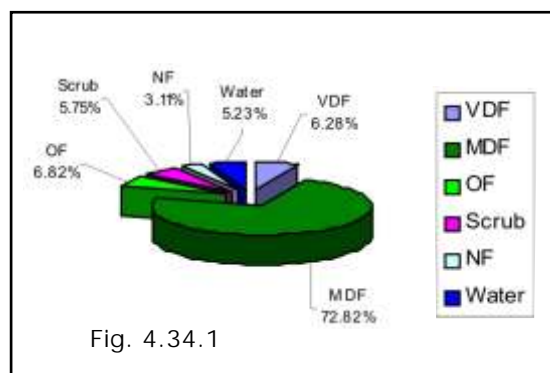


Fig. 4.34.1



4.34.4 Community Forest Management:

There are 529 Vana Samrakshana Samities (VSSs) in the Division 1148.05 Km² forest area, which constitutes 35.4% of forest area.

4.34.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Data of Mar 2010), is 2779.80 Km² which is 25.3% of the total Geographical area. In terms of the forest canopy density classes, the Division has 203.04 Km² of Very Dense Forests, 2356.05 Km² Moderately Dense forests, and 220.71 Km² Open Forest. The area of the Scrub is 185.97 Km², that of Non-Forest is 100.56 Km² and Water Bodies 169.06 Km². the distribution of the forest cover of the Division is shown in Fig 4.34.1.

4.34.6 Change in Forest Cover:

The satellite image of 2008 and 2009 are shown in Fig 4.34.2, Fig 4.34.3 and the changes during this period are shown on this image of 2009.

Comparison of the current forest cover (Satellite data of Mar 2010) with that of previous assessment (Satellite Imagery of Jan 2009-Mar 2009), shows a negative change in forest cover of 134.13 Ha. The forest cover change matrix, given in Table 4.34.2 reveals that there has been a decrease of 68 Ha of moderately dense forest and 66 Ha of open forest.

Of the total negative change 101.17Ha on account of Raising of Plantations and 32.92 on account of encroachment. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 32.92 Ha. only.

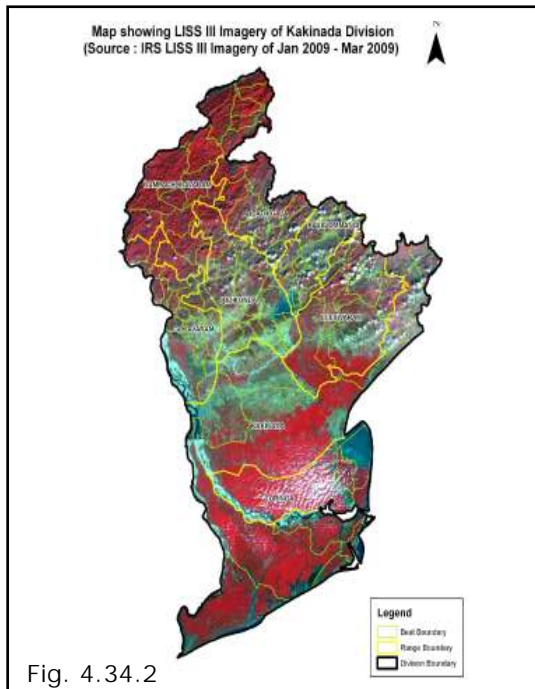


Fig. 4.34.2

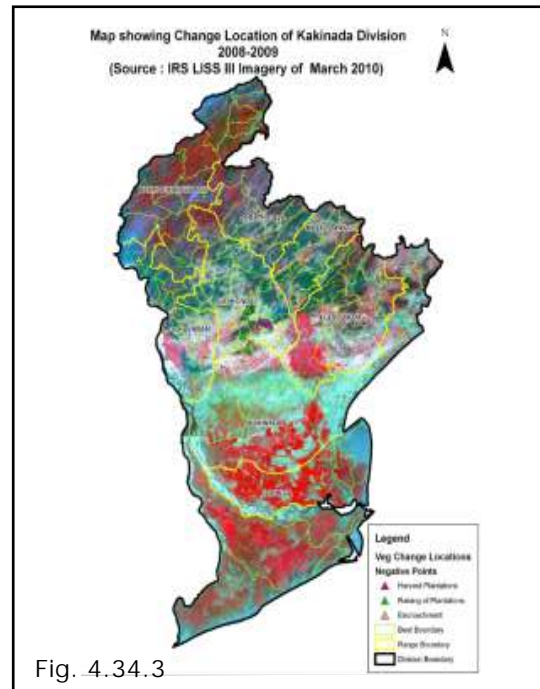


Fig. 4.34.3

The **simplified forest cover change matrix** is given in **Table 4.34.3** and **Table 4.34.4**.

There are **99 Beats** in the Division. Negative change in Forest Cover is seen in only 09 Beats and no change in 80 Beats. Beat wise forest cover in different forest canopy density classes is given in **Table 4.34.5**.



2008 (Data of Jan 2009 – Mar 2009)	2009 (Data of Mar 2010)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	203.04	0.00	0.00	0.00	0.00	0.00	203.04
Moderately Dense Forest	0.00	2356.05	0.00	0.00	0.68	0.00	2356.73
Open Forest	0.00	0.00	220.71	0.00	0.66	0.00	221.37
Scrub	0.00	0.00	0.00	185.97	0.00	0.00	185.97
Non-Forest	0.00	0.00	0.00	0.00	99.22	0.00	99.22
Water	0.00	0.00	0.00	0.00	0.00	169.06	169.06
Total of 2009	203.04	2356.05	220.71	185.97	100.56	169.06	3235.39
Net Change	0.00	-0.68	-0.66	0.00	1.34	0.00	0.00

2008 (Data of Jan 2009 – Mar 2009)	2009 (Data of Mar 2010)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	2779.80	1.34	0.00	2781.14
Degraded Forest	0.00	285.19	0.00	285.19
Water	0.00	0.00	169.06	169.06
Total of 2009	2779.80	286.53	169.06	3235.39
Net Change	-1.34	1.34	0.00	

2008 (Data of Jan 2009 – Mar 2009)	2009 (Data of Mar 2010)			Total of 2008
	Green	Barren	Water	
Green	2965.77	1.34	0.00	2967.11
Barren	0.00	99.22	0.00	99.22
Water	0.00	0.00	169.06	169.06
Total of 2009	2965.77	100.56	169.06	3235.39
Net Change	-1.34	1.34	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
ADDATHI GALA Range								
Addathigala	4.27	1347.27	198.9	100.12	14.56	1675.97	0.00	0.00
Chavitidibbalu	207.03	2488.15	120.59	257.51	76.37	3149.65	0.00	0.00
Chintalapudi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D.Velamalakota	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dakodu	58.66	2610.96	115.55	115.91	119.49	3020.57	0.00	0.00
Doramamidi	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dutcherthi	30.22	2645.35	234.89	104.75	33.55	3048.76	0.00	0.00
Kakuru	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



Forest division wise results

Kalimamidi	10.53	3071.43	352.58	292.73	67.35	3794.62	0.00	0.00
Lagarai	0.00	269.49	5.15	18.57	5.01	298.22	0.00	0.00
P.Yerragonda	1351.8	6201.25	302.64	374.03	93.26	8344.66	0.00	0.00
Perikivalasa	1254.3	4431.62	259.06	442.03	693.52	7080.53	0.00	0.00
Pinjarikonda	0.00	0.19	0.00	0.00	0.00	0.19	0.00	0.00
Vedullakonda	14.41	1047.09	188.09	158	80.74	1488.33	0.00	0.00
Vetamamidi	42.1	1629.43	141.04	57.19	8.88	1879.84	0.00	0.00
Y.Ramavaram	709.94	5670.57	202.95	213.84	96.37	6893.67	0.00	0.00
Total	3683.26	31412.8	2121.44	2134.68	1289.1	40675.01	0.00	0.00
CORINGA								
Bhyravapalem	347.51	2168.09	16.87	0	41.34	3404.84	0.00	0.00
Coringa	802.19	4064.92	869.43	111.91	438.53	17082.59	0.00	0.00
Hope Island	88	2352.72	458.98	71.42	119.56	3540	0.00	0.00
Total	1237.7	8585.73	1345.28	183.33	599.43	24027.43	0.00	0.00
ELESWARAM Range								
Anantharam	3.66	2048.16	302.65	139.75	42.71	2536.93	0.00	0.00
Bavuruvaka	37.11	2083.44	87.54	52.2	30.98	2298.3	0.00	0.00
Kondalingamparthi	0.83	940.51	512.75	224.02	45.53	1723.64	0.00	0.00
Kothuru	0.72	2344.48	300.44	176.59	43.24	2865.47	0.00	0.00
Laxmipuram	0.00	0.06	0.13	0.00	0.00	0.3	0.00	0.00
Lingamparthi	31.08	1799.89	131.13	61.74	72.7	2106.8	0.00	0.00
Lododdi	72.57	1964.59	159.54	150.65	35.02	2382.37	0.00	0.00
Pedamallapuram	178.51	3650.39	470.3	251.55	56.81	4607.56	0.00	0.00
Peddipalem	199.75	5111.94	340.09	215.64	73.9	5961.71	0.00	0.00
Raghavapatnam	29.02	1207.29	201.48	173.91	36.56	1648.26	0.00	0.00
S.Agraharam	20.94	1735.07	231.7	184.21	72.72	2244.64	0.00	0.00
Vatangi	33.93	1693.44	11.72	331.19	31.8	2103.8	0.00	0.00
Vayyada	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Total	608.12	24579.27	2749.47	1961.45	541.97	30479.79	0.00	0.00
GOKAVARAM Range								
Angaluru	0	1189.66	92.33	35.06	13.94	1330.99	0.00	0.00
Chinabarangi	2.71	1174.91	190.76	246.09	47.51	1664.62	0.00	0.00
Dandangi North	0.00	967.28	34.06	6.13	7.85	1015.32	0.00	0.00
Dandangi South	0.00	458.51	71.04	15.92	0.00	545.47	0.00	0.00
Devaram	4.35	416.43	6.87	0.66	0.00	428.31	0.00	0.00
Devarapalli	0.00	0.01	0	0.00	0.00	0.01	0.00	0.00
Devipatnam	5.82	891.68	111.77	66.94	14.9	1091.11	0.00	0.00
Indukurupeta	0.00	257.52	27.44	10.8	5.58	301.34	0.00	0.00
Katchuluru	86.08	1219.4	18.85	22.98	5.76	1353.07	0.00	0.00
Kondamodalu	0.00	0.27	0.00	0.00	0.00	0.27	-2.42	2.42
Kutrawada	1166.59	14564.17	665.56	484.59	305.08	17301.67	0.00	0.00
Mangampadu	32.68	2911.91	352.5	342.87	326.03	4436.72	0.00	0.00
Maredumilli North	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maredumilli North	582.92	3510.17	42.78	10.4	2.18	4196.8	0.00	0.00
Maredumilli South	979.95	6678.38	89.13	69.17	4.61	7823.84	0.00	0.00
P.Yerragonda	0.00	0.1	0.00	0.00	0.00	0.1	0.00	0.00
Palagondi	392.15	2415.95	225.55	179.75	93.64	3307.04	0.00	0.00
Pedanuthula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



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Pindukuruvalasa	0.00	0.16	0.00	0.00	0.00	0.16	0.00	0.00
Purushothapatnam	0.00	463.1	0.72	3.95	0.00	469.22	0.00	0.00
Sarabhavaram	1.33	569.55	3.58	4.07	0.00	578.69	0.00	0.00
Teliperu	357.7	4005.11	125.38	128.11	16.82	4633.12	0.00	0.00
Veeravaram	0.00	1196.55	82.63	49.64	14.25	1343.07	0.00	0.00
Total	861.78	20214.56	1063.19	792.68	229.89	23219.88	-2.42	2.42
KAKI NADA Range								
Atchutapuram	1.5	927.1	504.34	564.62	153.58	2151.14	0.00	0.00
Dewancheruvu	0.00	508.13	98.33	101.41	59.26	767.13	0.00	0.00
Kandikuppa	199.04	2103.74	270.08	82.35	622.36	3910.47	0.00	0.00
Masanitippa	464.09	943.63	85.61	41.78	147.59	1783.51	0.00	0.00
Murari	24.25	533.67	6.11	9.15	33.8	606.98	-10.80	10.80
Rajupeta	18.36	2851.41	355.01	161.88	53.25	3445.44	0.00	0.00
Ratikalva	486.68	583.44	50.51	21.54	223.53	2017.26	0.00	0.00
Sangavaka	4.56	954.75	215.44	103.3	22.35	1300.4	0.00	0.00
Vodalarevu	0.00	106.53	15.23	29.61	49.06	200.43	0.00	0.00
Total	1198.48	9512.4	1600.66	1115.64	1364.78	16182.76	-10.80	10.80
RAJAVOMMANGI Range								
Addathigala	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Badadanapalli	0.00	1682.01	178.99	264.23	211.68	2336.91	0.00	0.00
Doramamidi	0.00	2569.63	279.52	165.17	60.2	3074.52	0.00	0.00
J. Annavaram	0.00	2893.19	871.69	270.14	117.76	4172.98	0.00	0.00
Jaddangi	0.00	2409.92	863.43	661.63	325.99	4260.97	-32.30	0.00
Labbarthi	0.00	3102.21	530.32	434.07	138.78	4205.38	0.00	0.00
Lagarai	0.00	739.98	89.45	84	103.2	1016.63	-13.72	13.72
Laxmipuram	1.44	904.33	254.8	96.99	2.83	1263.9	0.00	0.00
Rajavommangi	0.00	1593.84	422.37	695.17	494.65	3245.11	0.00	0.00
Thimmapuram	7.55	1415.71	400.45	203.29	56.69	2083.69	0.00	0.00
Vayyada	92.72	1930.76	244.9	188.38	57.22	2513.98	0.00	0.00
Veerabhadrapuram	8.91	1366.47	175.44	39.42	5.77	1612.81	0.00	0.00
Total	110.62	20608.05	4311.36	3102.49	1574.77	29786.88	-46.02	13.72
RAMPACHODAVARAM Range								
Akumamidikota	1869.97	9435.74	464.76	437.1	499.63	12714.24	0.00	0.00
Bhimavaram	0.00	0.03	0	0	0	0.03	0.00	0.00
Chintalapudi	756.33	1983.95	65.56	119.09	26.47	2951.4	0.00	0.00
D. Velamalakota	00.00	0.48	0.00	0.06	0.00	0.54	0.00	0.00
Daragadda	131.57	1599.38	152.2	399.39	176.75	2459.29	0.00	0.00
Devarapalli	811.98	6093.03	525.09	540.45	100.98	8071.53	0.00	0.00
Donkarai	243.41	8112.79	1213.82	802.09	412.47	11746.89	0.00	0.00
Geddada	521.3	6359.57	930.29	1574.88	324.15	9723.7	-5.89	5.89
Gurthedu	164.02	2073.81	187.23	411.13	225.64	3061.83	0.00	0.00
Kakuru	1061.92	8339.22	183.04	162.4	45.73	9903.37	0.00	0.00
Katchuluru	0.00	0.12	0.00	0.00	0.00	0.12	0.00	0.00
Kondamodalu	0.00	0.27	0.00	0.00	0.00	0.27	0.00	0.00
Kutrawada	1166.59	14564.17	665.56	484.59	305.08	17301.67	0.00	0.00
Mangampadu	32.68	2911.91	352.5	342.87	326.03	4436.72	0.00	0.00
Maredumilli North	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



Forest division wise results

Maredumilli North	582.92	3510.17	42.78	10.4	2.18	4196.8	0.00	0.00
Maredumilli South	979.95	6678.38	89.13	69.17	4.61	7823.84	0.00	0.00
P.Yerragonda	0.00	0.1	0.00	0.00	0.00	0.1	0.00	0.00
Palagondi	392.15	2415.95	225.55	179.75	93.64	3307.04	0.00	0.00
Pedanuthula	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Perikivalasa	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pindukuruvalasa	781.69	8347.04	266.71	281.18	91.42	9973.84	0.00	0.00
Rampa	27.04	790	80	142.5	52.58	1092.12	0.00	0.00
Tanganakota	238.45	4330.16	283.51	322.36	255.75	5435.62	0.00	0.00
Teliperu	0.00	0.29	0.00	0.00	0.00	0.29	0.00	0.00
Valamuru	1538.75	8461.45	253.08	159.77	63	10541.08	0.00	0.00
Total	11300.72	96008.01	5980.81	6439.18	3006.11	124742.33	-5.89	5.89
SUDI KONDA Range								
Addathigala	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Appanapalem	1.72	274.53	25.76	25.82	19.7	408.21	0.00	0.00
Beerampalli	2.23	1566.3	178.45	50.63	12.64	1810.25	0.00	0.00
Bhavaram	0.00	316.94	54.27	24.52	54.24	887.86	0.00	0.00
Bhimavaram	99.42	1800.32	132.2	77.91	11.85	2121.7	0.00	0.00
Burugubanda	1.61	1155.21	97.41	57.52	4.76	1333.41	0.00	0.00
D.Velamalakota	827.97	6199.95	614.44	1056.37	287.29	8991.32	0.00	0.00
Korumilli	8.7	1068.43	207.88	146.43	13.96	1445.4	0.00	0.00
Mallavaram East	0.00	727.16	90.39	42.58	51.58	1102.5	-45.57	14.39
Mallvaram West	0.32	512.29	45.92	2.05	86.61	647.19	0.00	0.00
Maredumilli South	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Matlapadu	10.25	1144.89	79.5	51.42	10.66	1310.7	0.00	0.00
Molleru	0	2193.62	458.16	274.74	127.46	3526.52	0.00	0.00
Narasapuram	0.67	961.6	168.74	124.62	93.28	1350.65	0.00	0.00
P.Yerragonda	0.00	0.1	0.00	0.00	0.00	0.1	0.00	0.00
Pidathamamidi	25.42	2589.91	347.74	546.29	166.4	3675.76	-7.56	0.00
Pinjarikonda	75.1	1629.11	126.01	44.56	12.08	1908.13	0.00	0.00
R.Yerrampalem	100.79	712.06	6.96	0.93	64.23	884.97	0.00	0.00
Rampa	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00
Sudikonda North	0.00	829.62	164.49	206.45	87.29	1287.85	-1.53	0.00
Sudikonda South	0.61	453.02	97.74	54.38	5.28	611.03	0.00	0.00
Tirumalayapalem	149.64	559.57	8.01	78.45	326.26	1121.93	-14.30	14.30
Total	1304.45	24694.64	2904.07	2865.67	1435.57	34425.49	-68.96	0.09
Grand total	20305.13	235615.46	22076.28	18595.12	10041.62	323539.57	-134.09	32.92

* Beat wise total area including Water bodies.





Chapter-IV

4.35 KRISHNA DIVISION

4.35.1 Introduction:

Krishna Forest Division lies in the North eastern part of Andhra Pradesh, between latitudes $15^{\circ}42'19''$ and $17^{\circ}9'10''$ N and longitudes $80^{\circ}00'07''$ and $81^{\circ}33'13''$ E. The Geographical Area of the Division is $8,727 \text{ km}^2$. The Division has two physiographic zones, the plains and Hills. The major rivers falling in the division are Krishna, Keesara, Tammileru and Budameru.

Land use pattern of the Division is given in Table 4.35.1

The average highest temperature in the summer is 45°C and the minimum average temperature in December is 17°C and the average annual rainfall is 1028mm.

Deccan traps, alluvial deposits, Lower or upper Gondwana ediments, Khondalites and Charcolites occupy the districts. Loamely soils, Latererite soils and black cotton soils are found in the division.

The total population of the Division & District is 4.51 millions (2011 Census) and the per capita forest is 0.014 Ha . The population density is 516 per km^2 .

4.35.2 Recorded Forest Area:

The total notified forest area of the Division is 644.52 km^2 , which is 7.3% of the total geographical area. Reserved and Protected Forests constitute 417.44 km^2 (65%) and 227.07 km^2 (35%) of the total forest area respectively.

As per the Champion and Seth's classification Dry Deciduous Scrub Forests, Southern Thorn Forest, Tropical Evergreen scrub Forest and Tidal Swamp Mangrove Forests.

4.35.3 Protected Area:

This Division has Kolleru and Krishna Wild Life Sanctuaries. Out of 644.52 km^2 of forest area part of Kolleru sanctuary which is spread over 308.55 km^2 is included in the division. Part of 194.81 km^2 of Krishna sanctuary is included in this division.

4.35.4 Community Forest Management:

There are 68 Vana Samrakshana Samithies (VSSs) in the Division 624.80 km^2 forest area, which constitutes 96.8% of forest area, is under the management of the VSSs.

4.35.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2008 data (Oct2008-Feb 2009), is 287.67 km^2 , which is 3.29% of the total Geographical area. In terms of the forest canopy density classes, the Division has 1.18 km^2 of Moderately Dense Forests, and 286.49 km^2 of Open Forests. The area of the Scrub forests is 211.72 km^2 and that of Non-Forest 71.67 km^2 and Water Bodies 73.46 km^2 . The distribution of the forest cover of the division is shown in Fig 4.35.1.

Table 4.35.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	8727.00	
Forest including Scrub	504.73	5.78
Agriculture	6089.71	69.78
Land with Scrub	137.42	1.57
Fallow Lands	528.28	6.05
Grasslands	0.00	0.00
Settlements	252.16	2.89
Vegetation outside Forest	386.23	4.43
Water body	828.47	9.50

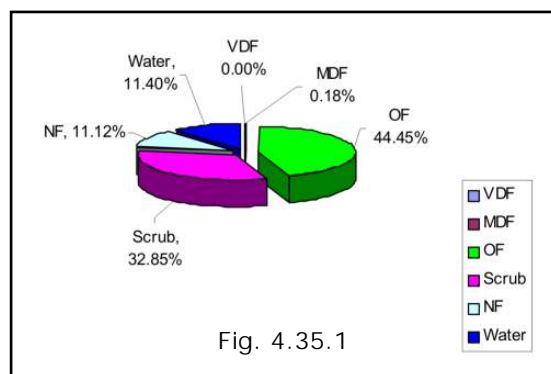


Fig. 4.35.1



4.35.6 Change in Forest Cover:-

The satellite images of 2008 and 2009 are shown in Fig (4.35.2 & 4.35.3), the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment year (Satellite Imagery of Oct 2008-Feb 2009), shows a negative change of 150.28 Ha. The forest cover change matrix, of forest cover during the period of one year given in Table 4.35.2 reveals that there has been a decrease of 20 Ha of moderately dense forest, 126 Ha of open forest.

Of The total negative change 53.08 Ha on account of Raising of Plantations and 97.2Ha on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 97.2 Ha only.

The simplified forest cover change matrix is given in Table 4.33.3 and Table 4.35.4

There are 34 Beats in the division. Negative change in Forest cover is noticed in only 6 Beats. There is no change in the remaining 28 Beats.

Details of Forest Cover changes in the 5 Beats where Forest Cover is lost, is shown in Table 4.35.5

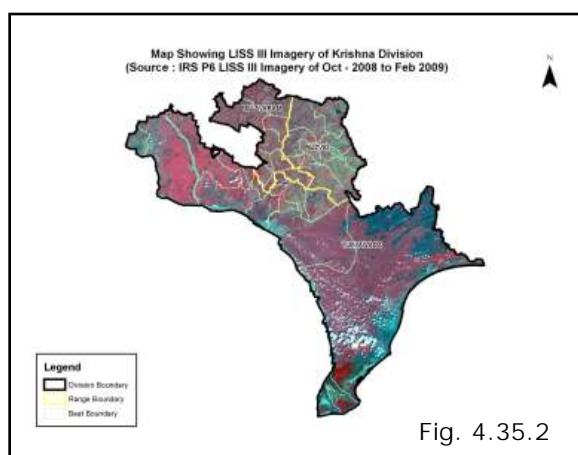


Fig. 4.35.2

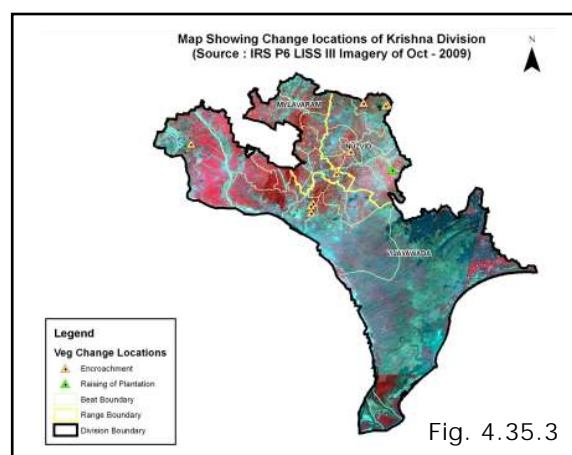


Fig. 4.35.3

Table 4.35.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Oct 2008-Feb 2009)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	1.74	0.00	0.00	0.20	0.00	1.94
Open Forest	0.00	0.00	285.93	0.00	1.26	0.00	287.19
Scrub	0.00	0.00	0.00	210.73	0.04	0.00	210.77
Non-Forest	0.00	0.0	0.00	0.00	71.16	0.00	71.16
Water	0.00	0.00	0.00	0.00	0.00	73.46	73.46
Total of 2009	0.00	1.74	285.93	210.73	72.66	73.46	644.52
Net Change	0.00	-0.20	-1.26	0.04	1.50	0.00	



Table 4.35.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of Oct 2008-Feb 2009)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	287.67	1.46	0.00	289.13
Degraded Forest	0.00	281.93	0.00	281.93
Water	0.00	0.00	73.46	73.46
Total of 2009	287.67	283.39	73.46	644.52
Net Change	-1.46	1.46	0.00	

Table 4.35.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Oct 2008-Feb 2009)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	498.40	1.50	0.00	499.90
Barren	0.00	71.16	0.00	71.16
Water	0.00	0.00	73.46	73.46
Total of 2009	498.40	72.66	73.46	644.52
Net Change	-1.50	1.50	0.00	

Table 4.35.5: Beat wise Forest Area in 2009 (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	Change Compared to 2008	Encroachment
MYLAVARAM Range								
A.Konduru	0.00	12.59	1280.13	488.59	22.67	1803.98	0.00	0.00
Chandragudem	0.00	0.00	98.88	766.42	50.21	915.51	0.00	0.00
Cheemalapadu	0.00	0.00	620.89	1136.30	114.83	1872.73	0.00	0.00
Kakarla	0.00	0.00	128.32	484.13	27.08	641.92	0.00	0.00
Pondugula	0.00	2.67	1065.76	560.57	2.60	1631.60	0.00	0.00
T.Gannavaram	0.00	0.00	316.15	508.97	40.35	865.47	-6.49	6.49
Velvadam	0.00	0.00	66.51	557.05	165.15	788.71	0.00	0.00
Vinagadapa	0.00	2.94	1148.04	367.83	9.07	1527.88	0.00	0.00
Total	0.00	18.20	4724.68	4869.86	431.96	10047.80	-6.49	6.49
NUZVID Range								
Anneraopeta	0.00	0.00	897.70	440.66	21.97	1361.72	-10.15	10.15
Chillaboinapalli	0.00	4.39	381.31	308.22	61.19	755.11	0.00	0.00
Chinnampeta	0.00	5.24	325.10	1298.32	400.02	2101.01	-30.45	30.45
Chittapur	0.00	-0.96	311.47	611.61	21.69	943.81	0.00	0.00
Kanimerla	0.00	0.63	561.32	822.93	95.24	1480.82	0.00	0.00
Katrenupadu	0.00	72.67	447.19	848.73	338.40	1706.99	-53.08	0.00
Ramanakkapeta	0.00	1.65	236.93	474.86	29.41	742.85	0.00	0.00
Reddigudem	0.00	2.23	595.73	703.91	70.04	1371.91	0.00	0.00
Sunkollu	0.00	0.00	596.77	804.75	15.94	1417.46	0.00	0.00
Yenamadala	0.00	0.00	196.38	295.26	2.55	495.12	0.00	0.00
Total	0.00	85.85	4549.90	6609.25	1056.45	12376.80	-93.68	40.60



VIJAYAWADA Range								
Duggiralapadu	0.00	2.36	1313.56	368.26	0.52	1684.70	0.00	0.00
Elichetladibba	0.00	0.00	739.64	810.06	615.96	5243.58	0.00	0.00
Gandrai	0.00	0.56	207.64	1451.97	499.25	2164.67	-4.11	4.11
Gangineni	0.00	2.37	1194.51	94.76	0.00	1291.64	0.00	0.00
Jaggiahpeta	0.00	0.00	5.67	339.89	1869.64	2219.88	0.00	0.00
Jujjuru	0.00	17.21	2971.71	429.97	10.24	3429.82	0.00	0.00
Koduru	0.00	0.00	1085.95	577.13	22.28	1685.36	0.00	0.00
Kondapalli	0.00	0.91	808.74	353.50	4.42	1167.57	0.00	0.00
Kothurutadepalli	0.00	35.08	1752.14	469.11	128.28	2385.31	-46.00	46.00
Metlapalli	0.00	0.00	46.55	409.10	1.42	457.07	0.00	0.00
Mulapadu	0.00	1.36	4159.02	1194.72	80.86	5471.30	0.00	0.00
Nachugunta	0.00	0.00	2499.31	1416.94	1463.29	7366.76	0.00	0.00
Nunna	0.00	11.02	947.91	142.40	0.64	1101.97	0.00	0.00
Sobhanapuram	0.00	0.00	763.14	227.44	3.37	993.95	0.00	0.00
Sorlagondi	0.00	0.00	823.28	1308.37	1076.99	5364.04	0.00	0.00
Total	0.00	70.87	19318.77	9593.62	5777.16	42027.62	-50.11	50.11
Grand Total	0.00	174.92	28593.35	21072.73	7265.57	64452.22	-150.28	97.20

* Beat wise total area including water bodies.





Chapter-IV

4.36. NARSIPATNAM DIVISION

4.36.1 Introduction:

Narsipatnam Forest Division lies in the north Eastern part of Andhra Pradesh and lies between latitudes 17° 27' 33" and 18° 07' 02" N and longitudes 81° 51' 47" and 82° 47' 59" E. The Geographical Area of the Division is 3754.99 Km², which is 30.95% of the geographical area of the district. The Division has two physiographic zones, the plains and Hills. The climate of Narsipatnam division is characterized by high humidity nearly all the year round with oppressive summer and good seasonal rainfall. The climate of the hill parts of the district is different from that of the plain. Altitude varies from 130 M to 1529 MMSL. The major rivers falling in the division are Sileru, a tributary of Godavari, Varaha and Thandava which drain to sea.

Land use pattern of the Division is given in **Table 4.36.1**.

The climate of the division is characterized by three distinct seasons. i) Summer (ii) Rainy and (iii) Winter seasons. The temperature ranging from 5° C to 45° C and annual rainfall is about 712mm, received mainly from Southwest monsoons.

The divisions' geology comprises of oldest formation of charnokite series and predominant khondalite group of rocks of Precambrian age. The rocks are essentially Khondalite group with a few charnokite, bands, granites, quartzites, calcigranulites, pegmatites. The chief mineral found is Bauxite in all the high hills of the agency area, wherever grasslands are existing. There are three soil types in the division are Sandy soils of khondalites and quartzites, Clayey sands of charnockites and granites and Coastal dune sand dunes of quartzite's.

The total population of the Division is 0.5 millions (2011 Census) which is 12 % of the total population of the district. The per capita forest is 0.50 Ha. The population density is 137 persons per Km².

4.36.2. Recorded Forest Area.

The total Notified forest of the Division is 2353.72 Km² which is 62.67% of the geographical area. Reserved, Protected and un-classed forests constitute 989.92 Km² (42.12%), 1356.31 Km² (57.71%) and 4.05 Km² (0.17%) of the total forest area respectively.

As per the Champion and Seth's classification Southern tropical semi evergreen forests, Southern tropical secondary moist mixed deciduous forests, southern tropical secondary dry deciduous forests, Tropical dry evergreen scrub southern thorn forests and dry savanna forests.

4.36.3 Protected Area:

No protected areas are found in this division.

4.36.4 Community Forest Management:

There are 284 Vana Samrakshana Samities (VSSs) in the Division. 231.13 Km² forest area, which constitutes 9.8% of forest area.

4.36.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 (Data of Nov2009 – Mar 2010), is 1873.08Km², which is 49% of the total Geographical area. In terms of the forest canopy density classes, the Division has 32.80Km² of Very Dense Forests, 1084.20 Km² Moderately Dense Forests, and 756.15 Km² Open Forests. The area of the Scrub is 244.94 Km², that of Non-Forest is 235.33 Km² and Water Bodies is 0.33 Km². the distribution of the forest cover of the Division is shown in **Fig 4.36.1**.

Table 4.36.1: Land use Pattern

Land use	Area in Sakm	Percentage
Total geographical area	3754.99	
Forest including Scrub	2119.19	56.44
Agriculture	918.52	24.46
Land with Scrub	249.05	6.63
Fallow Lands	22.23	0.59
Grasslands	0.13	0.00
Settlements	8.50	0.23
Vegetation outside Forest	381.07	10.15
Water body	56.30	1.50

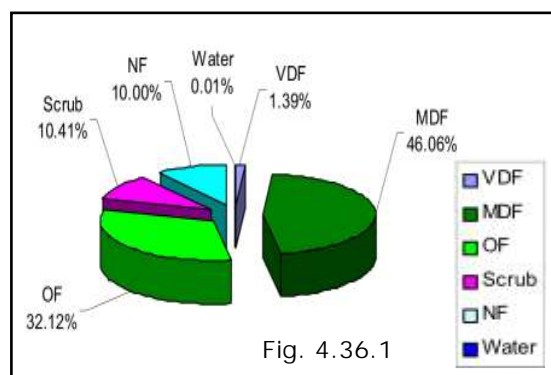


Fig. 4.36.1

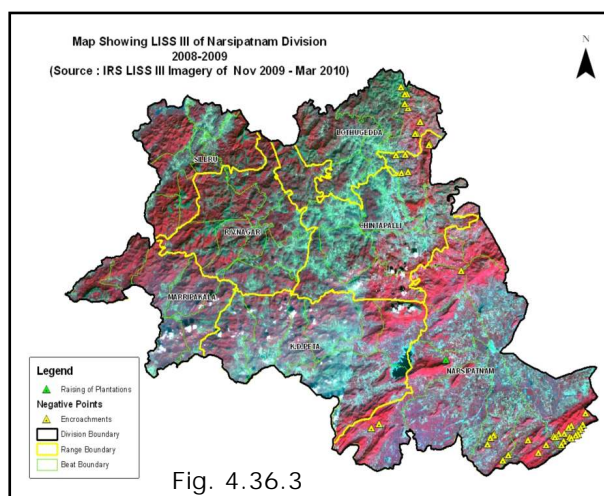
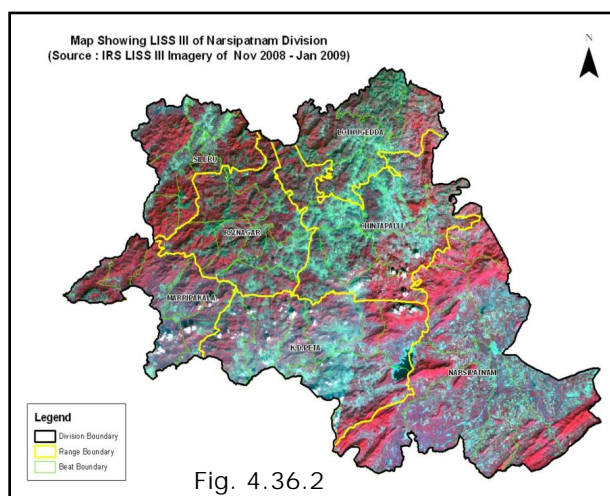


4.36.6 Change in Forest Cover:

The satellite image of 2008 and 2009 are shown in **Fig 4.36.2**, **Fig 4.36.3** and the changes during this period are shown on this image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2008-Mar 2010) with that of previous assessment (Satellite Imagery of Nov 2008-Jan 2009), shows a negative change in forest cover of **163.05 Ha** and a positive change of **2.45 Ha**. The forest cover change matrix, given in Table 4.36.2 reveals that there has been a decrease of 66 Ha of moderately dense forest and 93 Ha Km² of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change, 27.05 Ha on account of Raising of Plantations and 136 Ha on account of encroachment. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 136 Ha. only.



The simplified forest cover change matrix is given in **Table 4.36.3** and **Table 4.36.4**.

There are **52 Beats** in the division. Negative change in Forest cover is noticed in only 08 Beats. There is no change in the remaining 44 Beats.

Details of forest cover changes in the 08 Beats where forest cover is lost, is shown in **Table 4.36.5**.

Table 4.36.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Nov 2008 – Jan 2009)	2009 (Data of Nov2009 – Mar 2010)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	32.8	0.00	0.00	0.00	0.00	0.00	32.80
Moderately Dense Forest	0.00	1084.21	0.00	0.37	0.29	0.00	1084.87
Open Forest	0.00	0.00	756.13	0.3	0.65	0.00	757.08
Scrub	0.00	0.00	0.00	244.26	0.03	0.00	244.29
Non-Forest	0.00	0.00	0.02	0.00	234.36	0.00	234.3
Water	0.00	0.00	0.00	0.00	0.00	0.33	0.33
Total of 2009	32.8	1084.21	756.15	244.93	235.33	0.33	2353.75
Net Change	0.00	-0.66	-0.93	0.64	0.95	0.00	



2008 (Data of Nov 2008 – Jan 2009)	2009 (Data of Nov2009 – Mar 2010)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1873.14	1.61	0.00	1874.75
Degraded Forest	0.02	478.65	0.00	478.67
Water	0.00	0.00	0.33	0.33
Total of 2009	1873.16	480.26	0.33	2353.75
Net Change	-1.59	1.59		

2008 (Data of Nov 2008 – Jan 2009)	2009 (Data of Nov2009 – Mar 2010)			Total of 2008
	Green	Barren	Water	
Green	2118.07	0.97	0.00	2119.04
Barren	0.02	234.36	0.00	234.38
Water	0.00	0.00	0.33	0.33
Total of 2009	2118.08	235.34	0.33	2353.75
Net Change	-0.96	0.96	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	Change Compared to 2008	Encroachment
CHINTAPALLI NORTH Range								
Chintapalli_north	2.61	404.70	1157.15	801.53	1652.12	4018.11	0.00	0.00
Chintapalli_south	6.13	1908.41	1811.11	730.44	733.26	5189.35	0.00	0.00
Jerrela	0.00	1902.06	1451.37	390.80	511.40	4255.63	0.00	0.00
Krishnapuram	4.82	1204.03	2137.47	1149.06	673.68	5169.06	0.00	0.00
Lammasingi_north	5.49	1340.71	1628.06	535.25	338.55	3848.06	0.00	0.00
Sarabhannapalem	31.07	4443.56	3221.36	881.79	782.44	9360.22	0.00	0.00
Tajangi	0.64	334.71	1672.99	846.50	625.52	3480.36	0.00	0.00
Wangasara	0.00	1398.44	1826.98	1316.19	1927.86	6469.47	0.00	0.00
Total	50.76	12936.62	14906.49	6651.56	7244.83	41790.26	0.00	0.00
K.D.PETA Range								
Balaram	32.13	2425.23	2794.33	401.06	196.77	5849.52	0.00	0.00
Bangarammapeta	18.01	3760.23	1079.28	198.80	130.22	5186.54	0.00	0.00
Golugonda	2.00	2411.39	1563.12	376.49	215.90	4568.90	0.00	0.00
K.D.peta	0.00	834.55	898.09	81.23	78.48	1892.35	0.00	0.00
Kakarapadu	12.65	2060.99	898.65	153.74	176.13	3302.16	0.00	0.00
Koyyuru	51.7	3949.20	1647.72	374.62	385.09	6408.42	0.00	0.00
Mampa	95.64	4119.06	1464.65	371.94	468.55	6519.84	0.00	0.00
Total	212.22	19560.65	10345.84	1957.88	1651.14	33727.73	0.00	0.00
LOTHUGEDDA Range								
Akkajangi	0.00	621.87	1746.77	909.21	1186.05	4465.14	-1.15	1.15
Balapam	5.80	2734.70	4820.02	1595.75	1194.03	10350.30	0.00	
Cherukumpakalu	0.00	946.60	1162.84	624.65	464.26	3198.35	0.00	0.00
Kokkiraipally	0.96	557.61	2114.55	813.07	549.90	4036.09	-6.32	6.32
Lothugedda	0.00	32.75	452.24	621.80	580.19	1686.98	0.00	
Total	6.76	4893.53	10296.42	4564.48	3974.43	23736.86	-7.47	7.47

MARRIPAKALA Range								
Cheedipalem	11.68	3491.18	621.87	54.00	24.38	4203.11	0.00	0.00
Doddavaram	40.53	4036.66	1462.95	389.13	402.60	6331.87	0.00	0.00
M.Bheevaram	341.63	3032.53	326.81	45.36	40.32	3786.65	0.00	0.00
Marripakala	175.86	4230.76	1161.62	272.66	139.83	5980.73	0.00	0.00
Palakajeedi	779.74	4722.36	938.69	248.80	185.84	6875.43	0.00	0.00
Valugudem	395.22	2513.60	876.54	307.87	161.87	4255.10	0.00	0.00
Total	1744.66	22027.09	5388.48	1317.82	954.84	31432.89	0.00	0.00
NARSIPATNAM Range								
Arlova	0.00	592.89	1437.97	222.32	191.45	2444.63	0.00	0.00
Downuru	3.72	2113.34	1401.15	212.07	79.18	3809.46	-1.27	1.27
K.V.puram	0.00	383.89	1195.97	264.36	236.33	2080.55	-33.06	33.06
Koduru	0.75	1296.72	1663.50	253.24	84.98	3299.19	-67.79	67.79
Kondasantha	0.00	1091.00	1089.91	176.24	102.08	2459.23	0.00	0.00
Kotavuratla	1.82	1368.12	1610.15	440.80	198.27	3619.16	-34.03	4.53
Lammasingi_south	0.00	738.33	1392.65	313.43	122.05	2566.46	0.00	0.00
Narsipatnam	0.00	1568.47	1845.32	326.12	291.52	4034.49	2.45	0.00
Pedimikonda	0.53	807.43	1451.23	301.41	350.88	2911.48	0.00	0.00
Thadiparthi	0.00	1637.26	2549.07	992.81	528.33	5707.47	0.00	0.00
Vedurupalli	87.02	2347.20	1040.77	109.80	57.39	3642.18	-21.88	21.88
Total	93.84	13944.65	16677.69	3612.60	2242.46	36574.30	-155.58	128.53
R.V.NAGR Range								
G.kothaveedhi	11.19	800.58	795.25	341.62	469.03	2417.67	0.00	0.00
Gudem	125.15	2316.12	1180.32	495.65	454.83	4572.07	0.00	0.00
Lankapakalu	97.67	4391.49	2088.17	537.54	510.68	7625.55	0.00	0.00
Mandapalli	293.92	3474.46	1076.99	559.12	540.71	5945.20	0.00	0.00
Pedavalasa_north	1.66	1065.76	935.94	538.28	522.44	3064.08	0.00	0.00
Pedavalasa_south	43.19	2378.54	1393.73	665.76	731.33	5212.55	0.00	0.00
R.V.nagar	17.73	2082.01	708.48	270.61	435.52	3514.35	0.00	0.00
sapparla	4.30	3265.67	2066.86	564.44	703.08	6604.35	0.00	0.00
Total	594.81	19774.63	10245.74	3973.02	4367.62	38955.82	0.00	0.00
SILERU Range								
A.dharakonda	11.96	2858.47	1678.29	405.15	862.39	5816.26	0.00	0.00
Dharakonda	2.03	870.36	1107.65	385.58	292.44	2658.06	0.00	0.00
Duppulawada	0.00	744.91	1076.77	609.09	683.73	3114.50	0.00	0.00
Kondajartha	317.88	2655.76	551.72	121.72	253.04	3900.12	0.00	0.00
Sadigunta	92.32	1849.73	1013.72	420.03	544.31	3920.11	0.00	0.00
Sileru	15.19	4414.57	1891.74	366.61	216.81	6933.73	0.00	0.00
Thokarai	137.28	1889.92	432.82	108.31	246.05	2814.38	0.00	0.00
Total	576.66	15283.72	7752.71	2416.49	3098.77	29157.16	0.00	0.00
Grand total	3279.71	108420.89	75613.37	24493.85	23534.09	235375.02	-163.05	136.00

* Beat wise total area including water bodies.





Chapter-IV

4.37 PADERU DIVISION

4.37.1 Introduction:

Paderu Forest Division lies in the north Part of Visakapatnam District between latitudes 17° 55' 48" and 18° 32' 59" N and longitudes 82° 18' 41" and 83° 01' 04" E. The Geographical Area of the Division is 2336 km², which is 20.93 % of the geographic area of the District. The Division has two physiographic zones, the plains and Hills. The major rivers falling in the division is Machkund River flowing to north.

Land use pattern of the Division is given in Table 4.37.1

The division's geology comprises of oldest formation of charnokite series and predominant khondalite group of rocks of Precambrian age. The rocks are essentially Khondalite group with a few charnokite bands, granites, quartzites, calcigranulites, pegmatites. The soil types found in the division are Sandy soils of khondalites and quartzites, Clayey sands of charnockites and granites Black cotton soils come up next having sizeable chunks of area in K.Kotapadu, Devarapalli, Cheedikada, Paderu and Hukumpeta Mandals.

The climate of Paderu division is characterized by high humidity nearly all the year round with oppressive summer and good seasonal rainfall. The climate of the hill parts of the division is different from that of the plain. Altitude varies from 90 M to 1500 M MSL. Temperatures ranging from 10° C to 35° C and the annual rainfall is about 1320mm.

The total population of the Division is 0.31 million (2011 Census) which is 9% of the total population of the district. The per capita forest is 0.32 Ha. The population density is 136 persons per Km²

4.37.2 Recorded Forest Area:

The total notified forest area of the Division is 1011.52. Km², which 43.3% of the total geographical area. Reserved, Protected and Un-classed forests constitute 719.5197Km² (71.1%), 285.2Km² (28.2%) and 6.8Km² (0.006%) of the total forest area respectively.

As per the Champion and Seth's classification Southern tropical semi evergreen forests, Southern tropical secondary moist mixed deciduous forests, southern tropical secondary dry deciduous forests, Tropical dry evergreen scrub southern thorn forests and dry savanna forests.

4.37.3 Protected Area:

No protected areas are found in this division.

4.37.4 Community Forest Management:

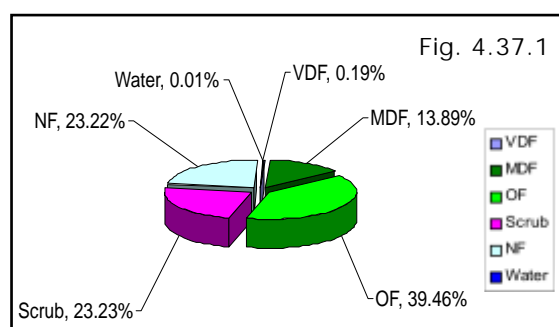
There are 303 VSS in the Division. 270.90 Km² forest area, which constitutes 26.65 % of forest area, is under CFM.

4.37.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2008 data (Nov_2009-Mar_2010), is 541.32 Km², which is 23.17% forest canopy density classes, the Division has 1.91 Km² of Very Dense Forests, 140.50 Km² Moderately Dense Forests and 399.10 Km² Open Forests. The area of the Scrub is 235.03 Km², that of Non-Forest is 234.87 Km² and Water Bodies is 0.11 Km². The distribution of the forest cover of the Division is shown in Fig 4.37.1

Table 4.37.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	2336.21	
Forest including Scrub	776.52	33.24
Agriculture	532.22	22.78
Land with Scrub	515.51	22.07
Fallow Lands	64.99	2.78
Grasslands	3.27	0.14
Settlements	2.03	0.09
Vegetation outside Forest	348.63	14.92
Water bodies	93.04	3.98



4.37.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.37.2, Fig 4.37.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2009 – Mar 2010) with that of previous assessment (Satellite data of Nov 2008-Jan-2010), shows no change in forest cover.

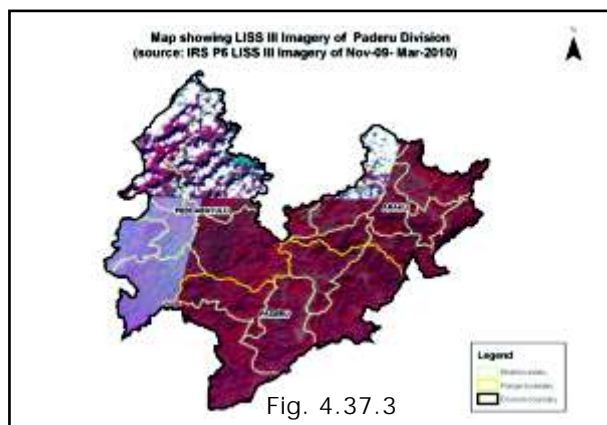
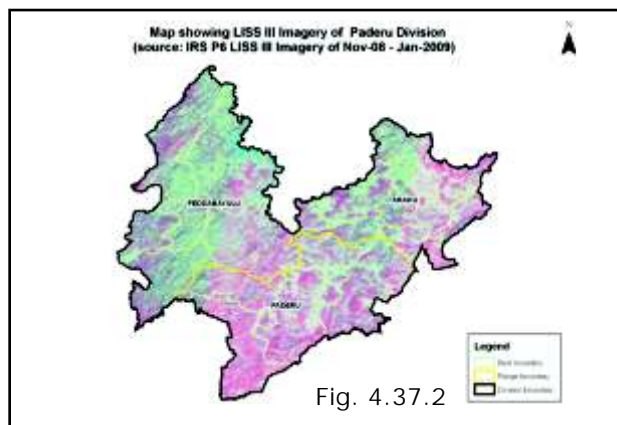


Table 4.37.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Oct 2008 – Feb 2009)	2009 (Data of Oct 2009 – Feb 2010)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	1.91	0.00	0.00	0.00	0.00	0.00	1.91
Moderately Dense Forest	0.00	140.21	0.00	0.00	0.00	0.00	140.21
Open Forest	0.00	0.00	398.85	0.00	0.00	0.00	398.85
Scrub	0.00	0.00	0.00	234.77	0.00	0.00	234.77
Non-Forest	0.00	0.00	0.00	0.00	235.67	0.00	235.67
Water	0.00	0.00	0.00	0.00	0.00	0.11	0.11
Total of 2009	1.91	140.21	398.85	234.77	235.67	0.11	1011.52
Net Change	0.00	0.00	0.00	0.00	0.00	0.00	

Table 4.37.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data of – Oct 2008 Feb 2009)	2009 (Data of Oct 2009 – Feb 2010)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	540.97	0.00	0.00	540.97
Degraded Forest	0.00	470.44	0.00	470.44
Water	0.00	0.00	0.11	0.11
Total of 2009	540.97	470.44	0.11	1011.52
Net Change	540.97	0.00	0.00	540.97



2008 (Data of Oct 2008 – Feb 2009)	2009 (Data of Oct 2009 – Feb 2010)			Total of 2008
	Green	Barren	Water	
Green	775.74	0.00	0.00	775.74
Barren	0.00	235.67	0.00	235.67
Water	0.00	0.00	0.11	0.11
Total of 2009	775.74	235.67	0.11	1011.52
	0.00	0.00	0.00	

Beat	Very dense forest	Mod. Dense forest	Open forest	Scrub forest	Non forest	Total
ARAKU Range						
Araku	0.00	164.46	1,149.11	1,211.59	1,180.50	3,705.66
Arama	0.00	242.67	1,234.49	656.83	923.62	3,057.61
Gasaba	0.63	144.57	524.91	426.50	1,044.56	2,141.17
Guntaseema	3.24	499.93	953.15	325.67	112.58	1,894.57
Kandrum	2.15	605.02	1,800.36	648.97	555.90	3,612.40
Madagada	0.00	33.95	508.76	1,016.95	570.89	2,130.55
Mulayagalugu	0.00	216.92	1,492.18	1,386.16	927.21	4,022.47
Paraseela	0.00	55.79	532.96	762.79	622.52	1,974.06
Sukarametta	0.00	41.22	516.92	943.10	666.02	2,167.26
Total	6.02	2,004.53	8,712.84	7,378.56	6,603.80	24,705.75
PADERU Range						
Badimela	0.53	506.28	2,473.97	1,720.04	1,542.82	6,243.64
G.Madugula	24.47	1,742.56	4,467.58	1,544.59	734.40	8,513.60
Kinchumanda	1.81	351.07	2,080.42	1,383.86	1,572.37	5,389.53
Paderu	32.36	1,458.35	4,037.04	1,564.67	579.93	7,672.35
Sukuru	39.97	1,372.88	4,176.26	2,068.01	1,114.20	8,771.32
Total	99.14	5,431.14	17,235.27	8,281.17	5,543.72	36,590.44
PEDABAYULU Range						
Aradakota	2.13	928.31	2,534.13	2,055.01	4,254.56	9,774.14
Busiput	0.74	783.69	1,953.84	567.33	357.45	3,663.05
Ginnelakota	37.46	1,621.59	2,877.38	1,710.04	2,985.23	9,231.70
Machipuram	45.40	2,426.10	4,075.07	1,505.96	1,674.76	9,738.52
Rudakota	0.00	41.95	700.31	961.26	1,228.24	2,931.76
Sujanakota	0.00	783.58	1,795.66	1,017.46	920.10	4,516.80
Total	85.73	6,585.22	13,936.39	7,817.06	11,420.34	39,855.97
Division total	190.89	14,020.89	39,884.50	23,476.79	23,567.86	101,152.16

*Beat wise total area including water bodies.





Chapter-IV

4.38 SRIKAKULAM DIVISION

4.38.1 Introduction:

Srikakulam Forest Division lies in the north eastern part of Andhra Pradesh, between latitudes 17° 45" and 19° 30" N and longitudes 82° 38' and 84° 45' E. The geographical Area of the District is 5953.52Km². The Division has two physiographic zones, i.e hills and the plains which are known as agency and non agency area. The altitude varies from 300 feet to 5000 feet. The slope is North and North West South and South East. . The Major Rivers are Nagavali and Vamshadhara.

Land use pattern of the division is given in Table 4.38.1

The climate of this Division is generally dry with temperatures ranging from 17° C to 37° C and the annual rainfall is about 1225 mm, received mainly from Southwest monsoons.

Manganese ore, Graphite, lime stone, Iron ore & Mica occur in the division. The soil types found sandy and clayey soils formed due to weathering of underlying rocks granite, gneisses and other allied rocks.

The total population of the Division and district is 2.75 million (2011 Census),The population density is 461 persons per Km². The Per capita forest area is 0.026 ha.

4.38.2 Recorded Forest Area:

The total notified forest area of the division is 721.72 km² which is 12.21 % of the geographical area. Reserved, Protected and Un-classed forest constitute 422.45km²(61%), 242.79 km² (35%) and 21.17 km² (3%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under South Indian Semi evergreen forests, South Indian Moist deciduous forests (Mixed, Sal, Hilly savanna), South Indian Dry deciduous (mixed, thorn), South Indian dry evergreen forests(Misc. forests)

4.38.3 Protected Area:

No protected areas are found in this division.

4.38.4 Community Forest Management:

There are 282 VSSs in the Division.290.20 Km² forest area, which constitutes 40.21 % of forest area, is under CFM.

4.38.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2008 data (Nov2007- Dec.2008), is 576.56 km², which is 9.7% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.00 Km² Of Very Dense Forest, 134.62 Km² Moderately Dense Forests, and 440.31 Km² Open Forest. The area of the Scrub is 102.01 Km², that of Non-Forest 34.43 Km² and Water Bodies 10.35 Km². The distribution of the forest cover of the Division is shown in Fig 4.38.1

Table 4.38.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	5953.52	
For est including Scrub	677.52	11.38
Agriculture	3561.68	59.83
Land with Scrub	541.12	9.09
Fallow Lands	60.72	1.02
Orchards	321.46	5.4
Settlements	31.55	0.53
Not available for cultivation	523.86	8.8
Rivers/Streams	235.14	3.95

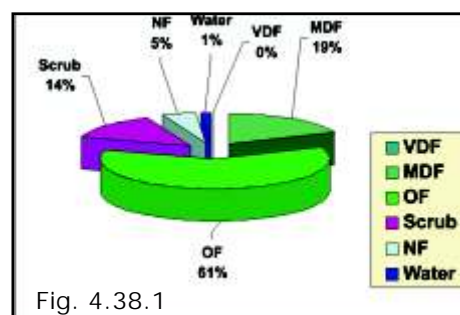


Fig. 4.38.1

4.38.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.38.2, Fig 4.38.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2009 – Dec 2009) with that of previous assessment (Satellite data of Dec 2008), shows a negative change in forest cover of 74.27 Ha and positive change is 1.40 Ha. The forest cover change matrix, given in Table 4.36.2 reveals that there has been a decrease of 21 Ha of moderately dense forest and 49 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 1.29 Ha on account of Raising of Plantations and 72.98 on account of encroachment. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 72.98 Ha. only.

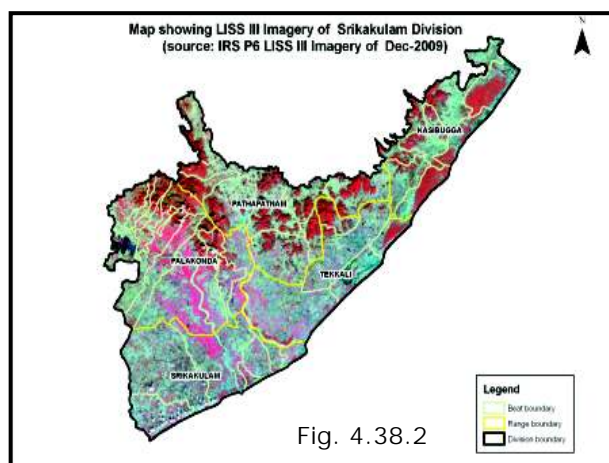


Fig. 4.38.2

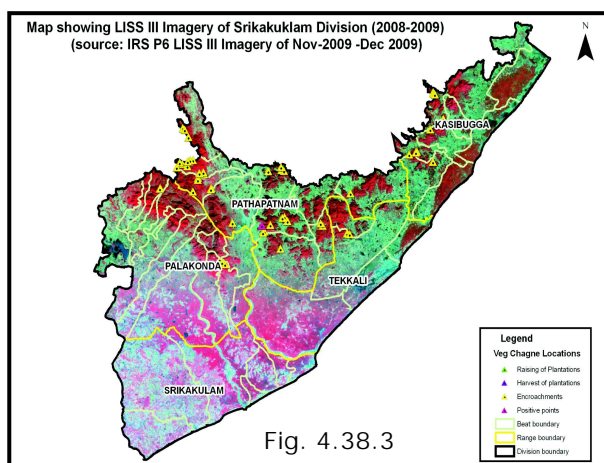


Fig. 4.38.3

The simplified forest cover change matrix is given in Table 4.38.3 and Table 4.38.4

There are 43 Beats in the division. Negative change in forest cover is noticed in 15 beats, both change in forest cover is noticed in 1 beats. There is no change in the remaining 27 beats.

Table 4.38.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Dec- 2008)	2009 (Data of Nov 2009 – Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	134.62	0.00	0.13	0.08	0.00	134.83
Open Forest	0.00	0.00	440.30	0.14	0.36	0.00	440.80
Scrub	0.00	0.00	0.01	101.74	0.05	0.00	101.80
Non-Forest	0.00	0.00	0.00	0.00	33.94	0.00	33.94
Water	0.00	0.00	0.00	0.00	0.00	10.35	10.35
Total of 2009	0.00	134.62	440.31	102.01	34.43	10.35	721.72
Net Change	0.00	-0.21	-0.49	0.21	0.49	0.00	0.00

2008 (Data of Dec-2008)	2009 (Data of Nov 2009 – Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	574.92	0.71	0.00	575.63
Degraded Forest	0.01	135.73	0.00	135.74
Water	0.00	0.00	10.35	10.35
Total of 2009	574.93	136.44	10.35	721.72
Net Change	-0.70	0.70		

2008 (Data of Dec- 2008)	2009 (Data of Nov 2009 – Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	676.94	0.49	0.00	677.43
Barren	0.00	33.94	0.00	33.94
Water	0.00	0.00	10.35	10.35
Total of 2009	676.94	34.43	10.35	721.72
Net Change	-0.49	0.49		

Beat	Very dense forest	Mod dense forest	Open forest	Scrub forest	Non forest	Total	change compare with 2008	Encroachment
KASIBUGGA								
Baruva	0.00	0.00	9.99	70.55	196.89	461.61	0.00	0.00
Bogabanda	0.00	48.63	648.12	97.85	0.59	795.19	-2.49	2.49
Bogabani	0.00	187.77	2446.16	404.20	29.18	3067.32	0.00	0.00
Budarsingi	0.00	40.72	891.68	290.92	24.44	1247.76	-3.87	3.87
K.V. Palem	0.00	0.00	0.00	170.20	88.16	553.10	0.00	0.00
Makarajola	0.00	149.88	1062.14	550.59	72.46	1835.06	-0.64	0.64
Mandasa	0.00	19.60	1430.65	305.71	17.74	1773.71	-2.40	2.40
Metturu	0.00	0.00	36.20	273.11	61.95	375.58	0.00	0.00
Sunkidi	0.00	2.04	791.87	163.94	13.06	970.90	0.00	0.00
Total	0.00	448.65	7316.81	2327.07	504.46	11080.23	-9.40	9.40
PALAKONDA Range								
Antikonda	0.00	420.10	797.40	117.95	7.88	1343.33	0.00	0.00
Bodlapadu	0.00	1055.88	496.08	49.67	20.06	1621.69	-7.77	7.77
Burna Central	0.00	517.49	349.20	43.22	4.03	913.94	0.00	0.00
Burna East	0.00	316.78	125.45	3.38	0.00	445.61	0.00	0.00
Burna North	0.00	683.20	437.50	24.07	0.00	1144.77	0.00	0.00
Burna West	0.00	170.10	266.72	164.66	3.50	606.62	0.00	0.00
Chinagora	0.00	544.51	1496.37	377.32	5.56	2423.77	0.00	0.00
Gudivada	0.00	626.11	568.60	43.66	5.85	1244.22	0.00	0.00
Kadagandi East	0.00	338.67	987.72	90.38	39.71	1458.37	0.00	0.00
Kadagandi West	0.00	809.45	470.25	21.77	0.00	1303.23	-1.87	1.87
Palakonda	0.00	450.97	1334.13	296.69	7.06	2088.85	0.00	0.00
Tankidi	0.00	918.71	951.27	14.60	0.00	1884.58	-2.03	2.03
Total	0.00	6851.96	8280.67	1247.39	93.66	16478.98	-11.67	11.67



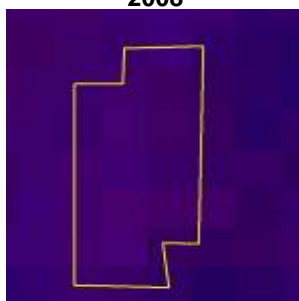
PATHAPATNAM Range								
Antharaba	0.00	251.84	1726.57	244.75	18.79	2241.94	0.00	0.00
Bagga	0.00	757.90	3086.12	293.98	6.55	4144.55	-10.02	10.02
Baleru	0.00	741.29	2652.04	256.74	19.00	3671.27	-3.16	3.16
Jadupalli	0.00	693.46	2570.49	395.12	78.42	3737.48	0.00	0.00
Korada	0.00	799.04	3467.00	84.21	7.60	4357.84	-7.60	7.60
POLavaram	0.00	1298.25	1634.60	46.61	14.49	2993.95	-13.94	13.94
Rugada	0.00	146.66	2324.54	705.96	54.76	3231.92	-4.82	4.82
Saravakota	0.00	73.31	1967.55	467.47	32.44	2540.77	-1.29	0.00
Sudiraikonda'	0.00	381.53	3001.72	369.40	25.68	3778.34	-8.22	8.22
Temburu	0.00	199.11	1983.55	330.75	27.10	2540.51	-2.46	2.46
Total	0.00	5342.38	24414.17	3194.98	284.84	33238.58	-51.51	50.22
SRI KAKULAM Range								
Balarampuram	0.00	0.00	0.00	207.01	293.51	528.18	0.00	0.00
Dharmavaram	0.00	0.00	145.73	566.47	182.00	935.33	0.00	0.00
Kalingapatnam	0.00	0.00	87.01	261.02	112.89	474.13	0.00	0.00
Kotapalem	0.00	0.00	60.22	458.66	364.15	1013.15	0.00	0.00
Kuppili	0.00	0.00	0.78	91.11	183.71	336.13	0.00	0.00
Machilesam	0.00	0.00	9.43	95.34	197.57	324.90	0.00	0.00
Vatsavalasa	0.00	0.00	34.04	59.54	71.86	165.45	0.00	0.00
Total	0.00	0.00	337.20	1739.15	1405.70	3777.28	0.00	0.00
TEKKALI Range								
Amalapadu	0.00	0.00	104.51	499.01	450.17	1174.50	0.00	0.00
Ampalam	0.00	0.00	37.35	477.63	237.11	846.91	0.00	0.00
Mulapeta	0.00	0.00	7.76	240.41	348.86	628.73	0.00	0.00
Narsingapalli	0.00	746.87	2887.38	361.68	80.81	4076.74	-0.68	0.68
Sariapalli	0.00	61.82	597.66	111.10	98.78	869.37	-1.01	1.01
Total	0.00	808.70	3634.67	1689.84	1215.72	7596.25	-1.69	1.69
Division total	0.00	13451.68	43983.52	10198.43	3504.39	72171.31	-74.27	72.98

* Beat wise total area including water bodies.

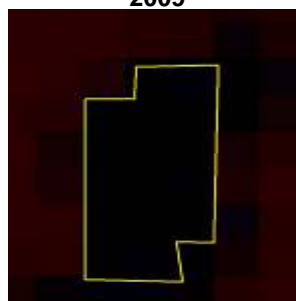


Satellite Imageries

2008



2009



Longitude	83.88619
Latitude	18.56872
Area_Ha	0.87
Class	DF TO NF
Comp_No.	176
Beat	Bodlapadu
Range	Palakonda
Division	Srikakulam



Chapter-IV

4.39 VIZIANAGARAM DIVISION

4.39.1 Introduction:

Vizianagaram Forest Division lies in the north eastern part of Andhra Pradesh, between latitudes 17° 51' and 19° 9" N and longitude 82° 58" and 83° 49 E. The Geographical Area of the Division is 6261 Km². The Division has two physiographic zones, the plains and Hills. The major rivers in the district are nagavali, Vegavathi, Gomuki and Suvarnamukhi.

Land use pattern of the division is given in Table 4.39.1

The climate of this district is characterized by high humidity nearly all the year round with oppressive summer and good seasonal rainfall. The climate of the hill parts of the district is different from that of the plain. The temperature varies from 17.1° C to 39.6° C. The main soils in the district are Red soils, Sandy loams and Sandy clay and they constitute 96 % of the total area. The soils in the district are predominantly loamy with medium fertility. There are mostly red loamy soils, as far as dry lands are concerned and clay loamy in case of wet lands.

The normal rainfall of the district for the year is 1,131 mm. The district gets the benefit of both the South West and North-East monsoon.

The total population of the Division and District is 2.4 million as per 2011 census and the per capita forest is 0.051 Ha. The population density is 364 persons per Km²

4.39.2. Recorded Forest Area.

The total Notified forest of the division is 1219.28 Km² which is 18.24% of the total geographical area. Reserved, Protected and un classed forests constitute 716.27km² (60%), 420.10 km² (35.2%) and 56.66km² (0.047%) of the total forest area respectively.

As per the Champion and Seth's classification floristic composition of the forests of the district are falling under Southern tropical moist mixed deciduous forests, Northern tropical dry deciduous forests, Southern tropical dry mixed deciduous forests. Dry evergreen forests.

4.39.3. Protected Area :

No protected areas are found in this division.

4.39.4. Community Forest Management :

There are 265 VSSs in the Division. 305.59 Km² forest area, which constitutes 25% of forest area, is under CFM.

4.39.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 data (Nov2008-Nov2009), is 1121.9Km², which is 18% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.03Km² Very Dense Forests, 596.66Km² Moderately Dense Forests, and 524.86 Km² Open Forest. The area of the Scrub is 62.85 Km², that of Non-Forest is 34.44 Km² and Water Bodies is 0.44 Km². the distribution of the forest cover of the Division is shown in Fig 4.37.1

Table 4.39.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	6261.64	
Forest including Scrub	1187.91	18.97
Agriculture	3244.78	51.82
Land with Scrub	777.07	12.41
Fallow Lands	23.79	0.38
Grasslands	0.63	0.01
Settlements	25.67	0.41
Vegetation outside Forest	869.74	13.89
Water body	132.12	2.11

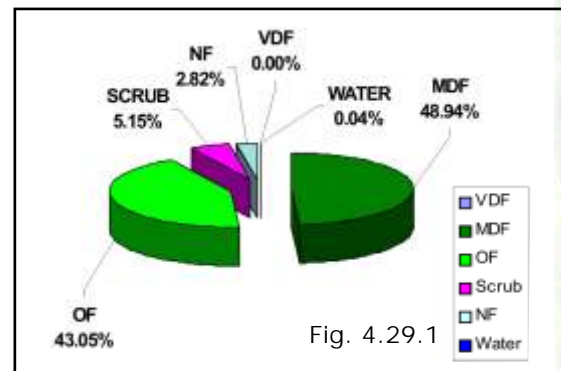


Fig. 4.29.1



4.39.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.39.2, Fig 4.39.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov-2009) with that of previous assessment (Satellite Imagery of Dec- 2008), shows a negative change in forest cover of 164.24 Ha forest cover, The forest cover change matrix, given in Table 4.39.2 reveals that there has been a decrease of 141 Ha of moderately dense forest and 23 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 2.72 Ha on account of Raising of Plantations and 161.52 on account of encroachment. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 161.52 Ha. only.

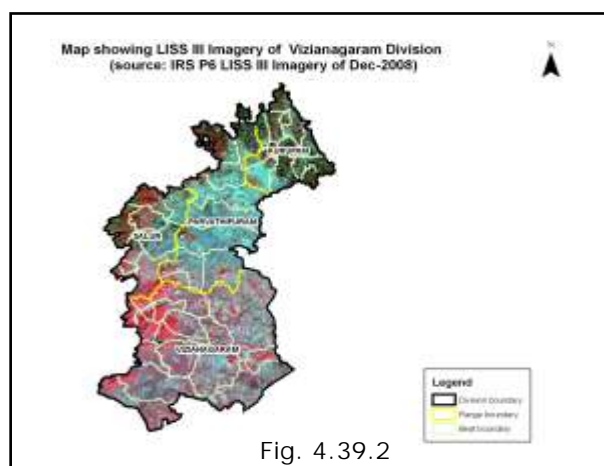


Fig. 4.39.2

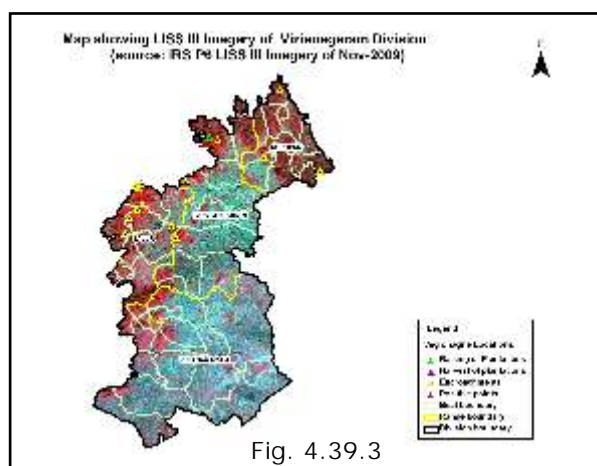


Fig. 4.39.3

The simplified forest cover change matrix is given in Table 4.37.3 and Table 4.39.4

There are 49 Beats in the division. Negative change in Forest cover is noticed in 12 Beats, both positive and negative change in only one beat. There is no change in remaining 36 Beats.

Details Forest cover Change in the 13 beats where forest cover is lost is shown in Table no. 4.39.5.

Table 4.39.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Dec-2008)	2009 (Data of Nov- 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense forest	0.03	0.00	0.00	0.00	0.00	0.00	0.03
Moderately Dense forest	0.00	596.71	0.00	0.94	0.42	0.00	598.07
Open Forest	00	0.05	524.76	0.18	0.10	0.00	525.09
Scrub	0.00	0.00	0.00	61.73	0.00	0.00	61.73
Non-Forest	0.00	0.00	0.00	0.00	33.92	0.00	33.92
Water	0.00	0.00	0.00	0.00	0.00	0.44	0.44
Total of 2009	0.0	596.76	524.76	62.85	34.44	0.44	1219.28
Net Change	0.00	-1.31	-0.33	1.12	0.52	0.00	



2008 (Data of Dec - 2008)	2009 (Data of Nov- 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1121.55	1.64	0.00	1123.19
Degraded Forest	0.00	95.65	0.00	95.65
Water	.00	.00	0.44	0.44
Total of 2009	1121.55	97.29	0.44	1219.28
Net Change	-1.64	1.64	0.00	

2008 (Data of Dec - 2008)	2009 (Data of Nov- 2009)			Total of 2008
	Green	Barren	Water	
Green	1184.40	0.52	0.00	1184.92
Barren	0.00	33.92	0.00	33.92
Water	0.00	0.00	0.44	0.44
Total of 2009	1184.40	34.44	0.44	1219.28
Net Change	-0.52	0.52	0	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment
KURUPAM Range								
Arnada	0.00	1,841.79	3,333.40	218.28	46.19	5,439.93	0.00	0.00
Bori	0.00	293.95	477.62	85.09	57.44	918.94	-5.32	5.32
Bothili	0.00	222.24	999.49	109.56	39.08	1,370.38	0.00	0.00
Darsini	0.00	177.53	702.94	51.05	8.06	939.69	0.00	0.00
Elwinpeta	0.00	395.10	2,037.42	237.23	62.43	2,732.22	0.00	0.00
Gorada	0.00	1,375.72	2,379.33	186.34	45.30	3,986.70	0.00	0.00
Kedaripuram	0.00	425.55	703.61	54.60	5.97	1,189.74	-6.14	6.14
Kurupam	0.00	997.12	830.82	57.67	23.89	1,909.50	0.00	0.00
Manda	0.00	1,071.13	1,214.56	41.11	4.11	2,331.15	0.00	0.00
Mondemkhal	0.00	362.08	3,133.06	1,059.68	659.98	5,230.83	0.00	0.00
Neelakantapuram	0.00	1,057.33	1,072.02	17.01	6.57	2,152.93	0.00	0.00
Panasabadra	0.00	1,937.01	3,639.61	683.88	307.8	6,568.40	-3.59	3.59
Total	0.00	10,156.55	20,523.87	2,801.50	1,266.86	34,770.40	-15.05	15.05
PARVATHI PURAM Range								
Bobbili	0.00	1,535.52	751.99	149.94	99.14	2,536.58	-1.60	1.60
Goipaka	0.00	767.79	1,035.10	65.32	21.85	1,890.06	0.00	0.00
Gutchimi	0.0	278.59	626.78	101.23	93.22	1,099.88	0.00	0.00
Masimanda	0.64	6,385.96	2,693.50	157.74	48.50	9,286.70	-2.72	0.00
Parvathipuram (N)	0.00	824.41	171.18	10.63	50.14	1,056.51	0.00	0.00
Parvathipuram South	0.00	1,609.31	272.33	51.27	47.88	1,981.11	-27.32	27.32
Poram	0.00	401.93	412.41	29.29	19.34	862.98	0.00	0.00
Pujariguda	0.00	1,916.18	2,282.87	102.92	46.01	4,353.82	0.00	0.00
Saluru (E)	0.00	1,053.92	841.57	52.18	20.01	1,967.69	0.00	0.00



Andhra Pradesh State of Forests - 2011

Shikarganj	0.00	565.77	743.21	167.34	320.38	1,796.70	0.00	0.00
Total	0.64	15,339.37	9,830.94	887.86	766.48	26,832.02	-31.64	28.92
SALUR Range								
Butchampadu	0.00	421.29	677.35	48.98	81.81	1,229.89	0.00	0.00
Duggeru	2.46	4,543.31	1,854.41	367.16	48.94	6,816.33	-31.15	31.15
Kankanapalli	0.00	1,900.56	1,782.00	154.01	50.33	3,886.89	-3.66	3.66
Kesali	0.00	234.04	325.99	12.24	5.16	577.44	0.00	0.00
Kurukutti	0.00	1,586.23	1,275.77	90.05	31.35	2,983.60	-10.34	10.34
Makkuva	0.00	518.63	278.72	57.45	33.53	888.33	0.00	0.00
Mothumuru	0.00	2,012.29	3,460.05	206.78	48.81	5,729.18	0.00	0.00
Pachipenta	0.00	279.18	219.16	19.19	19.43	536.96	0.00	0.00
Saluru	0.00	981.53	1,710.01	262.11	262.41	3,216.05	-11.50	11.50
Thonam	0.00	2,457.76	932.83	83.08	9.38	3,483.19	-29.24	29.24
Total	2.46	14,934.82	12,516.28	1,301.05	591.15	29,347.86	-85.89	85.89
VIZIANAGARAM Range								
Andra	0.00	1,053.99	472.17	49.05	9.94	1,585.15	0.00	0.00
Bhimaram	0.00	1,997.08	763.58	62.36	66.58	2,889.70	-10.19	10.19
Damarasingi	0.00	314.50	629.95	170.75	80.23	1,195.70	0.00	0.00
Gantikonda	0.00	747.80	37.56	0.43	0.00	786.18	0.00	0.00
Kancheru	0.00	1,036.26	415.03	32.17	55.65	1,539.11	-21.47	21.47
Konada	0.00	0.00	132.28	91.71	108.27	332.26	0.00	0.00
Kothapalem	0.00	2,060.14	904.93	113.81	21.24	3,107.45	0.00	0.00
Kumili	0.00	843.64	562.17	89.71	23.86	1,519.72	0.00	0.00
L. Gunnala	0.00	595.52	170.40	3.62	21.72	794.31	0.00	0.00
Pallapugudaba	0.00	1,312.72	169.84	9.00	5.16	1,496.72	0.00	0.00
Pedakonela	0.00	3,002.69	2,099.55	132.47	47.17	5,282.14	0.00	0.00
Poolbagh	0.00	323.72	521.24	217.48	226.77	1,289.22	0.00	0.00
Rabha	0.00	1,608.20	747.65	42.28	16.77	2,415.95	0.00	0.00
Rompilli	0.00	1,109.28	367.27	32.69	30.52	1,540.05	0.00	0.00
Sariapalli	0.00	1,680.18	984.96	56.14	21.98	2,743.33	0.00	0.00
Velgada	0.00	248.15	444.06	164.81	81.68	938.70	0.00	0.00
Venkayyapalem	0.00	1,308.85	182.32	26.74	3.68	1,521.62	0.00	0.00
Total	0.00	19,242.73	9,604.95	1,295.23	821.24	30,977.30	-31.66	31.66
Grand Total	3.10	59,673.46	52,476.05	6,285.64	3,445.73	121,927.58	-164.24	161.52

* Beat wise total area including Water bodies.

Satellite Imageries

2008



2009



Longitude	83.29975
Latitude	18.78984
Area_Ha	27.32
Class	DF TO NF
Comp_No.	199
Beat	Parvathipuram south
Range	Parvathipuram
Division	Vizianagaram



Chapter-IV

4.40. VISHAKAPATNAM DIVISION

4.40.1 Introduction:

Vishakapatnam Forest Division lies in the South of Vishakapatnam, between latitudes 17° 15' 00" and 18° 26' 25" N and longitudes 82° 31' 04" and 83° 27' 40" E. The Geographical Area of the Division is 5069 Km², which is 45 % of the total geographical Area of the District. The Division has two physiographic zones, the plains and Hills. The major rivers falling in the division are Thadava, Varaha and Sharada.

Land use pattern of the Division is given in **Table 4.40.1**.

There are three major soil types in the Division. These are Sandy soils and clayey sands of and granites and Coastal dune sand dunes of quartzite's.

The climate of Vishakapatnam Division is characterized by high humidity nearly all the year round with oppressive summer and good seasonal rainfall. The climate of the hill parts of the division is different from that of the plain. Altitude varies from 90 M to 1500 M MSL. Temperatures ranging from 10° C to 35°C and the annual rainfall is about 1202mm, received mainly from Southwest and Northeast monsoons.

The total population of the Division is 3.35 million (2011 Census), which is 79% of the total population of the district. The per capita forest is 0.04 Ha. The population density of the division is 653 persons per Km²

4.40.2 Recorded Forest Area:

The total notified forest area of the Division is 1266.09 Km², which 25% of the total geographical area. Reserved, Protected and Unclassed Forests Constitute 586.6Km² (46%), 678.65Km² (53%) and 0.74Km² (0.06%) of the total forest area respectively.

As per the Champion and Seth's classification, the division types are Southern tropical semi evergreen forests, Southern tropical secondary moist mixed deciduous forests, southern tropical secondary dry deciduous forests, Tropical dry evergreen scrub southern thorn forests and dry savanna forests.

4.40.3 Protected Area:

Out of 1266.10 Km² of the forest area of the Division one Wild Life Sanctuary named Kambalakonda of area of 70.70 km² exists. This is large and sprawling greenery around the Vizag City harbouring diverse flora & fauna.

4.40.4 Community Forest Management:

There are 321 Vana Samrakshana Samities (VSSs) in the Division. 271.93Km² forest area, which constitutes 21 % of forest area, is under CFM.

4.40.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2009 (Data of Nov 2009 – Mar 2010), is 960.44 Km², which is 19% of the total Geographical area. In terms of the forest canopy density classes, the Division has 0.15 Km² of Very Dense Forests, 432.35 Km² Moderately Dense Forests, and 527.94 Km² Open Forests that of the area of the Scrub is 199.54, Non-Forest is 104.89 Km² and Water Bodies is 1.23 Km². The distribution of the forest cover of the division is shown in Fig 4.40.1

Table 4.40.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	1162.63	
Forest including Scrub	2085.90	22.93
Agriculture	495.36	41.14
Land with Scrub	407.97	9.77
Fallow Lands	0.49	8.05
Grasslands	78.09	0.01
Settlements	616.29	1.54
Vegetation outside Forest	223.05	12.16
Water body		4.40

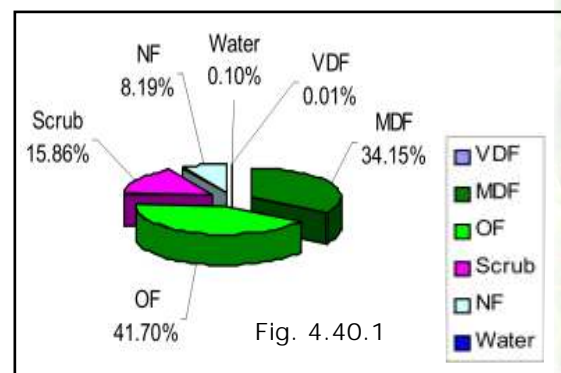


Fig. 4.40.1



4.40.6 Change in Forest Cover:

The satellite images of 2008 and 2009 are shown in **Fig 4.40.2**, **Fig 4.40.3** and the changes during this period are shown on this image of 2009.

Comparison of the current forest cover (Satellite data of Nov 2008-Jan 2009) with that of previous assessment (Satellite Imagery of Nov 2009-Mar 2010), shows a negative change in forest cover of 54.25 Ha and a positive change in forest cover of 9.75 Ha. The change matrix, given in Table 4.40.2 reveals that there has been a decrease of 42 Ha of moderately dense forest and 2 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 12.68 Ha on account of Raising of Plantations and 41.57 Ha on account of encroachment. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 41.57 Ha. only.

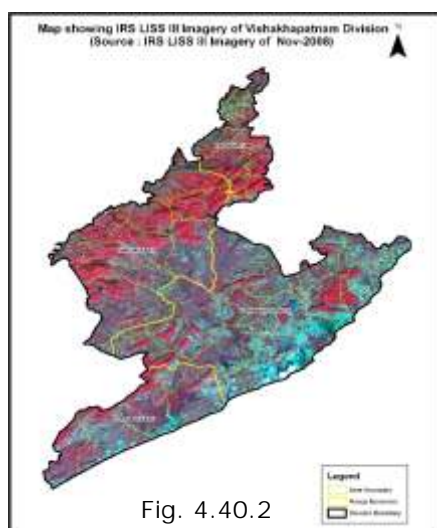


Fig. 4.40.2

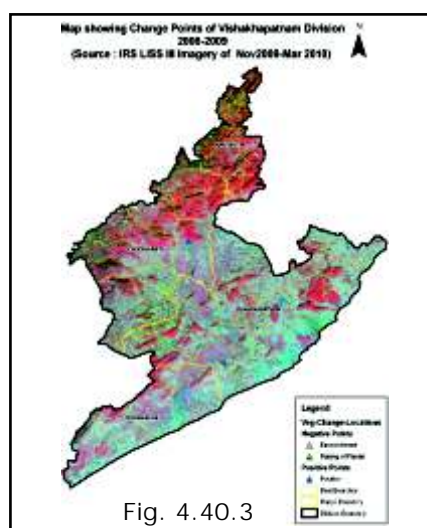


Fig. 4.40.3

The **simplified forest cover change matrix** is given in Table 4.40.3 and Table 4.40.4.

On the basis of ground truthing conducted by the officers of the Geomatics Center and the field officers, the main reasons for decrease in the forest cover is due to encroachments.

There are **40 Beats** in the division. Negative change in Forest cover is seen in 04 Beats and no change in 36 Beats. Beat wise forest cover in different forest canopy density classes is given in **Table 4.40.5**.

Table 4.40.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Nov 2008 – Jan 2009)	2009 (Data of Nov 2009 – Mar 2010)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.15	0	0	0	0	0	0.15
Moderately Dense Forest	0	432.35	0	0.26	0.16	0	432.77
Open Forest	0	0	527.8	0	0.12	0	527.96
Scrub	0	0	0	199.28	1.25	0	200.53
Non-Forest	0	0	0.1	0	103.36	0	103.46
Water	0	0	0	0	0	1.23	1.23
Total of 2009	0.15	432.35	527.90	199.54	104.89	1.23	1266.1
Net Change	0	-0.42	-0.02	-0.99	1.43	0	



Table 4.40.3: Forest Cover change matrix (Good and Degraded Forest)				(Area in Km ²)	
2008 (Data of Nov 2008 – Jan 2009)	2009 (Data of Nov 2009 – Mar 2010)			Total of 2008	
	Good Forest	Degraded Forest	Water		
Good Forest	960.34	0.54	0	960.88	
Degraded Forest	0.1	303.89	0	303.99	
Water	0	0	1.23	1.23	
Total of 2009	960.44	304.43	1.23	1266.1	
Net Change	-0.44	0.44	0		

Table 4.40.4: Forest Cover change matrix (Rejuvenation and Barren)				(Area in Km ²)	
2008 (Data of Nov 2008 – Jan 2009)	2009 (Data of Nov 2009 – Mar 2010)			Total of 2008	
	Green	Barren	Water		
Green	960.6	1.53	0	962.13	
Barren	0.1	103.36	0	103.46	
Water	0	0	1.23	1.23	
Total of 2009	960.7	104.89	1.23	1066.82	
Net Change	-1.43	1.43	0	0	

Table 4.40.5: Beat wise Forest Cover								(Area in Ha)	
BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared to 2008	Encroachment	
ANANTHAGIRI Range									
Ananthagiri	0.00	310.46	1,006.01	851.50	596.16	2,764.13	0.00	0.00	
Bondam	0.00	44.02	657.20	462.75	150.01	1,313.98	0.00	0.00	
Borra	0.00	79.22	573.84	378.71	86.97	1,118.74	0.00	0.00	
Chintalapudi	0.00	1,251.85	741.84	74.11	60.77	2,128.57	0.00	0.00	
Dabbagunta	0.00	1,783.31	1,109.38	132.23	95.76	3,120.68	0.00	0.00	
Iragai	0.00	7.40	412.23	479.23	135.34	1,034.20	0.00	0.00	
Kasipatnam	0.00	1,392.16	513.26	60.65	18.79	1,984.86	-21.66	21.66	
Kuridi	0.00	1,328.41	1,678.91	271.89	154.36	3,433.57	-8.91	8.91	
Lotheru	0.00	79.34	804.53	480.07	170.94	1,534.88	0.00	0.00	
Medaparthu	0.00	1,799.86	3,276.62	1,093.16	515.07	6,684.71	-11.00	11.00	
Moduga	0.00	56.91	1,098.23	910.82	174.54	2,240.50	0.00	0.00	
Polamguda	0.00	6.78	330.23	274.65	107.18	718.84	0.00	0.00	
Sontivanipalem	0.00	407.08	237.63	30.98	19.78	695.47	0.00	0.00	
Total	0.00	8,546.80	12,439.91	5,500.75	2,285.67	28,773.13	-41.57	41.57	
CHODAVARAM Range									
(Z)Kottapatnam	0.00	2,463.64	2,197.50	511.11	325.20	5,501.61	-12.68	0.00	
Jeenabadu	1.10	4,471.67	2,949.17	440.28	145.64	8,007.86	0.00	0.00	
Kasipuram	2.15	3,017.19	3,476.76	1,163.55	458.52	8,118.17	0.00	0.00	
Kinthali	0.52	3,277.65	2,105.82	381.74	174.53	5,942.21	0.00	0.00	
Konam	1.79	1,697.68	3,710.32	1,250.41	437.72	7,097.92	0.00	0.00	
Madugula	0.00	2,880.69	2,696.60	416.35	77.30	6,070.94	0.00	0.00	
Minimuluru	0.00	2,075.66	4,227.61	990.78	185.95	7,480.00	0.00	0.00	
Tattapudi	4.75	3,115.66	3,351.83	1,948.12	1,126.47	9,546.83	0.00	0.00	



Andhra Pradesh State of Forests - 2011

Thenugupudi	0.00	1,576.06	1,090.51	143.51	60.31	2,873.65	9.75	0.00
Total	10.31	24,575.90	25,806.12	7,245.85	2,991.64	60,639.19	-2.93	0.00
VISHAKHAPATNAM Range								
Advanipalem	0.00	93.97	729.41	548.99	351.89	1,724.26	0.00	0.00
Amanam	0.00	1.39	93.41	219.65	359.17	682.49	0.00	0.00
Duvvada	0.00	339.87	573.64	450.36	237.50	1,601.37	0.00	0.00
Kannurupalem	0.00	1,294.74	2,033.46	692.54	268.80	4,289.54	0.00	0.00
Mudasarlova	0.00	1,528.74	1,795.53	569.55	249.93	4,143.75	0.00	0.00
Nallakonda	0.00	236.75	952.89	742.10	364.24	2,295.98	0.00	0.00
Pangidi	0.00	652.06	889.62	457.03	657.71	2,661.49	0.00	0.00
Paradasipalem	0.00	554.38	1,035.17	381.37	214.02	2,187.88	0.00	0.00
Parawada	0.00	40.34	220.92	407.93	293.93	964.33	0.00	0.00
Pothukonda	0.00	203.05	891.95	409.85	334.23	1,839.08	0.00	0.00
Pudimadaka	0.00	0.00	0.00	25.72	187.88	213.60	0.00	0.00
Sontyam	0.00	86.46	278.96	115.99	20.86	502.27	0.00	0.00
Yendada	0.00	603.09	985.09	242.10	81.88	1,917.42	0.00	0.00
Total	0.00	5,634.84	10,480.05	5,263.18	3,622.04	25,023.46	0.00	0.00
YELAMANCHILI RANGE								
Ellamanchili	0.76	762.34	870.10	182.13	61.72	1,877.05	0.00	0.00
Panchadarla	0.00	26.57	557.58	755.77	568.16	1,916.52	0.00	0.00
Payakaraopet	4.27	1,113.55	355.54	97.71	62.15	1,635.86	0.00	0.00
Rebaka	0.00	1,770.14	1,259.43	521.15	564.83	4,162.93	0.00	0.00
Regupalem	0.00	804.85	1,024.49	386.52	332.78	2,580.87	0.00	0.00
Total	5.03	4,477.45	4,067.14	1,943.28	1,589.64	12,173.23	0.00	0.00
Division total	15.34	43,234.99	52,793.22	19,953.06	10,488.99	126,609.01	-44.50	41.57

* Beat wise total area including Water bodies.

Satellite Imageries

LISS 2008



LISS 2009



Longitude	83.04673
Latitude	18.14713
Area_Ha	1.98
Class	DF TO NF
Comp_No.	510
Beat	Medaparthu
Range	Ananthagiri
Division	Vishakapatnam



Chapter-IV

4.41 KARIMNAGAR EAST DIVISION

4.41.1 Introduction:

Karimnagar East Forest Division lies in the Eastern Part of Karimnagar District, between latitudes 18° 20' 53" and 18° 52' 14" N and longitudes 79° 10' 48" and 80° 20' 44" E. The Geographical Area of the Division is 3,814 Km², which is 32.25% of the geographical area of the district. This region lies on Deccan Plateau. The River Godavari forms Northern and Eastern boundary of the Division as well as the District. Godavari and Maneru are main rivers of Karimnagar East Division. The major irrigation project of the district is the Sriramsagar reservoir project, which covers 35 mandals in the district.

Land use pattern of the Division is given in Table 4.41.1.

The climate of this Division is generally dry with temperatures ranging from 9°C to 50°C and the annual rainfall is about 756 mm, received mainly from Southwest monsoons.

The soil types found mainly are Black cotton, Sandy loam, Alluvial, Lateritic with less humus in top layer.

The total population of the Division is 1.05 million (2011 Census), which constitutes 27.5% of the district population. The Per capita forest area is 0.13 ha. The population density is 276 persons per Km². The Literacy rate of the division is 56%.

4.41.2 Recorded Forest Area:

The total notified forest area of the Division is 1,432.1 Km², which is 37.55% of the total geographical area. Reserved, Protected and Un-classed Forests constitute 1,382.13 Km² (96.51%), 27.43 Km² (1.913%) and 22.54 Km² (1.573%) of the total forest area respectively.

As per Champion and Seth's classification the Forests of Division fall under Tropical dry deciduous and Tropical Thorn Forest types consisting of mixed teak and miscellaneous type of corp.

4.41.3 Protected Area:

The Division is one of the two constituent Divisions of Sivaram Wildlife Sanctuary. Out of 1,386.81 Km² of forest area, 19.15 Km² is included in Sivaram WLS.

4.41.4 Community Forest Management:

There are 127 Vana Samrakshana Samities (VSSs) in the Division. 314.05 Km² forest area, which constitutes 21.93 % of forest area.

4.41.5 Forest Cover:

The forest cover in the Division based the interpretation of IRS P6 LISS III 2009 data (Oct2008-Feb 2009) is 1,072.8 Km², which is 28.13% of the total Geographical area. In terms of the forest canopy density classes, the Division has 657.97 Km² of Moderately Dense Forests and 413.50 Km² of Open Forests. The area of the Scrub is 259.39 Km², Non-Forest 49.69 Km² and Water Bodies 6.26 Km². The distribution of the forest cover of the division is shown in Fig 4.41.1

Table 4.41.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	3814	
Forest including Scrub	1333.62	34.97
Agriculture	1292.93	33.90
Land with Scrub	314.00	8.23
Fallow Lands	217.32	5.70
Grasslands	32.87	0.86
Settlements	548.56	14.38
Vegetation outside Forest	74.65	1.96

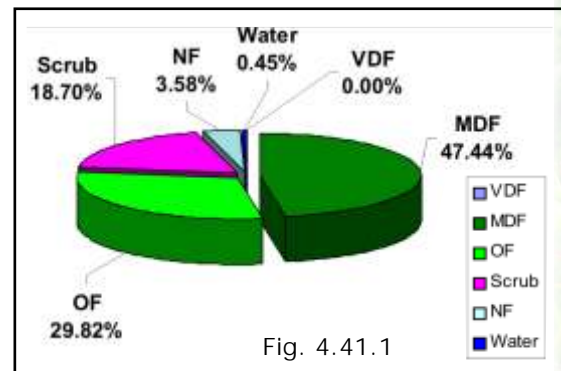


Fig. 4.41.1

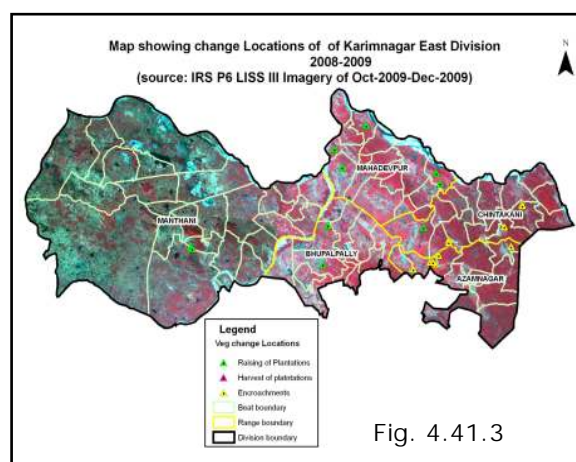
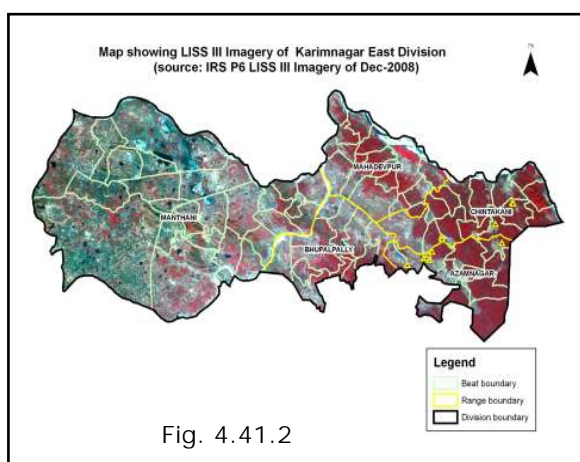


4.41.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.41.2, Fig 4.39.3 and the changes during this period are shown on this image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009-Dec 2009) with that of previous assessment (Satellite Imagery of Oct Dec 2008), shows a negative change in forest cover of 145.18 Ha. The forest cover change matrix, given in Table 4.41.2 reveals that there has been a decrease of 19 Ha of moderately dense forest and 112 Ha of open forest.

Of the total negative change 77.50 Ha on account of Raising of Plantations and 67.67 on account of encroachment. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 67.67 Ha. only.



The simplified forest cover change matrix is given in Table 4.41.3 and Table 4.41.4

There are **78** beats in the division. Negative change in forest cover noticed in only 15 beats. There is no change in remaining 63 beats.

Details of forest cover change in 15 beats where forest cover is lost is shown in Table no. 4.41.5

Table 4.41.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Dec 2008)	2009 (Data of Oct 2009 – Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	657.97	0.00	0.09	0.10	0.00	658.16
Open Forest	0.00	0.00	413.50	0.00	1.12	0.00	414.62
Scrub	0.00	0.00	0.00	259.30	0.14	0.00	259.44
Non-Forest	0.00	0.00	0.00	0.00	48.33	0.00	48.33
Water	0.00	0.00	0.00	0.00	0.00	6.26	6.26
Total of 2009	0.00	657.97	413.50	259.39	49.69	6.26	1386.81
Net change	0.00	-0.19	-1.12	-0.05	1.36	0.00	0.00



Table 4.41.3: Forest Cover change matrix (Good and Degraded Forest)				(Area in Km ²)
2008 (Data of Dec 2008)	2009 (Data of Oct 2009 – Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1071.47	1.31	.00	1072.78
Degraded Forest	.00	307.77	.00	307.77
Water	.00	.00	6.26	6.26
Total of 2009	1071.47	309.08	6.26	1386.81
Net Change	-1.31	1.31	.00	

Table 4.41.4: Forest Cover change matrix (Rejuvenation and Barren)				(Area in Km ²)
2008 (Data of Dec - 2008)	2009 (Data of Oct 2009 – Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	1330.86	1.36	0.00	1332.22
Barren	0.00	48.33	0.00	48.33
Water	0.00	0.00	6.26	6.26
Total of 2009	1330.86	49.69	6.26	1386.81
Net Change	-1.36	1.36	0.00	

Table 4.41.5: Beat wise Forest Change								(Area in Ha)
BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
AZAMNAGAR Range								
Azamnagar	0.00	1,084.47	343.82	196.65	31.85	1,656.79	-5.45	5.45
Borlaguda	0.00	882.19	383.99	82.27	77.62	1,426.85	0.00	0.00
Erraram	0.00	219.69	337.20	469.94	411.93	1,440.90	0.00	0.00
Kanakanoor	0.00	1,318.66	421.66	153.54	11.23	1,906.66	-1.80	1.80
Khammampally	0.00	2,958.35	821.58	183.49	93.20	4,056.63	0.00	0.00
Mutharam	0.00	256.74	443.74	805.67	257.80	1,766.61	-27.47	27.47
Nandigoan	0.00	496.37	197.65	396.05	106.26	1,197.83	0.00	0.00
Pegadapally	0.00	3,451.35	585.74	185.38	31.55	4,254.02	0.00	0.00
Polaram	0.00	188.23	450.37	531.24	163.97	1,335.08	-10.12	10.12
Reddypally	0.00	2,204.64	858.76	230.26	27.50	3,321.16	0.00	0.00
Singaram	0.00	4,444.02	1,055.49	187.21	26.95	5,720.85	0.00	0.00
Total	0.00	17,504.72	5,900.00	3,421.70	1,239.85	28,083.37	-44.84	44.84
BHUPALPALLY Range								
Bhupalpally	0.00	759.28	332.90	81.25	14.80	1,188.23	0.00	0.00
Edlapally	0.00	446.99	580.41	569.82	85.02	1,781.99	0.00	0.00
Gorlaveedu	0.00	576.74	525.98	657.33	296.69	2,067.00	0.00	0.00
Kasimpally	0.00	646.15	250.87	59.07	10.54	967.83	0.00	0.00
Mallaram	0.00	1,106.30	1,392.79	1,036.43	107.45	3,647.62	-6.59	0.00
Medipally	0.00	307.64	822.30	472.91	91.91	1,694.76	0.00	0.00
Mulugupally	0.00	499.81	983.55	713.45	90.83	2,288.40	0.00	0.00
Rudraram	0.00	139.28	881.12	951.79	137.61	2,153.87	0.00	0.00
Shatrajpally	0.00	463.67	531.90	604.29	232.85	1,832.71	0.00	0.00
Tadicherla	0.00	56.85	296.26	666.73	512.49	1,532.33	0.00	0.00



Toondla	0.00	1,311.30	651.82	274.85	62.14	2,300.30	-10.00	0.00
Vallamkunta	0.00	9.35	36.35	39.17	3.08	88.30	0.00	0.00
Total	0.00	6,323.38	7,286.25	6,127.09	1,645.41	21,543.34	-16.59	0.00
CHI NTAKANI Range								
Chintakani	0.00	900.25	449.74	232.02	52.85	1,635.77	-8.73	0.00
Ethnaram	0.00	1,892.54	391.80	112.50	23.69	2,420.53	0.00	0.00
Khamanpally	0.00	2,452.71	1,064.53	385.02	14.38	3,916.64	-8.16	8.16
Lenkalagadda	0.00	924.84	962.29	401.87	1.10	2,290.09	0.00	0.00
Lingapur	0.00	1,405.08	420.13	92.65	17.37	1,936.98	0.00	0.00
Muknoor	0.00	1,679.60	216.69	68.29	0.62	1,965.20	0.00	0.00
Neelampally	0.00	1,956.71	434.44	127.59	0.52	2,521.00	0.00	0.00
Nimmaguda	0.00	2,141.24	865.87	338.48	14.11	3,359.70	0.00	0.00
Pankena	0.00	1,989.04	1,461.25	295.27	42.66	3,800.97	0.00	0.00
Panmalla	0.00	669.77	1,231.71	591.93	35.51	2,533.70	0.00	0.00
Peddampet	0.00	1,106.19	804.26	279.73	10.68	2,201.23	0.00	0.00
SarvaiPET	0.00	962.91	674.96	154.73	2.64	1,795.24	0.00	0.00
Singampally	0.00	2,197.58	427.87	158.54	23.88	2,808.46	-2.21	2.21
Yamanpally	0.00	1,239.13	434.29	180.55	10.63	1,864.60	-10.18	10.18
Total	0.00	21,517.57	9,839.82	3,419.16	250.63	35,050.11	-29.28	20.55
MAHADEVPUR Range								
Annaram	0.00	620.48	469.87	480.12	45.51	1,617.24	12.52	0.00
Beerasagar	0.00	1,463.29	438.07	177.79	10.91	2,090.06	-5.32	0.00
Damarakunta	0.00	249.39	778.86	457.46	23.10	1,513.09	0.00	0.00
Elkeshwar	0.00	1,028.34	371.81	143.23	3.72	1,548.27	0.00	0.00
Gummallapally	0.00	1,157.74	766.96	808.94	82.81	2,818.79	0.00	0.00
Heerapur	0.00	957.65	489.76	301.96	12.06	1,774.35	0.00	0.00
Kaleshwar	0.00	872.10	508.88	182.19	14.52	1,596.82	-8.64	0.00
Kataram	0.00	431.86	76.35	54.78	0.00	562.99	0.00	0.00
Kudurupally	0.00	1,184.11	574.45	259.44	3.29	2,021.29	0.00	0.00
Mahadevpur	0.00	1,010.47	197.89	91.36	0.00	1,299.71	0.00	0.00
Nasturpally	0.00	1,118.23	223.82	162.29	9.06	1,513.40	0.00	0.00
Palgul	0.00	443.94	487.01	398.12	52.00	1,381.07	0.00	0.00
Pratapgiri	0.00	663.86	306.88	91.77	14.91	1,077.91	0.00	0.00
Rapallykota	0.00	558.55	686.50	184.75	12.77	1,449.58	0.00	0.00
Sandrupally	0.00	979.85	364.74	281.02	15.13	1,640.74	0.00	0.00
Suraram	0.00	85.37	694.12	301.20	84.01	1,167.68	-25.70	0.00
Total	0.00	12,825.24	7,435.98	4,376.42	383.81	25,073.00	-52.18	0.00
MANTHANI Range								
Adavisrirampur	0.00	358.87	840.42	293.03	15.79	1,508.87	0.00	0.00
Arinda	0.00	17.14	476.39	650.79	62.32	1,207.96	0.00	0.00
Begumpet	0.00	567.04	146.46	8.40	0.43	722.33	0.00	0.00
Bhatpally	0.00	70.79	507.84	392.14	2.05	973.66	0.00	0.00
Bompally	0.00	51.96	135.97	44.38	1.64	233.95	0.00	0.00
Eklashpur	0.00	369.99	531.08	445.12	8.70	1,354.89	0.00	0.00
Gajulapally	0.00	745.04	326.91	93.56	0.00	1,165.51	0.00	0.00
Gopalpur	0.00	343.90	713.74	525.83	65.20	1,657.51	0.00	0.00
Gunjapadugu	0.00	0.00	1.62	183.17	256.16	553.16	0.00	0.00



Forest division wise results

Kalvacherla	0.00	953.71	530.96	146.79	74.20	1,705.66	0.00	0.00
Kannal	0.00	2.88	189.06	697.44	130.47	1,055.42	0.00	0.00
Khammampally	0.00	366.60	785.04	465.95	27.76	1,645.35	0.00	0.00
Khansaipet	0.00	55.37	541.38	807.98	24.41	1,429.13	0.00	0.00
Kukkalagudur	0.00	744.59	445.26	131.60	5.42	1,326.86	0.00	0.00
Kunaram	0.00	359.69	402.93	245.21	16.94	1,024.77	0.00	0.00
Lakkaram	0.00	460.86	418.68	496.38	195.29	1,572.19	-2.28	2.28
Maidambanda	0.00	681.14	272.84	88.42	10.02	1,064.11	0.00	0.00
Maredugonda	0.00	33.66	568.88	567.12	145.67	1,315.33	0.00	0.00
Peddapally	0.00	360.98	598.81	230.66	12.60	1,203.04	0.00	0.00
Putnoor	0.00	229.54	374.32	115.08	0.57	719.51	0.00	0.00
Ramagundam	0.00	151.32	493.54	175.64	209.92	1,143.55	0.00	0.00
Rangapur	0.00	44.89	144.65	442.15	53.81	685.50	0.00	0.00
Sabitham	0.00	23.71	209.58	147.07	1.05	381.92	0.00	0.00
Somanpally	0.00	236.16	670.43	1,086.27	86.23	2,093.07	0.00	0.00
Takkallapally	0.00	395.96	562.11	113.91	44.09	1,189.85	0.00	0.00
Total	0.00	7,625.77	10,888.92	8,594.10	1,450.74	28,933.12	-2.28	2.28
	0.00	65,796.68	41,350.97	25,938.46	4,970.45	138,682.93	-145.17	67.67

* Beat wise total area including Water bodies.

Satellite Imageries

2008



2009



Longitude	80.05958
Latitude	18.53553
Area_Ha	5.45
Class	DFTO NF
Comp_No.	105
Beat	Azamnagar
Range	Azamnagar
Division	Karimnagar East





Chapter-IV

4.42 KARIMNAGAR WEST DIVISION

4.42.1 Introduction:

Karimnagar west Forest Division lies in the western Part of Karimnagar District, between latitudes $17^{\circ} 58' 58''$ and $19^{\circ} 4' 37''$ N and longitudes $78^{\circ} 30' 56''$ and $79^{\circ} 36' 54''$ E. The Geographical Area of the Division is $8,009 \text{ Km}^2$, which is 77.75% of the geographical area of the District. This Division lies on Deccan Plateau. The River Godavari forms Northern and Eastern boundary of the Division as well as the District. Godavari and Maneru are main rivers of Karimnagar West division. The major irrigation project of the district is the Shriram sagar reservoir project, which covers 35 mandals in the district.

Land use pattern of the Division is given in Table 4.42.1.

The climate of this Division is generally dry with temperatures ranging from 21°C to 47°C and the annual rainfall is about 756 mm, receiving mainly from Southwest monsoons.

The soil types found in the Division are mainly are Clayee loam, Sandy loam and Red chelkas interspersed with Block cotton soils.

The total population of the Division is 2.52 million (2011 Census), which constitutes 77.5% of the total population of the district. The Per capita forest area is 0.041 ha. The population density is 315 persons per Km^2 . The Literacy rate in the division is 56%.

4.42.2 Recorded Forest Area:

The total notified forest area of the Division is $1,044.71 \text{ Km}^2$, which is 13.04% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 864.29 Km^2 (82.73%), 168.72 Km^2 (16.15%) and 11.70 Km^2 (1.12%) of the total forest area respectively.

As per Champion and Seth's classification, the forests of Division fall under Tropical dry deciduous and Tropical Thorn Forest types consisting of mixed teak and miscellaneous type of corporation.

4.42.3 Protected Area:

No Protected Area is there in the Division.

4.42.4 Community Forest Management:

There are 236 Vana Samrakshana Samities (VSSs) or JFPCs in the Division. An area of 554.499 Km^2 forests, which is 44.4 % of forest area, is under CFM.

4.42.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS P6 LISS III 2008 data (Oct2007-Feb2008), is 839.00 Km^2 , which is 10.48% of the total Geographical area. In terms of the forest canopy density classes, the Division has 501.42 Km^2 of Moderately Dense Forests and 336.27 Km^2 of Open Forests. The area of the Scrub is 120.31 Km^2 , Non-Forest 14.69 Km^2 and Water Bodies 1.78 Km^2 . The distribution of the forest cover of the division is shown in Fig 4.42.1

Table 4.42.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	8009	
Forest including Scrub	959.19	11.98
Agriculture	5315.40	66.37
Land with Scrub	705.84	8.81
Fallow Lands	246.07	3.07
Grasslands	123.64	1.54
Settlements	426.79	5.33
Vegetation outside Forest	232.06	2.90

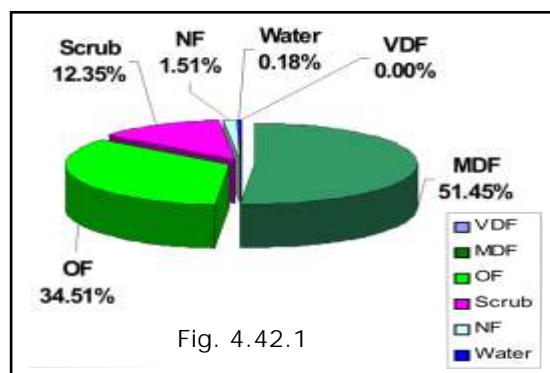


Fig. 4.42.1

4.42.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.42.2, Fig 4.42.3 and the changes between this period is shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009-Dec 2009) with that of previous assessment (Satellite Imagery of Oct Dec 2008), shows a negative change in forest cover of 143.32 Ha. The forest cover change matrix, given in Table 4.42.2 reveals that there has been a decrease of 32 Ha of moderately dense forest and 98 Ha of open forest.

Of the total negative change 107.93 Ha on account of Raising of Plantations and 35.40 on account of encroachment. Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 35.40 Ha. only.

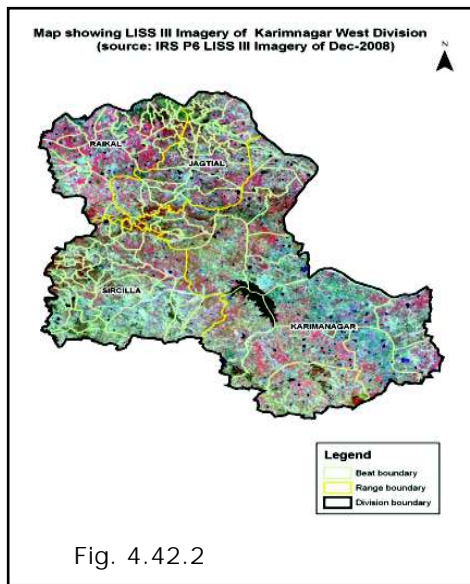


Fig. 4.42.2

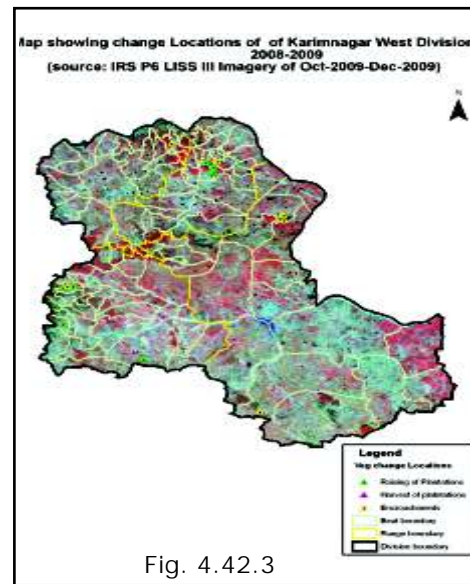


Fig. 4.42.3

The simplified forest cover change matrix is given in Table 4.42.3 and Table 4.42.4

There are 106 beats in the division. Negative change in forest cover noticed in only 10 beats. There is no change in remaining 96 beats..

Beat wise forest cover in 2008 in different forest canopy density classes and scrub along with the changes compared to 2007 assessment is given in Table 4.42.5

Table 4.42.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Dec – 2008)	2009 (Data of Oct 2009 – Dec 2009)						Total of 2007
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	501.42	0.00	0.10	0.22	0.00	501.74
Open Forest	0.00	0.00	336.27	0.13	0.85	0.00	337.25
Scrub	0.00	0.00	0.00	120.08	0.12	0.00	120.20
Non Forest	0.00	0.00	0.00	0.00	13.50	0.00	13.50
Water	0.00	0.00	0.00	0.00	0.00	1.78	1.78
Total of 2009	0.00	501.42	336.27	120.31	14.69	1.78	974.47
Net Change	0.00	-0.32	-0.98	0.11	1.19	0.00	



2008 (Data of Dec – 2008)	2009 (Data of Oct 2009 – Dec 2009)			Total of 2007
	Good Forest	Degraded Forest	Water	
Good Forest	837.69	1.30	0.00	838.99
Degraded Forest	0.00	133.70	0.00	133.70
Water	0.00	0.00	1.78	1.78
Total of 2009	837.69	135.00	1.78	974.47
Net Change	-1.30	1.30	0.00	

2008 (Data of Dec – 2008)	2009 (Data of Oct 2009 – Dec 2009)			Total of 2007
	Green	Barren	Water	
Green	958.00	1.19	0.00	959.19
0.00Barren	0.00	13.50	0.00	13.50
Water	0.00	0.00	1.78	1.78
Total of 2009	958.00	14.69	1.78	974.47
Net Change	-1.19	1.19	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
JAGITIAL Range								
Allipur_East	0.00	198.47	33.99	4.84	0.00	237.31	0.00	0.00
Allipur_West	0.00	286.45	309.11	7.87	0.00	603.43	0.00	0.00
Battapally	0.00	293.02	251.91	81.33	6.05	635.72	0.00	0.00
Chinnapur	0.00	477.78	80.12	15.59	0.00	573.49	0.00	0.00
Donoor	0.00	495.83	365.91	47.04	0.83	909.61	0.00	0.00
Eldurthy	0.00	582.21	33.18	6.42	0.00	621.81	0.00	0.00
Govindaram	0.00	751.13	97.25	8.74	0.00	857.12	0.00	0.00
Habsipur	0.00	517.52	56.17	32.96	0.63	607.28	-9.81	0.00
Kalleda	0.00	671.22	164.38	54.36	4.54	894.50	0.00	0.00
Kandlapally	0.00	836.29	431.42	99.13	7.92	1387.23	0.00	0.00
Kolvai	0.00	421.85	378.17	285.41	10.19	1095.62	0.00	0.00
Laxmidevipally	0.00	767.47	97.99	18.20	29.44	914.89	-28.61	0.00
Maddutla	0.00	683.03	29.49	1.71	0.56	714.79	0.00	0.00
Manal	0.00	511.18	39.05	25.14	0.00	575.36	0.00	0.00
Muthkuraopet	0.00	620.48	51.13	62.67	26.71	760.98	0.00	0.00
Nagnoor	0.00	763.49	276.52	25.27	0.00	1065.28	0.00	0.00
Narsimulapally	0.00	557.00	436.14	215.95	9.01	1223.55	0.00	0.00
Nerella	0.00	790.43	495.88	131.70	9.48	1427.48	0.00	0.00
Ogulapur	0.00	820.40	137.50	11.76	0.72	970.38	0.00	0.00
Rangasagar	0.00	566.23	445.95	47.78	4.19	1064.16	0.00	0.00
Rechapally_East	0.00	548.15	155.81	30.87	0.19	735.02	0.00	0.00
Rechapally_West	0.00	324.28	33.52	4.20	0.95	362.95	0.00	0.00
Sarangapur	0.00	731.81	138.15	43.10	17.62	937.82	-13.42	13.42
Talladharmaram	0.00	318.80	395.70	164.59	13.99	893.08	0.00	0.00
Tatipally_North	0.00	437.68	49.62	4.80	5.53	497.63	0.00	0.00
Tatipally_South	0.00	493.83	99.07	20.22	5.60	618.72	0.00	0.00
Thurthi	0.00	643.76	70.18	11.76	17.61	743.31	0.00	0.00
Tuminalla	0.00	414.49	343.76	132.46	10.94	902.93	0.00	0.00
Velgonda	0.00	137.04	25.85	0.40	0.00	163.29	0.00	0.00
Waddat	0.00	1199.49	194.10	17.57	1.20	1412.36	0.00	0.00
Total	0.00	16860.83	5717.03	1613.82	183.91	24407.14	-51.84	13.42



KARIMNAGAR Range								
Bommareddy pally	0.00	527.43	355.63	18.05	3.20	904.31	0.00	0.00
Dammaipet	0.00	901.73	159.97	35.45	0.00	1097.15	0.00	0.00
Elkatourthy	0.00	30.27	19.99	4.51	0.68	55.46	0.00	0.00
Fazilnagar	0.00	960.16	190.36	18.40	0.00	1168.92	0.00	0.00
Gangadhara	0.00	1.21	4.16	0.37	0.00	5.73	0.00	0.00
Gollakota	0.00	603.36	285.24	37.13	6.40	936.25	-1.37	1.37
Kapparaopet	0.00	113.75	223.98	297.60	32.99	668.33	0.00	0.00
Karimanagar	0.00	0.00	1.27	0.00	2.08	3.34	0.00	0.00
Kodmial	0.00	819.28	116.46	15.85	0.00	951.59	0.00	0.00
Lagalamarri	0.00	584.11	381.61	38.56	2.97	1007.26	0.00	0.00
Mirzapur	0.00	2043.04	1211.04	557.89	71.70	3883.67	0.00	0.00
Muthyampet	0.00	713.75	87.44	21.08	0.00	822.27	0.00	0.00
Raipatnam	0.00	244.13	362.33	413.18	77.75	1097.38	0.00	0.00
Regonda	0.00	60.73	679.12	796.25	50.24	1586.34	-12.21	12.21
Shanigaram	0.00	164.38	711.01	408.07	37.13	1333.29	0.00	0.00
Surampet	0.00	849.57	75.93	20.02	1.63	947.15	0.00	0.00
Tirumalapur	0.00	849.31	111.84	8.91	1.06	971.12	0.00	0.00
Total	0.00	9466.20	4977.37	2691.32	287.85	17439.57	-13.58	13.58
RAI KAL Range								
Amberipet	0.00	739.93	170.20	56.30	6.20	972.63	0.00	0.00
Bandalingapur]	0.00	354.96	255.46	61.42	15.93	689.27	0.00	0.00
Bhupathipur	0.00	957.92	94.20	13.97	2.91	1069.00	0.00	0.00
Bornapally_North	0.00	719.59	540.32	375.12	52.77	1688.09	0.00	0.00
Bornapally_South	0.00	457.34	150.51	6.59	0.00	614.83	0.00	0.00
Chintakunta	0.00	1630.35	156.17	58.29	7.81	1852.62	0.00	0.00
Chintalur	0.00	789.75	124.34	13.06	0.00	927.15	0.00	0.00
Dabba	0.00	455.48	230.47	73.89	4.80	764.64	0.00	0.00
Devanpally	0.00	298.50	294.62	90.44	10.83	694.39	0.00	0.00
Dharmajipet	0.00	736.91	23.49	1.86	0.00	762.26	0.00	0.00
Gorrepally	0.00	747.55	273.93	118.55	32.47	1172.50	0.00	0.00
Heerapur	0.00	451.66	143.51	1.21	0.00	596.37	0.00	0.00
Ibrahimpattam	0.00	268.97	244.51	134.13	9.70	663.58	0.00	0.00
Katkapur_North	0.00	117.96	377.80	251.61	54.99	802.37	0.00	0.00
Katkapur_South	0.00	388.82	498.18	113.25	1.41	1001.66	0.00	0.00
Kothapet	0.00	665.41	83.97	6.65	0.00	756.02	0.00	0.00
Laxmipur	0.00	80.12	296.17	125.03	3.17	504.49	0.00	0.00
Mallapur	0.00	47.61	114.81	84.68	126.67	381.22	0.00	0.00
Moghalpet	0.00	613.93	132.97	25.35	6.14	778.89	0.00	0.00
Rangaraopet	0.00	669.65	288.71	108.04	8.32	1075.59	0.00	0.00
Regunta	0.00	511.26	371.09	196.59	8.72	1087.65	0.00	0.00
Sattakkapally	0.00	59.53	68.78	0.90	0.16	129.38	0.00	0.00
Tatalvai	0.00	717.68	8.53	0.00	0.00	726.21	0.00	0.00
Vasthapur	0.00	696.54	96.90	10.49	11.98	815.92	-6.44	6.44
Vempallyvenkatraopet	0.00	865.13	263.71	21.22	0.00	1150.73	0.00	0.00
Vemulakurthy	0.00	450.11	185.38	89.56	12.39	737.44	0.00	0.00
Total	0.00	14492.66	5488.71	2038.20	377.36	22414.89	-6.44	6.44
SIRICILLA Range								
Advipadira	0.00	69.22	271.15	107.59	48.54	496.51	-43.08	0.00
Akkapally	0.00	244.94	721.79	62.01	10.77	1039.51	0.00	0.00
Almaspur	0.00	230.12	803.71	155.69	5.71	1195.24	0.00	0.00
Chandurthy	0.00	971.58	60.06	50.99	0.00	1082.63	0.00	0.00
Chirlavancha	0.00	0.00	139.30	270.85	8.73	418.88	0.00	0.00
Garjanpally	0.00	318.03	410.67	194.41	19.79	1015.68	-10.01	1.96
Gollapally	0.00	163.09	908.47	199.62	3.30	1274.48	0.00	0.00
Gorintial	0.00	249.06	701.01	233.86	16.36	1201.29	0.00	0.00
Gundaram	0.00	214.65	554.25	188.51	25.90	983.31	-5.57	0.00
Irnappally	0.00	417.44	882.47	174.22	11.53	1486.72	0.00	0.00
Jillella	0.00	49.97	665.71	569.90	76.48	1362.56	-12.81	0.00
Kancherla	0.00	480.44	400.97	46.22	1.43	929.06	0.00	0.00
Konaraopet	0.00	378.23	739.52	47.05	4.53	1169.33	0.00	0.00
Lingannapet	0.00	111.55	601.37	314.55	37.22	1064.69	0.00	0.00
Maddimalla_North	0.00	433.83	369.04	255.08	106.75	1164.71	0.00	0.00
Maddimalla_South	0.00	196.28	420.65	385.90	79.85	1082.68	0.00	0.00
Marrimadla_North	0.00	581.24	1364.19	214.34	8.24	2172.26	0.00	0.00
Marrimadla_South	0.00	165.70	547.75	151.36	24.04	894.09	0.00	0.00



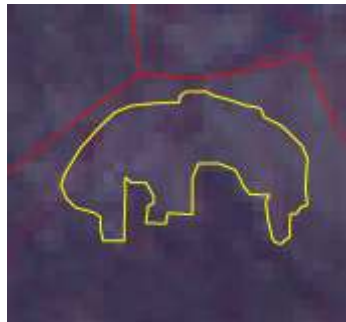
Andhra Pradesh State of Forests - 2011

Mucherla	0.00	222.13	738.28	313.24	9.72	1283.37	0.00	0.00
Nimmapally	0.00	289.22	546.79	115.43	3.60	964.60	0.00	0.00
Nizamabad	0.00	297.17	845.57	139.02	9.33	1291.09	0.00	0.00
Nookalamarri	0.00	718.35	64.19	8.18	0.00	790.73	0.00	0.00
Peddalingapur	0.00	10.29	114.20	237.27	22.44	384.19	0.00	0.00
Rudrangi_East	0.00	807.09	216.22	17.94	5.84	1047.09	0.00	0.00
Rudrangi_West	0.00	919.74	1401.08	253.84	10.07	2590.73	0.00	0.00
Thimmapur	0.00	202.23	491.35	236.91	33.43	964.70	0.00	0.00
Peddalingapur	0.00	269.54	470.29	119.33	0.00	859.16	0.00	0.00
Rudrangi_East	0.00	185.81	1303.11	372.45	23.40	1895.18	0.00	0.00
Rudrangi_West	0.00	123.60	694.16	248.45	14.92	1081.13	0.00	0.00
Total	0.00	9320.58	17447.31	5684.20	621.91	33185.60	-71.47	1.96
Grand Total	0.00	50140.26	33630.43	12027.54	1471.03	97269.25	-143.33	35.40

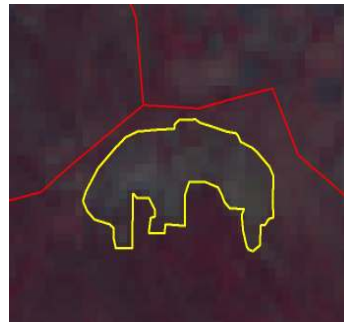
* Beat wise total area including Water bodies.

Satellite Imageries

2008



2009



Longitude	79.10101
Latitude	18.10151
Area_Ha	12.21
Class	SFTO NF
Comp_No.	728
Beat	Regonda
Range	Karimnagar
Division	Karimnagar West



Chapter-IV

4.43 WARANGAL NORTH DIVISION

4.43.1 Introduction:

Warangal (North) Forest Division lies in the Northern west Part of Warangal District, between latitudes 17° 29' 16" and 18° 36' 20" N and longitudes 78° 49' 49" and 80° 40' 13" E. The Geographical Area of the Division is **9,056 Km²**, which is **75.96%** of the total area of the District. The elevation of the terrain Ranges from 266 to 518 Mts. above Mean Sea level. The general slope of the land is towards South East, the surplus water draining into Godavari river. Dayyam vagu is one of the important rivulet flowing in the Division and passes through mostly Forest area.

Land use pattern of the division is given in Table 4.43.1

The climate of this Division is generally dry with temperature ranging from **15°C** to **45°C** and the annual rainfall is about **1015.8 mm**, received mainly from Southwest monsoons.

The soil types found mainly are Black cotton, Loamy, sandy and Alluvial. The rocks found in this Division are Archeans, Granites, Gneissus and Dyke. The Mineral Resources in this division are Iron ore, Lime stone and Coal.

The total population of the Division is 2.57 million (2011 Census). The Per capita forest area is 0.089 ha. The population density is 296 persons per Km².

Table 4.43.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	8687.81	
Forest including Scrub	2062.96	23.75
Agriculture	5402.94	62.19
Land with Scrub	370.82	4.27
Fallow Lands	308.13	3.55
Grasslands	0	0
Settlements	103.8	1.19
Vegetation outside Forest	171.84	1.98
Water body	267.32	3.07

4.43.2 Recorded Forest Area:

The total notified forest area of the Division is 2,310.25 Km², which is 26.59% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 1,579.06 Km² (68.35%), 709.02 Km² (30.69%) and 22.18 Km² (0.95%) of the total forest area respectively.

As per Champion and Seth's classification, the forests of Division falls under Dry deciduous teak Forests and Tropical Moist deciduous Forests.

4.43.3 Protected Area:

There is no Protected area in the Division now, since part of the Warangal North Division was constituted as Warangal WLM Division.

4.43.4 Community Forest Management:

There are 127 Vana Samrakshana Samities (VSSs) in the Division. 332.38 Km² forest area, which is 8.95 % of the notified forests is under the management of the VSSs. During the JFM/CFM project period about 16.75 Km² area brought under plantations.

4.43.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Oct2009-Dec2009), is 1,967.85 Km², which is 22.65% of the total Geographical area.

In terms of the forest canopy density classes the Division has 953.10 Km² of Moderately Dense Forests and 1014.74 Km² Open Forests. The area of the Scrub is 91.37 Km², Non-Forests 244.31 Km² and Water Bodies 6.73 Km². The distribution of the forest cover of the division is shown in Fig 4.41.1

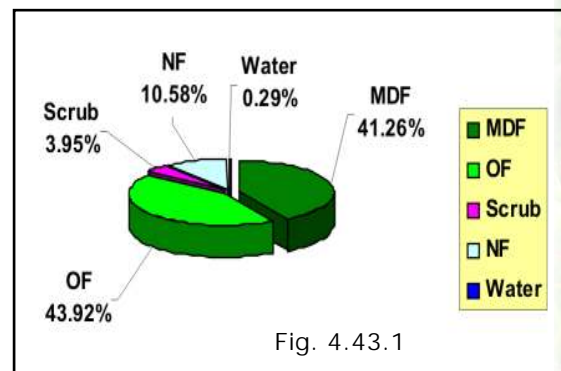


Fig. 4.43.1

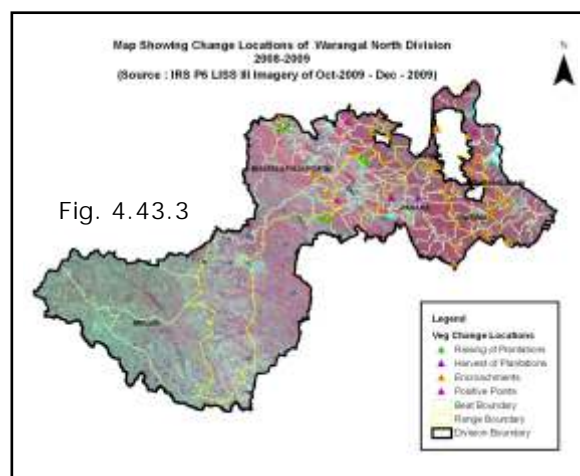
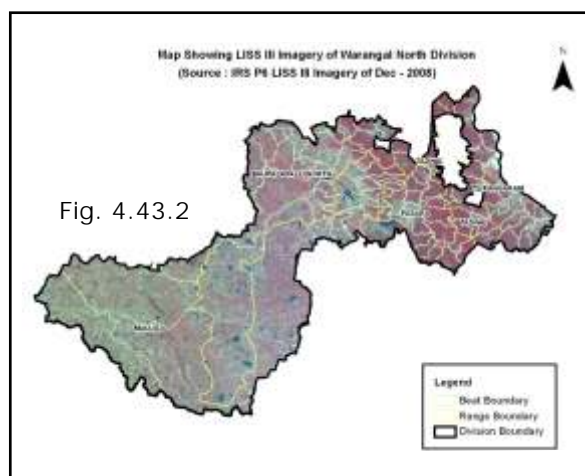


4.43.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.43.2, Fig 4.43.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009 – Dec 2009) with that of previous assessment year (Satellite data of Dec 2008), shows a negative change in forest cover of 427.06 Ha and positive change is 18.04 Ha. The forest cover change matrix, given in Table 4.43.2 reveals that there has been a decrease of 89 Ha of moderately dense forest and 193 Ha of open forest.

The positive change is on account of raising or growth in raised plantations. Of the total negative change 143.84 Ha on account of Raising of Plantations, 18.12 Ha on account of Harvest of Plantations and 265.10 Ha on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 265.10 Ha only.



The simplified forest cover change matrix is given in Table 4.43.3 and Table 4.43.4

There are 84 beats in the division. Negative change in forest cover is noticed in 31 beats, positive change in forest cover is noticed in 2 beats. There is no change in the remaining 58 beats.

Details of Forest Cover changes in the 33 Beats where Forest Cover is changed, is shown in Table 4.43.5.

Table 4.43.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Dec 2008)	2009 (Data of Oct 2009 -Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	953.10	0.13	0.54	0.22	0.00	953.99
Open Forest	0.00	0.00	1014.43	1.41	0.83	0.00	1016.67
Scrub	0.00	0.00	0.10	89.42	1.14	0.00	90.66
Non-Forest	0.00	0.00	0.08	0.00	242.12	0.00	242.20
Water	0.00	0.00	0.00	0.00	0.00	6.73	6.73
Total of 2009	0.00	953.10	1014.74	91.37	244.31	6.73	2310.25
Net Change	0.00	-0.89	-1.93	0.71	2.11	0.00	0.00



2008 (Data of Dec 2008)	2009 (Data of Oct 2009 – Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1967.66	3.00	0.00	1970.66
Degraded Forest	0.18	332.68	0.00	332.86
Water	0.00	0.00	6.73	6.73
Total of 2009	1967.84	335.68	6.73	2310.25
Net Change	-2.82	2.82	0.00	

2008 (Data of Dec 2008)	2009 (Data of Oct 2009 – Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	2059.13	2.19	0.00	2061.32
Barren	0.08	242.12	0.00	242.20
Water	0.00	0.00	6.73	6.73
Total of 2009	2059.21	244.31	6.73	2310.25
Net Change	-2.11	2.11	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
BHUPALAPALLI NORTH Range								
Andukthanda	0.00	235.40	466.99	82.24	174.22	958.85	-37.33	0.00
Bhagirthipet	0.00	18.79	411.10	190.67	480.62	1101.17	-51.69	51.69
Chelpur	0.00	774.49	701.40	39.93	165.35	1687.50	0.00	0.00
Dudekulapalli	0.00	1356.79	1164.69	28.05	66.81	2616.35	0.00	0.00
Kamalapur	0.00	1017.76	2232.40	142.31	328.75	3728.48	6.61	0.00
Mallampalli	0.00	1078.16	656.56	20.35	117.59	1872.65	0.00	0.00
Nawabpet	0.00	218.57	432.79	95.79	107.50	893.61	0.00	0.00
Neredupally	0.00	3.09	457.89	172.32	557.20	1205.07	0.00	0.00
Pambapur	0.00	164.69	667.00	80.93	617.55	1555.66	-8.19	8.19
Peddapur i	0.00	1225.35	818.70	23.51	14.46	2082.02	0.00	0.00
Peddapur ii	0.00	1206.15	413.04	29.53	85.62	1734.34	-3.59	3.59
Pongal	0.00	65.43	351.86	89.39	373.15	879.83	0.00	0.00
Rampur n	0.00	468.99	1322.91	77.13	170.85	2039.88	-6.93	6.93
Rampur s	0.00	1762.06	2966.40	157.95	187.94	5074.36	-9.94	9.94
Ravulapalli	0.00	51.42	544.03	72.25	357.37	1030.18	-8.08	8.08
Thirmalagiri	0.00	126.88	1080.59	462.23	902.56	2574.33	-5.71	5.71
Velchal	0.00	122.97	295.96	93.56	216.96	730.24	0.00	0.00
Vencharam	0.00	69.66	942.98	289.44	945.81	2247.88	-17.83	2.67
Yennelamadugu	0.00	2215.88	2116.01	133.26	185.62	4650.77	0.00	0.00
Total	0.00	12182.53	18043.30	2280.84	6055.93	38663.17	-142.68	96.80



ETURANGARAM Range								
Bhupathipur	0.00	1554.89	1217.16	35.74	88.28	2897.29	0.00	0.00
Chittial	0.00	1597.62	834.13	14.90	49.72	2496.38	0.00	0.00
Domeda	0.00	526.35	1929.43	153.97	299.65	2909.40	0.00	0.00
Eturnagaram	0.00	784.28	876.21	99.90	291.36	2051.75	-7.85	7.85
Gangaram	0.00	2174.54	788.56	23.40	26.05	3012.56	0.00	0.00
Gurvella	0.00	1420.97	907.58	49.15	383.87	2785.04	0.00	0.00
Komatpalli	0.00	441.19	1258.99	195.11	849.73	2749.20	-20.75	20.75
Mallur	0.00	824.45	486.50	33.39	88.15	1432.50	0.00	0.00
Mangapet	0.00	230.90	1265.78	156.86	305.39	1958.93	0.00	0.00
Narsimhasagar	0.00	575.97	1390.43	101.87	654.04	2752.37	0.00	0.00
Puredpalli	0.00	1267.80	1721.78	219.09	447.82	3656.50	0.00	0.00
Rajupet	0.00	649.50	165.77	34.98	65.93	916.18	0.00	0.00
Rampur_mulakatta	0.00	640.75	1392.17	71.20	325.27	2444.13	0.00	0.00
Rangapur	0.00	792.08	3201.41	210.53	105.40	4309.42	-20.29	20.29
Roheer	0.00	1610.99	1500.13	116.72	584.47	3906.33	0.00	0.00
Salpak	0.00	1718.48	1912.23	93.09	274.86	4016.79	-14.22	17.18
Thimmampet	0.00	931.99	2054.53	201.14	1116.96	4315.06	-35.72	35.72
Thimmapur	0.00	478.12	2532.26	179.84	106.68	3296.90	0.00	0.00
Tondyal laxmipur	0.00	1210.60	1606.78	80.56	112.83	3010.78	-5.90	5.90
Tupakulaguda	0.00	429.78	1057.04	20.90	144.83	1664.64	0.00	0.00
Total	0.00	19861.25	28098.87	2092.34	6321.29	56582.15	-104.73	107.69
MULUG Range								
Burgupet	0.00	2788.53	1884.93	132.40	207.40	5016.54	0.00	0.00
Incherla	0.00	58.88	303.00	65.92	264.95	713.11	0.00	0.00
Jakaram	0.00	141.38	811.20	218.08	664.43	1840.59	8.47	0.00
Kasimdevipet	0.00	848.30	849.10	83.70	193.61	1974.71	0.00	0.00
Katreppally	0.00	114.69	868.11	111.89	361.00	1455.69	-5.68	0.00
Machapur	0.00	688.86	653.81	57.27	79.91	1479.85	0.00	0.00
Mulug	0.00	172.54	398.66	136.52	200.20	907.93	0.00	0.00
Nallagunta	0.00	996.61	462.93	16.23	27.70	1503.47	0.00	0.00
Narayanpur	0.00	841.21	991.75	89.81	307.05	2234.84	-77.62	0.00
Narsingapur	0.00	1609.94	998.58	40.95	26.91	2676.37	0.00	0.00
Palampet	0.00	88.60	512.04	68.35	398.77	1076.79	0.00	0.00
Pandikunta	0.00	77.59	780.08	217.93	467.55	1672.57	-8.05	0.00
Rayanguda	0.00	864.97	3576.07	297.77	443.67	5207.81	0.00	0.00
Venkatapur	0.00	1381.90	1253.38	142.63	166.53	2944.44	0.00	0.00
Total	0.00	10674.00	14343.64	1679.45	3809.68	30704.71	-82.88	0.00
PASARA Range								
Alliguda_n	0.00	2204.43	527.86	33.53	112.74	2878.56	-2.62	2.62
Alliguda s	0.00	2577.74	623.04	14.95	57.33	3276.51	0.00	0.00
Bandal	0.00	5092.57	1123.48	36.63	75.35	6328.02	0.00	0.00
Bussapur	0.00	631.58	916.77	128.51	183.94	1861.47	0.00	0.00
Karlapalli_n	0.00	963.16	2557.77	246.05	581.79	4364.01	0.00	0.00
Karlapalli_s	0.00	1746.33	2290.94	61.50	155.63	4255.93	0.00	0.00
Kodishella_n	0.00	1928.60	1869.98	29.65	35.68	3863.91	0.00	0.00
Kodishella_s	0.00	1303.10	1867.85	22.52	22.77	3216.24	0.00	0.00
Kothanagaram	0.00	1101.26	955.85	81.64	598.15	2743.41	-7.12	0.00



Forest division wise results

Lawal	0.00	4799.62	1448.47	77.28	190.31	6515.68	0.00	0.00
Lingal	0.00	2469.91	1749.24	106.50	466.63	4794.43	-3.55	3.55
Motlaguda	0.00	2322.30	2008.45	72.37	142.99	4546.11	0.00	0.00
Narlapur	0.00	829.59	1520.77	227.00	381.79	2972.24	-4.94	4.94
Pasra	0.00	1668.58	1104.20	40.92	59.20	2872.90	0.00	0.00
Salvai	0.00	942.12	1673.05	124.85	384.75	3124.77	-11.00	0.00
Yenglapur	0.00	1394.74	1674.14	76.15	151.96	3306.01	0.00	0.00
Total	0.00	31975.63	23911.86	1380.05	3601.01	60920.20	-29.23	11.11
T.P.WARANGAL Range								
Devnoor	0.00	24.45	466.70	67.64	82.71	641.49	0.00	0.00
Machupad	0.00	622.71	708.21	51.19	94.06	1476.17	0.00	0.00
Nagapuri	0.00	0.00	30.50	50.68	895.96	980.27	0.00	0.00
Raghunathpalli	0.00	0.00	36.88	57.94	115.23	210.06	0.00	0.00
Tatikonda	0.00	2.61	673.13	437.04	1297.03	2416.50	0.00	0.00
Total	0.00	649.77	1915.42	664.49	2484.99	5724.49	0.00	0.00
TADWAI Range								
Beerelli	0.00	1997.09	2041.99	288.10	556.49	4902.65	-23.45	23.45
Bodiguda	0.00	2104.59	1348.19	45.56	89.93	3613.76	-2.63	2.63
Chinnaboinapally	0.00	1401.02	974.65	94.94	377.28	2847.89	-3.15	3.15
Damervai	0.00	997.07	1158.45	68.05	133.20	2356.76	-2.20	2.20
Katapur	0.00	1152.22	769.76	64.76	81.10	2070.15	-5.04	5.04
Oorattam	0.00	4604.39	3708.83	208.96	379.12	8926.50	-5.35	5.35
Rampur_new	0.00	1179.94	896.64	60.79	59.56	2196.92	0.00	0.00
Shahpalli	0.00	2104.60	1470.36	87.80	262.47	3947.14	-5.17	5.17
Souledu	0.00	2262.10	931.55	3.32	4.76	3201.73	0.00	0.00
Tadwai	0.00	2208.00	1779.92	163.65	204.76	4366.83	-2.51	2.51
Total	0.00	20011.02	15080.34	1085.93	2148.67	38430.33	-49.50	49.50
Division Total	0.00	95354.20	101393.43	9183.10	24421.57	231025.05	-409.02	265.10

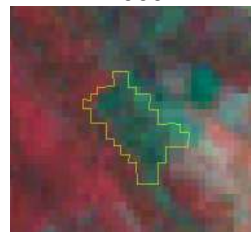
* Beat wise total area including water bodies.

Satellite Imageries

2008



2009



Longitude	80.41774
Latitude	18.10494
Area	5.43 Ha.
Change	OF to SF
Compartment No.	34
Beat	Beerelli
Range	Tadwai
Division	Warangal North





Chapter-IV

4.44 WARANGAL SOUTH DIVISION

4.44.1 Introduction:

Warangal (South) Forest Division lies in the South East Part of Warangal District, between latitudes 17° 19' 05" and 18° 07' 04" N and longitudes 79° 35' 32" and 80° 18' 32" E. The Geographical Area of the Division is 3,618 Km², which constitutes 29.3% of the total geographical area of the District. The Division is having an altitude of 420 to 658 m and the plains having an altitude of 302 m.

Land use pattern of the Division is given in Table 4.44.1

The climate of this Division is generally dry with temperatures ranging from 15°C to 45°C and the annual rainfall is about 1015.8 mm, received mainly from Southwest monsoons.

The soil types found mainly are Black cotton, Red and Brown sandy loam.

The total population of the Division is 0.95 million (2011 Census). The Per capita forest area is 0.12 ha. The population density is 263 persons per Km².

4.44.2 Recorded Forest Area:

The total notified forest area of the Division is 1,174 Km², which is 32.4% of the total geographical area. Reserved, Protected and Un-classed Forests Constitute 572.8 Km² (48.79%), 598 Km² (51.03%) and 2.11 Km² (0.18%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Dry deciduous teak Forests, Tropical dry deciduous mixed forests, bamboo and mixed teak forests.

Table 4.44.1 Land Use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	3618.13	
Forest including Scrub	815.16	22.53
Agriculture	2296.34	63.47
Land with Scrub	174.21	4.81
Fallow Lands	77.86	2.15
Grasslands	0	0.00
Settlements	13.11	0.36
Vegetation outside Forest	94.3	2.61
Water body	147.15	4.07

4.44.3 Protected Area:

There is no Protected area in the Division now, since part of the Warangal South Division was constituted as Warangal WLM Division.

4.44.4 Community Forest Management :

There are about 147 Vana Samrakshana Samities (VSSs) in the Division. An area of 339.46 Km² forest area, which is 19.89 % of notified forest area, is under the management of the VSSs. There are about 19.89 Km² of forest area is brought under plantations.

4.44.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Oct2009) is 735.14 Km², which is 20.31% of the total Geographical area. In terms of the forest canopy density classes the Division has 308.22 Km² of Moderately Dense Forests and 426.92 Km² of Open Forests. The area of the Scrub is 77.79 Km², Non-Forest 339.43 Km² and Water Bodies 22.29 Km². The distribution of the forest cover of the division is shown in Fig 4.44.1

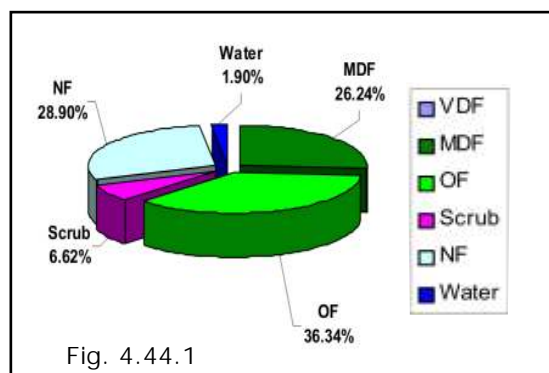


Fig. 4.44.1

4.44.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.44.2, Fig 4.44.3 and the changes between this period have shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment year (Satellite data of Dec 2008), shows a negative change in forest cover of 832.29 Ha and positive change is 9.93 Ha.

The positive change is on account of raising or growth in raised plantations. Of the total negative change 68.21

Ha on account of Raising of Plantations, 23.70 Ha on account of Harvest of Plantations and 740.38 Ha on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 740.38 Ha only.

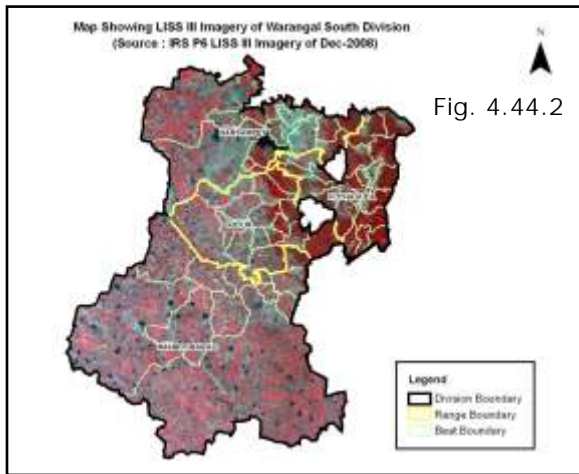


Fig. 4.44.2

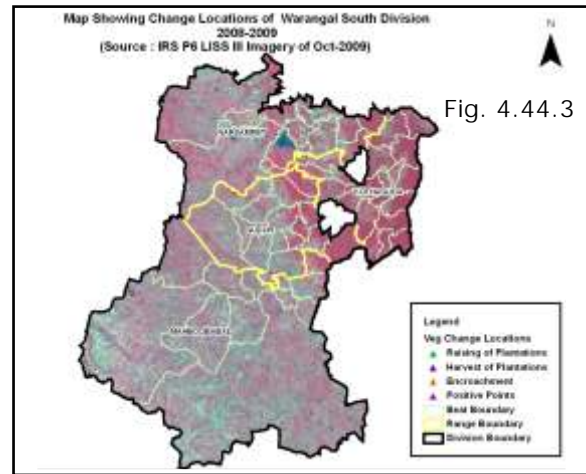


Fig. 4.44.3

The simplified forest cover change matrix is given in Table 4.44.3 and Table 4.44.4

There are 56 Beats in the Division. Negative change in Forest Cover is noticed in only 26 Beats, positive change in forest cover is noticed in 1 beat. There is no change in the remaining 29 Beats.

Details of Forest Cover changes in the 26 Beats where Forest Cover is changed, is shown in Table 4.44.5

Table 4.44.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	308.22	0.00	1.27	0.00	0.00	309.49
Open Forest	0.00	0.00	426.82	4.80	0.64	0.00	432.26
Scrub	0.00	0.00	0.08	71.72	1.62	0.00	73.42
Non-Forest	0.00	0.00	0.02	0.00	337.17	0.00	337.19
Water	0.00	0.00	0.00	0.00	0.00	22.29	22.29
Total of 2009	0.00	308.22	426.92	77.79	339.43	22.29	1174.65
Net Change	0.00	-1.27	-5.34	4.37	2.24	0.00	0.00



2008 (Data of Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	735.04	6.71	0.00	741.75
Degraded Forest	0.10	410.51	0.00	410.61
Water	0.00	0.00	22.29	22.29
Total of 2009	735.14	417.22	22.29	1174.65
Net Change	-6.61	6.61	0.00	

2008 (Data of Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	812.91	2.26	0.00	815.17
Barren	0.02	337.17	0.00	337.19
Water	0.00	0.00	22.29	22.29
Total of 2009	812.93	339.43	22.29	1174.65
Net Change	-2.24	2.24	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
GUDUR Range								
Apparajpally	0.00	273.68	582.67	324.31	737.32	1925.43	-94.96	94.96
Bhupathipet	0.00	1292.10	818.43	85.11	606.03	2817.79	0.00	0.00
Damarancha	0.00	1.83	171.21	132.72	620.86	926.62	0.00	0.00
Doravarithimmapur	0.00	2517.22	1910.77	60.89	66.87	4558.28	-2.51	2.51
Gajulagattu	0.00	9.81	438.10	158.58	526.09	1134.67	0.00	0.00
Gudur	0.00	597.37	803.42	207.83	544.07	2180.15	-43.85	43.85
Gunjed	0.00	1393.26	909.30	63.16	164.00	2538.29	0.00	0.00
Macherla	0.00	208.48	441.92	111.72	160.84	925.01	-12.10	12.10
Matwada	0.00	491.93	1238.55	121.96	383.14	2237.89	-4.35	4.35
Nagaram	0.00	10.40	442.93	242.29	1638.01	2347.24	-50.29	50.29
Naikpally	0.00	9.49	303.63	116.90	653.01	1104.53	0.00	0.00
Otla	0.00	1244.49	1200.68	160.92	371.35	2982.35	-56.93	56.93
Ponugodu	0.00	120.91	678.39	117.35	881.21	1832.38	0.00	0.00
Raichetlapad	0.00	75.23	170.01	24.97	335.30	605.51	0.00	0.00
Total	0.00	8246.22	10110.01	1928.69	7688.11	28116.14	-264.99	264.99
KOTHAGUDA Range								
Bavargonda	0.00	641.24	646.58	81.53	435.41	1812.67	-24.13	24.13
Buthulapally	0.00	177.48	1654.91	298.66	963.86	3104.15	-69.01	18.95
Gangaram	0.00	2032.73	742.08	31.52	180.20	2986.52	0.00	0.00
Gudipaddu	0.00	1716.78	362.85	32.05	363.49	2479.53	-8.63	8.63
Gurjalemote	0.00	1206.88	689.53	28.87	142.88	2071.55	0.00	0.00
Jangalapally	0.00	1837.05	1245.25	131.76	301.89	3517.24	-43.02	43.02



Forest division wise results

Kamaram	0.00	927.37	2329.64	92.15	511.43	3877.58	-9.16	9.16
Komatlaguda	0.00	1453.00	851.64	95.07	444.13	2851.19	-23.64	23.64
Kothaguda	0.00	288.17	572.71	235.77	1507.26	2625.03	-4.74	4.74
Madaguda	0.00	1052.11	1236.27	167.89	634.67	3097.32	-6.73	6.73
Mamidiguda	0.00	982.69	1087.32	66.72	464.19	2603.29	-1.56	1.56
Marriguda	0.00	787.15	1519.76	159.29	398.77	2869.99	-75.32	75.32
Pandem-east	0.00	1436.33	545.80	38.24	11.31	2031.69	-6.93	6.93
Pandem-west	0.00	1049.74	332.90	11.58	23.03	1417.25	0.00	0.00
Polaram	0.00	361.98	1300.10	243.55	747.81	2671.15	-26.63	8.48
Putlabhupathi	0.00	920.22	763.13	113.08	260.30	2063.55	-30.83	30.83
Thirmalgandi	0.00	87.18	1189.09	140.62	412.72	1836.24	0.00	0.00
Total	0.00	16958.10	17069.54	1968.35	7803.35	43915.95	-330.33	262.12
MAHBOOBABAD Range								
Alair	0.00	202.87	452.38	116.42	680.98	1456.51	0.00	0.00
Beriwada	0.00	59.80	419.95	110.96	660.97	1251.67	0.00	0.00
Chinnanagaram	0.00	6.05	485.22	296.27	790.97	1598.43	-23.70	0.00
Edulapusapally	0.00	15.10	205.75	136.59	473.64	835.37	0.00	0.00
Inugurthy	0.00	14.25	603.34	264.21	767.42	1651.60	0.00	0.00
Jamandlapally	0.00	26.06	438.86	195.34	506.01	1170.78	0.00	0.00
Kambalpally	0.00	275.16	584.70	155.57	838.99	1900.55	0.00	0.00
Kesamudram	0.00	29.05	268.31	70.07	587.63	963.78	0.00	0.00
Kongarigidda	0.00	446.18	1164.25	222.53	687.17	2528.07	-12.61	12.61
Mahabubabad	0.00	56.14	559.37	154.57	1007.69	1790.98	0.00	0.00
Penugonda	0.00	11.71	168.36	96.20	369.26	649.12	0.00	0.00
Tadlapusapally	0.00	32.08	335.94	190.70	874.89	1437.59	0.00	0.00
Total	0.00	1174.46	5686.41	2009.41	8245.61	17234.45	-36.31	12.61
NARSAMPET Total								
Ashoknagar	0.00	50.88	712.98	121.62	899.99	1845.25	0.00	0.00
Budharaopet	0.00	27.79	40.47	10.04	32.09	110.39	0.00	0.00
Dabeerpet	0.00	490.55	1465.87	260.92	742.00	2964.06	7.62	0.00
Govindapur	0.00	1156.81	1076.80	326.97	1380.07	4072.20	-149.54	149.54
Inchaguda(n)	0.00	94.65	656.82	90.27	876.31	1719.53	0.00	0.00
Inchaguda(s)	0.00	16.26	523.96	208.61	1683.69	2541.27	-1.75	1.75
Itkalpally	0.00	5.72	138.82	89.36	734.87	980.11	0.00	0.00
Khanapur	0.00	142.63	195.51	38.09	254.48	630.71	0.00	0.00
Musimi_ii	0.00	448.75	1350.04	90.76	170.16	2064.44	0.00	0.00
Musmi-1	0.00	526.84	1012.42	113.75	605.41	2271.73	-3.41	3.41
Pakhal	0.00	544.75	1150.07	324.63	1174.72	4694.40	-39.90	42.21
Pogallapalli	0.00	11.40	329.17	156.38	1590.68	2102.92	0.00	0.00
Ponugondla	0.00	926.47	1172.69	41.59	61.10	2201.86	-3.75	3.75
Total	0.00	4443.50	9825.62	1872.99	10205.55	28198.85	-190.73	200.66
Division Total	0.00	30822.28	42691.58	7779.44	33942.63	117465.38	-822.36	740.38

* Beat wise total area including water bodies.





Chapter-IV

4.45 WARANGAL WLM DIVISION

4.45.1 Introduction:

Warangal (WLM) Forest Division lies in the North West Part of Warangal District, between latitudes 17° 29' 16" and 18° 36' 20" N and longitudes 78° 49' 49" and 80° 40' 13" E. The Geographical Area of the Division is 540 Km²,

Land use pattern of the Division is given in Table 4.45.1

The climate of this Division is generally dry with temperatures ranging from 15° C to 40°C and the annual rainfall is about 1015.8 mm, received mainly from Southwest monsoons.

The total population of the Division is 0.039 million (2011 Census). The Per capita forest area is 1.38 ha. The population density is 72 persons per Km².

4.45.2 Recorded Forest Area:

The total notified forest area of the Division is **538.55 Km²**.

As per Champion and Seth's classification, the Forests of Division fall under Tropical dry deciduous, Tropical Moist deciduous, Tropical Semi-evergreen and Tropical Thorn Forest types.

4.45.3 Protected Area:

The Division is totally covered with Protected areas of Eturnagaram wildlife sanctuary and Pakhal wildlife Sanctuary.

4.45.4 Community Forest Management:

There are 43 Vana Samrakshana Samities (VSSs) in the Division. An area of 100.67 Km² forest area, which is 18.69% of the notified forests is under the management of the VSSs.

4.45.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Oct2009) is 496.29 Km², which is 91.89% of the total Geographical area. In terms of the forest canopy density classes the Division has 219.07 Km² of Moderately Dense Forests and 277.22 Km² of Open Forests. The area of the Scrub is 15.26 Km², Non-Forests 25.23 Km² and Water Bodies 1.77 Km². The distribution of the forest cover of the division is shown in Fig 4.45.1

4.45.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.45.2, Fig 4.45.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment year (Satellite data of Dec 2008), shows a negative change in forest cover of 76.52 Ha. The forest cover change matrix, given in Table 4.45.2 reveals that there has been a decrease of 20 Ha of moderately dense forest and 57 Ha of open forest.

Table 4.45.1 : Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	540.04	
Forest including Scrub	511.55	94.72
Agriculture	6.86	1.27
Land with Scrub	5.41	1.00
Fallow Lands	0.19	0.04
Grasslands	0.00	0.00
Settlements	0.00	0.00
Vegetation outside Forest	14.99	2.78
Water body	1.04	0.19

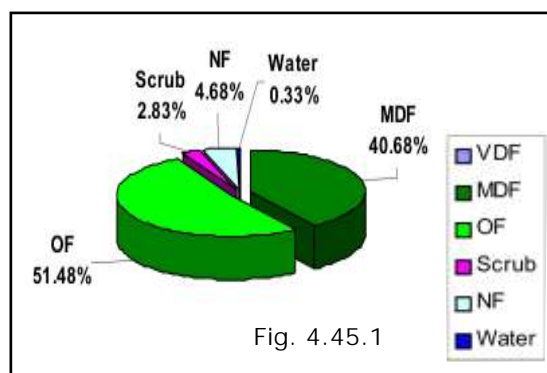


Fig. 4.45.1



The negative change on account of encroachments alone is considered as loss of Forest Cover. Therefore, the net loss of Forest Cover in this Division is 76.52 Ha.

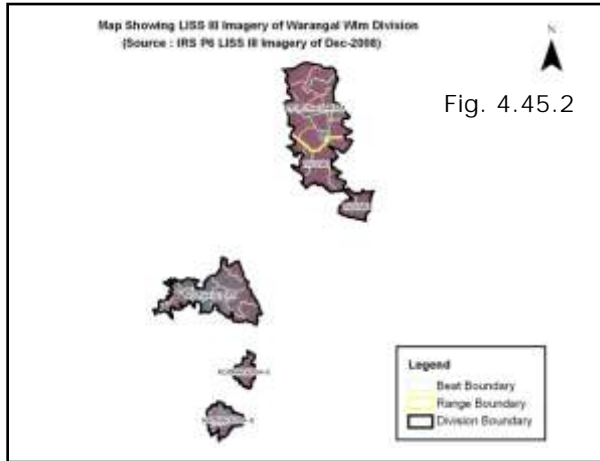


Fig. 4.45.2

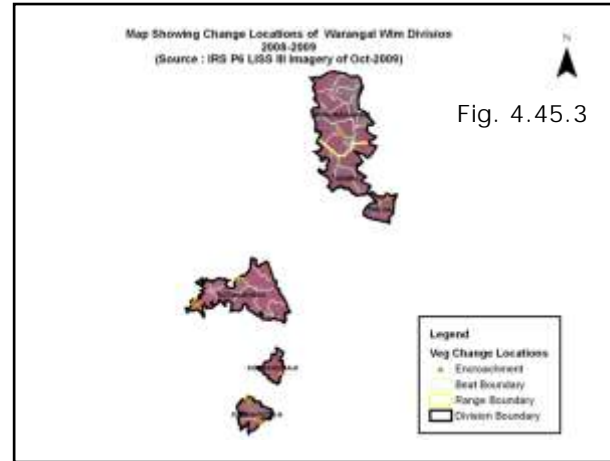


Fig. 4.45.3

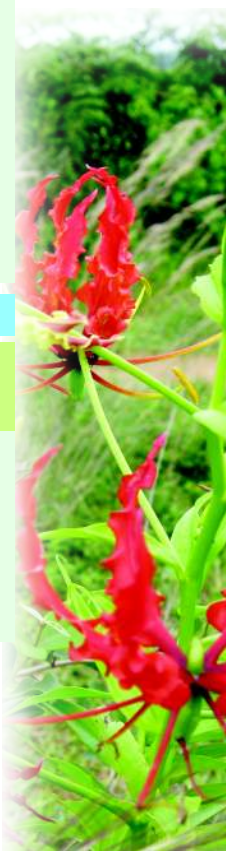
The simplified forest cover change matrix is given in Table 4.45.3 and Table 4.45.4

There are 30 Beats in the Division. Negative change in Forest Cover is noticed in only 7 Beats. There is no change in the remaining 23 Beats.

Details of Forest Cover changes in the 7 Beats where Forest Cover is lost, is shown in Table 4.45.5

Table 4.45.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	219.07	0.14	0.06	0.00	0.00	219.27
Open Forest	0.00	0.00	277.08	0.71	0.00	0.00	277.79
Scrub	0.00	0.00	0.00	14.49	0.00	0.00	14.49
Non-Forest	0.00	0.00	0.00	0.00	25.23	0.00	25.23
Water	0.00	0.00	0.00	0.00	0.00	1.77	1.77
Total of 2009	0.00	219.07	277.22	15.26	25.23	1.77	538.55
Net Change	0.00	-0.20	-0.57	0.77	0.00	0.00	0.00

Table 4.45.3: Forest Cover change matrix (Good and Degraded Forest)				(Area in Km ²)
2008 (Data of Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	496.29	0.77	0.00	497.06
Degraded Forest	0.00	39.72	0.00	39.72
Water	0.00	0.00	1.77	1.77
Total of 2009	496.29	40.49	1.77	538.55
Net Change	-0.77	0.77	0.00	



2008 (Data of Dec 2008)	2009 (Data of Oct 2009)			Total of 2008
	Green	Barren	Water	
Green	511.55	0.00	0.00	511.55
Barren	0.00	25.23	0.00	25.23
Water	0.00	0.00	1.77	1.77
Total of 2009	511.55	25.23	1.77	538.55
Net Change	0.00	0.00	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
ETURUNAGARAM Range								
Chintaguda	0.00	498.59	503.82	47.33	105.84	1162.04	0.00	0.00
Chittayal	0.00	1055.33	828.17	19.73	89.67	1992.90	0.00	0.00
Etur	0.00	316.42	553.00	47.32	101.22	1028.47	0.00	0.00
Iylapur	0.00	1579.16	815.56	19.97	34.99	2450.64	0.00	0.00
Kondai(n)	0.00	1256.37	539.22	4.07	8.77	1808.43	0.00	0.00
Kondai(s)	0.00	794.01	500.96	10.49	7.55	1330.24	0.00	0.00
Mallial(n)	0.00	1362.10	561.64	24.56	35.41	2007.35	-5.59	5.59
Mallial(s)	0.00	1241.94	756.42	78.22	326.40	2420.92	0.00	0.00
Sarvai(n)	0.00	676.03	776.96	32.09	109.89	1596.62	0.00	0.00
Sarvai(s)	0.00	560.00	904.04	55.51	138.86	1658.41	0.00	0.00
Yelshatpally	0.00	849.41	578.86	10.63	31.81	1478.01	0.00	0.00
Total	0.00	10189.35	7318.64	349.91	990.42	18934.01	0.00	0.00
KOTHAGUDA-I Range								
Ankannaguda	0.00	468.80	695.87	11.17	19.22	1197.56	0.00	0.00
Konapur	0.00	50.03	1313.94	157.69	22.73	1544.39	0.00	0.00
Kondapur	0.00	161.56	314.18	13.67	8.51	497.92	0.00	0.00
Medapally	0.00	588.21	986.28	165.19	371.89	2116.59	-16.77	16.77
Ootai	0.00	455.66	2014.89	140.54	81.75	2692.84	0.00	0.00
Pathipelly	0.00	359.01	1090.52	71.60	70.19	1594.43	-21.42	21.42
Ponugondla	0.00	641.93	1178.23	39.47	38.89	1898.52	0.00	0.00
Rampur	0.00	1054.54	1458.10	20.28	2.34	2535.26	0.00	0.00
Sarvapur	0.00	242.11	2020.78	87.40	34.19	2385.06	0.00	0.00
Total	0.00	4021.84	11072.80	707.02	649.71	16462.58	0.00	0.00
KOTHAGUDA-II Range								
Doravarivempally	0.00	590.19	1770.27	54.07	86.71	2501.24	-2.73	2.73
Karlai	0.00	420.03	1487.47	92.01	517.65	2530.95	-4.76	4.76
Ootla	0.00	491.20	730.96	21.91	30.05	1277.87	-4.54	4.54
Total	0.00	1501.42	3988.69	167.98	634.41	6310.04	0.00	0.00
TADWAI Range								
Chinnaboinapally	0.00	530.40	648.87	23.01	7.57	1209.85	0.00	0.00
Dodla	0.00	1521.15	797.96	42.51	18.91	2396.96	0.00	0.00
Heerapur	0.00	611.76	618.92	45.78	11.25	1287.71	-34.92	34.92



Forest division wise results

Kamaram	0.00	1283.16	1464.11	50.67	26.27	2824.21	0.00	0.00
Medaram	0.00	874.23	465.85	7.05	6.47	1381.75	0.00	0.00
Oorattam	0.00	651.13	256.60	5.28	11.21	942.20	0.00	0.00
Tadawai	0.00	723.16	1089.54	126.13	166.58	2105.41	0.00	0.00
Total	0.00	6194.99	5341.85	300.44	248.25	12148.10	0.00	0.00
Division Total	0.00	21907.61	27721.98	1525.35	2522.78	53854.73	0.00	0.00

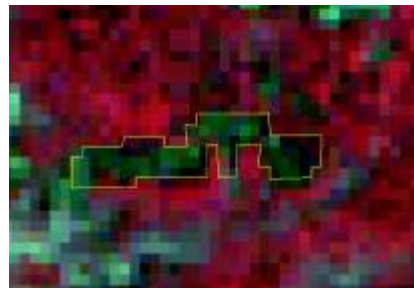
* Beat wise total area including water bodies.

Satellite Imageries

2008



2009



Longitude	80.28886
Latitude	18.38930
Area	5.59 Ha.
Change	DF to SF
Compartment No.	107
Beat	Mallial(N)
Range	Eturunagaram
Division	Warangal WLM





Chapter-IV

4.46 CHITTOR EAST WLM DIVISION

4.46.1 Introduction:

Chittor East Forest Division lies in the south of Andhra Pradesh and Eastern Part of Chittor District, between latitudes 13° 1'7.32" and 13° 55'28.56" N and longitudes 78° 46' 50.88" and 80° 03' 10.44" E. The Geographical Area of the Division is 6,769.18 Km², which constitutes 44.58 % of the total area of the District. The Eastern Ghats are predominant in the western region and they gradually bend towards the sacred Sheshachalam hills of Tirupati i.e east division, passing through Chandragiri erstwhile taluk and entering into Nellore district. There is a plateau of average height of 800 m MSL. The Division having easternghats an altitude of 1152.70 m. The rivers flowing in the division are non-perennial in nature and the important rivers are Bheema river which is a tributary of river Swarnamukhi which rises in the Eastern Ghats of the district and finally enters into Nellore district. Other important rivers are the Pincha Nadi, the Tumbur kona, the Kalangi, the Arani, the Ponnai.

Land use pattern of the division is given in Table 4.46.1

The climate of this Division is healthy and pleasant. The temperatures ranging from 12° C to 36° C and the rain fall of the division is occur under both, the South-West and North-East Monsoon Periods. Annual rainfall is about 880 mm (average of past 12 years), only 450 mm is received from the South-West Monsoon and the Critical rain fall is stunted and open type of vegetation in this division.

The major portion of the division is covered by red loamy and sandy soils with portions of alluvial soil. The soils in the division constitute sandy loamy 55%, sandy clay loams 30% to 32% clay soils 3% and the balance soils are Red clay soils and block sandy soils.

The population of the Division is 1.696 million (2001 Census), which consists of 0.854 million males and 0.842 million females, which constitutes 45.29% of the total population of the District. The per capita forest area is 0.14 ha. The Population density is 251 persons per Km².

4.46.2 Recorded Forest Area:

The total notified forest area of the Division is 2452.08 Km², which is 36.22% of the total geographical area. Reserved, Protected Forests Constitute 1976.68 Km² (80.61%), 475.4 Km² (19.39%) of the total forest area respectively.

As per Champion and Seth's classification, the Forests of Division fall under Dry tropical South Indian dry mixed deciduous forests, Southern catch thorn forest groups & Tropical dry evergreen forests Forest types.

4.46.3 Protected Area:

The Division is one of the three constituent Divisions of WLM Tirupathi. In the forests of this division at present wild animals like tiger and panther (*Panthera pardus*) are present in small numbers.

4.46.4 Community Forest Management:

There are 225 Vana Samrakshana Samities (VSSs) in the Division. An area of 567.7 Km² forests which constitutes 28.37 % of the notified forests is under the management of the VSSs.

Table 4.46.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	6769.18	
Forest including Scrub	1809.48	26.73
Agriculture	3371.05	49.80
Land with Scrub	903.77	13.35
Fallow Lands	299.68	4.43
Grasslands	30.62	0.45
Settlements	24.06	0.36
Vegetation outside Forest	121.06	1.79
Water body	209.45	3.09

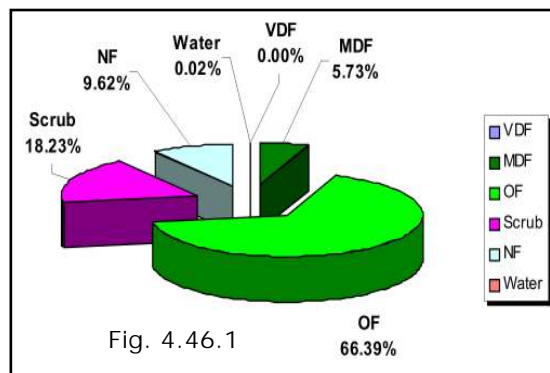


Fig. 4.46.1

4.46.5 Forest Cover:

The Forest cover in the Division based on the interpretation of IRS P6 LISS III 2008 data (Oct2008-Mar2009) is 1444.29 Km², which is 21.34% of the total Geographical area. In terms of the forest canopy density classes the Division has 0.02 Km² of Very Dense Forest, 114.71 Km² of Moderately Dense Forest, and 1328.72 Km² of Open Forest. The area of the Scrub is 364.83 Km², Non-Forest 192.58 and Water Bodies 0.45 Km². The Distribution of the forest cover of the division is shown in fig 4.46.2

4.46.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.46.2, Fig 4.46.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Nov/Dec 2009) with that of previous assessment (Satellite data of Nov/Dec 2008), shows a negative change in forest cover of **109.26 Ha** and positive change of **17.54 Ha**. The Forest cover change matrix, given in Table 4.46.2 reveals that there has been a decrease of 84 Ha open forest and 7 Ha scrub.

The positive change is on account of rising of or growth in raised plantations. Of the total negative change 91.72 Ha on account of Raising of Plantations and 21.43 on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 21.43 Ha only

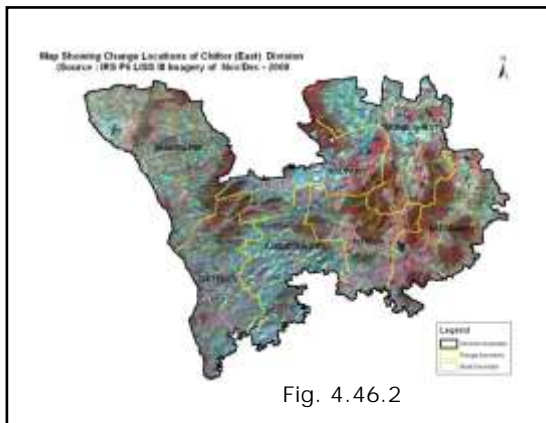


Fig. 4.46.2

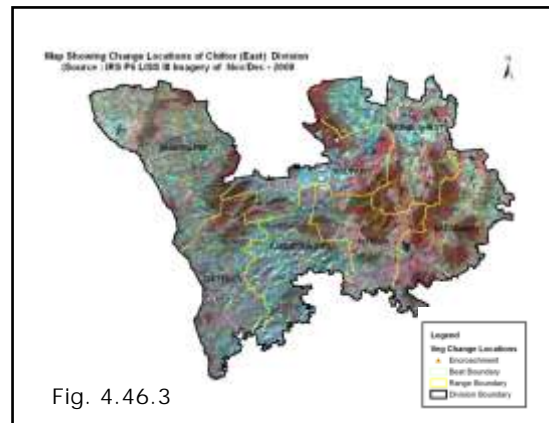


Fig. 4.46.3

The simplified forest cover change matrix is given in Table 4.46.3 and Table 4.46.4

There are **78 Beats** in the division. Negative change in Forest cover is noticed in only 4 beats, positive change in 1 beat and both changes in 1 Beat. There is no change in Forest cover in remaining 72 Beats.

Details of forest cover changes in the 6 Beats where forest cover is shown in Table 4.46.5

Table 4.46.2: Forest Cover change matrix							(Area in Km ²)
2008 (Data of Dec 2008)	2009 (Data of Oct/ Dec 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.02	0.00	0.00	0.00	0.00	0.00	0.02
Moderately Dense Forest	0.00	114.71	0.00	0.00	0.00	0.00	114.71
Open Forest	0.00	0.00	1328.57	0.00	0.99	0.00	1329.56
Scrub	0.00	0.00	0.00	364.80	0.10	0.00	364.90
Non-Forest	0.00	0.00	0.15	0.03	191.49	0.00	191.67
Water	0.00	0.00	0.00	0.00	0.00	0.45	0.45
Total of 2009	0.02	114.71	1328.72	364.83	192.58	0.45	2001.31
Net Change	0.00	0.00	-0.84	-0.07	0.91	0.00	



Table 4.46.3: Forest Cover change matrix (Good and Degraded Forest) (Area in Km²)

2008 (Data Dec 2008)	2009 (Data of Oct /Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1443.30	0.99	0.00	1444.29
Degraded Forest	0.15	556.42	0.00	556.57
Water	0.00	0.0	0.45	0.45
Total of 2009	1443.45	557.41	0.45	2001.31
Net Change	-0.84	0.84	0.00	

Table 4.46.4: Forest Cover change matrix (Rejuvenation and Barren) (Area in Km²)

2008 (Data of Dec 2008)	2009 (Data of Oct /Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	1808.10	1.09	0.00	1809.19
Barren	0.18	191.49	0.00	191.67
Water	0.00	0.00	0.45	0.45
Total of 2009	1808.28	192.58	0.45	2001.31
Net Change	-0.91	0.91	0.00	

Table 4.46.5: Beat wise Forest Cover (Area in Ha)

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
Bhakrapet Range								
Bhakrapet	0.00	589.93	1798.07	218.70	61.49	2668.19	0.00	0.00
Devarakonda	0.00	921.30	693.83	103.52	107.10	1825.75	0.00	0.00
Ganugapenta	0.00	470.04	1385.01	605.12	381.31	2841.48	0.00	0.00
Mangalampet	0.00	539.37	2253.53	683.49	408.33	3884.72	0.00	0.00
Marella	0.00	0.64	923.18	670.01	147.88	1754.96	0.00	0.00
Mellacheruvu	0.00	2.13	1153.99	345.48	67.82	1582.25	0.00	0.00
Peddamalla	0.00	1.10	368.91	873.10	218.50	1461.61	0.00	0.00
Pudipatlabailu	0.00	67.21	771.09	766.58	266.11	1870.99	0.00	0.00
Talapula	0.00	2.93	1392.76	1320.61	138.40	2854.70	0.00	0.00
Ustikayalapenta	0.00	33.46	2512.86	936.55	108.02	3593.39	0.00	0.00
Vagalla	0.00	1.96	1155.48	1090.36	886.44	3140.30	0.00	0.00
Total	0.00	2630.07	14408.71	7613.52	2791.40	27478.34	0.00	0.00
Chittoor Range								
Bommasamudram	0.00	6.66	455.08	704.66	255.55	1421.95	0.00	0.00
Chasses Hills	0.00	2.56	705.84	321.15	26.24	1055.79	0.00	0.00
Chittoor	0.00	0.00	431.29	381.63	382.74	1195.66	0.00	0.00
Kasipentla	0.00	288.58	1260.01	305.19	189.77	2043.55	0.00	0.00
Mungillipattu	0.00	904.71	1750.75	256.86	246.14	3158.46	0.00	0.00
Nendragunta	0.00	622.91	1536.44	251.13	62.79	2473.27	0.00	0.00
Oddepalli	0.00	294.52	1195.90	396.12	134.10	2020.64	0.00	0.00
Pachigunta	0.00	0.00	69.08	285.47	355.22	709.77	0.00	0.00
Panapakam	0.00	558.29	1666.07	303.15	89.05	2619.68	0.00	0.00



Pathagunta	0.00	245.22	1324.46	358.23	157.12	2085.03	0.00	0.00
Penumur	0.00	28.85	497.89	669.61	450.91	1647.26	0.00	0.00
Puthalapattu	0.00	3.55	260.79	1000.23	450.31	1714.88	0.00	0.00
Total	0.00	2955.85	11153.60	5233.43	2799.94	22145.94	0.00	0.00
Karvetinagar Range								
Allamadugu	0.00	0.00	1133.24	1264.43	584.62	2982.29	0.00	0.00
Amudala	0.00	4.69	384.74	917.17	927.56	2234.16	0.00	0.00
G.V.Puram	0.00	1.03	1350.01	644.39	552.94	2548.37	0.00	0.00
Karvetinagar	0.00	75.90	1145.62	53.03	48.54	1323.09	0.00	0.00
Nissankadurgam	0.00	1.85	589.25	746.56	381.19	1718.85	0.00	0.00
Palasamudram	0.00	3.41	2267.56	1130.81	457.29	3859.07	0.00	0.00
R.K.M.Puram	0.00	218.61	1571.12	47.12	74.81	1911.66	0.00	0.00
Rayalacheruvu	0.00	14.21	1246.35	479.47	128.28	1868.31	0.00	0.00
Srpuram	0.00	9.37	1881.83	897.23	265.45	3053.88	0.00	0.00
Surendranagar	0.00	3.58	1006.59	227.74	74.59	1312.50	0.00	0.00
Total	0.00	332.65	12576.31	6407.95	3495.27	22812.18	0.00	0.00
Puttur Range								
Battikandriga	0.00	46.21	1438.51	32.40	22.60	1539.72	0.00	0.00
Diguvaputtur	0.00	225.41	3077.88	187.82	53.91	3545.02	0.00	0.00
Gullur Puttur	0.00	26.91	1672.26	169.14	67.38	1935.69	0.00	0.00
Nagari	0.00	42.07	1973.29	1307.15	395.21	3717.72	0.00	0.00
Padiredu Gollapalle	0.00	22.62	2216.36	93.39	94.36	2426.73	0.00	0.00
Palamangalam	0.00	253.53	1478.49	237.66	165.29	2134.97	0.00	0.00
Puttur Moolapalem	0.00	414.46	2187.01	128.39	100.74	2830.60	10.49	0.00
Taduku	0.00	301.34	1783.60	260.73	119.68	2467.14	0.00	0.00
Vadamalpet	0.00	459.45	2495.00	198.42	117.87	3270.74	7.23	7.23
Vagathur	0.00	119.87	2971.18	109.97	49.58	3250.60	0.00	0.00
Total	0.00	1911.87	21293.58	2725.06	1186.62	27118.92	-3.26	7.23
Satyavedu Range								
Ambakam	0.00	122.09	4350.72	1226.58	375.78	6075.17	0.00	0.00
Bhupatheeswarapuram	0.00	65.62	4034.42	410.54	284.97	4795.55	0.00	0.00
Kadur	0.00	0.00	985.86	1383.65	714.52	3084.03	0.00	0.00
Kambakam	0.00	38.88	3777.33	548.65	382.08	4746.94	0.00	0.00
Nagalapuram	0.00	322.39	3279.26	212.61	97.12	3911.38	0.00	0.00
Nandanam	0.00	13.70	2469.99	776.92	278.68	3539.29	0.00	0.00
Pandur	0.00	9.78	1251.34	1014.39	487.86	2763.37	0.00	0.00
Pulikundram	0.00	170.83	2471.17	352.03	94.31	3088.34	0.00	0.00
S.K.Madugu	0.00	219.41	2581.44	329.78	203.15	3333.78	0.00	0.00
Satyavedu	0.00	24.09	2711.16	303.18	152.19	3190.62	0.00	0.00
Vanallur	0.00	0.00	1367.33	551.32	409.60	2328.25	0.00	0.00
Total	0.00	986.79	29280.02	7109.65	3480.26	40856.72	0.00	0.00
Srikalahasti Range								
Adavaram	0.69	235.63	3407.48	62.16	11.91	3717.87	0.00	0.00
Anjur	0.00	3.05	1786.11	430.24	247.65	2467.05	0.00	0.00
Chintalapalem	0.00	19.63	1357.78	423.63	689.84	2492.83	0.00	0.00
Kalathur	1.68	154.75	1974.38	162.59	89.23	2382.63	0.00	0.00
Kalavagunta	0.00	183.69	1815.42	616.22	128.22	2743.55	0.00	0.00
Kandlur	0.00	55	2717.69	197.28	62.88	2981.40	0.00	0.00
Kasaram	0.00	0.76	2.19	33.47	1202.08	1238.50	0.00	0.00
Katur	0.00	90.86	1366.59	310.19	163.72	1931.36	0.00	0.00
Kukkambakam	0.00	31.41	1562.66	473.89	222.39	2290.35	0.00	0.00
Kuntipudi	0.00	24.49	2143.70	254.27	161.98	2584.44	0.00	0.00
Mannavaram	0.00	451.13	772.35	722.85	551.90	2498.77	0.00	0.00
Melachur	0.00	78.34	2695.93	364.18	167.34	3305.79	0.00	0.00
Ramapuram	0.00	34.28	2396.45	120.88	75.36	2626.97	0.00	0.00
Thimmasamudram	0.00	157.75	1948.37	124.60	94.73	2325.45	0.00	0.00
Total	2.37	1469.32	25947.10	4296.46	3869.23	35586.97	0.00	0.00

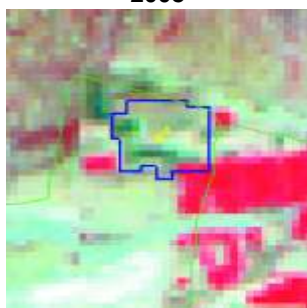


Tirupati Range								
Balakrishnapuram	0.00	14.21	1055.77	859.79	219.41	2149.18	0.00	0.00
Bhimavaram	0.00	566.28	2054.06	339.21	243.65	3203.20	0.00	0.00
Chellur	0.00	60.91	1905.63	173.20	45.37	2185.11	0.00	0.00
Dornakambala	0.00	400.96	1634.72	407.59	207.54	2653.35	0.00	0.00
Krishnapuram	0.00	50.89	3317.86	109.64	34.90	3513.29	0.00	0.00
Musalipedu	0.00	43.94	1810.13	190.38	64.17	2108.62	0.00	0.00
Napier North	0.00	13.01	1542.63	43.47	30.52	1629.63	-14.26	14.26
Napier South	0.00	12.58	1764.64	36.00	0.65	1813.87	0.00	0.00
Tondawada	0.00	13.32	1395.59	294.94	292.60	1996.45	0.00	0.00
Yerpedu	0.00	8.43	1731.59	638.43	500.72	2879.17	0.00	0.00
Total	0.00	1184.53	18212.62	3092.64	1639.53	24131.86	-14.26	14.26
Division Total	2.37	11471.08	132871.94	36478.70	19262.25	200130.92	-91.72	21.43

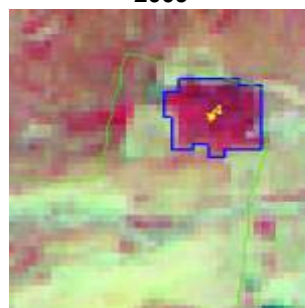
* Beat wise total area including water bodies.

Satellite Imageries

2008



2009



Longitude	79.90022
Latitude	13.54697
Area	7.65 Ha
Change	NF to OF
Compartment No.	272
Beat	Bhupathee
Range	Satyavedu
Division	Chittoor East



Chapter-IV

4.47 TIRUPATI WLM DIVISION

4.47.1 Introduction:

Tirupathi WLM Division area includes portion area of Chittoor district and portion area of Kadapa district. It lies in the south of Andhra Pradesh between latitudes 13° 36' 18" and 13° 56' 55.68" N and longitudes 79° 07' 51.96" and 79° 30' 18.36" E. The Geographical Area of the Division is 726.05 Km².

Land use pattern of the division is given in Table 4.47.1

The climate of this Division is generally dry with temperatures ranging from 16° C to 45°C and the annual rainfall is about 934 mm, received mainly from northeast monsoons.

The total population of the division is 0.37 million (2011 Census). The Per capita forest area is 0.21 ha. The population density is 490 persons per Km².

4.47.2 Recorded Forest Area:

The total notified forest area of the Division is 714.33 Km², which is 98.38% of the total geographical area.

As per Champion and Seth's classification, the Forests of Division fall under Dry tropical South Indian, dry mixed deciduous forests, dry deciduous, Southern catch thorn forest groups & Tropical dry evergreen forests Forest types. Its most important species is the famous pterocaropus santalinus or red sanders.

4.47.3 Protected Area:

The Division is one of the constituent Divisions of WLM Tirupathi. In the forests of this division at present wild animals like tiger and panther (*Panthera pardus*) are present in small numbers.

4.47.4 Community Forest Management:

There are 42 Vana Samrakshna Samities (VSSs) in the Division. An area of 107.44 Km² forest which constitutes 15.04 % of the notified forests is under the management of the VSSs.

4.47.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009), is 494.96 Km², which is 68.10% of the total Geographical area. In terms of the forest canopy density classes the Division has 3.16 Km² of Very Dense Forests, 86.64 Km² of Moderately Dense Forests, 404.44 Km² of Open Forest. The area of the Scrub is 194.32 Km², Non-Forests 23.35 Km² and water Bodies 2.41 Km². The distribution of the forest cover of the division is shown in Fig 4.47.1

Table 4.47.1: Land use Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	755.17	
Forest including Scrub	689.81	91.34%
Agriculture	0.00	0.00%
Land with Scrub	3.82	0.51%
Fallow Lands	35.73	4.73%
Grasslands	0.00	0.00%
Settlements	4.39	0.58%
Vegetation outside Forest	19.18	2.53%
Water body	2.31	0.31%

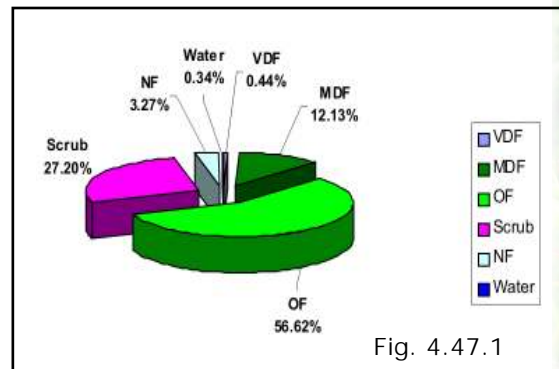


Fig. 4.47.1



4.47.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.47.2, Fig 4.47.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment (Satellite data of Oct 2008), shows a negative change in Forest cover of **127.83 Ha** and positive change of **1.79 Ha**. The Forest cover change matrix, given in Table 4.45.2 reveals that there has been a decrease of 81 Ha of open forest.

The positive change is on account of rising of or growth in raised plantations. Of the total negative change 126.04 Ha on account of Raising of Plantations and 0.00 on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 0.00 Ha only.

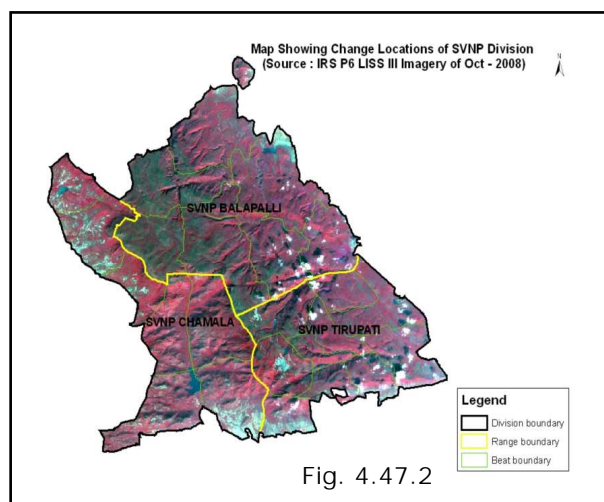


Fig. 4.47.2

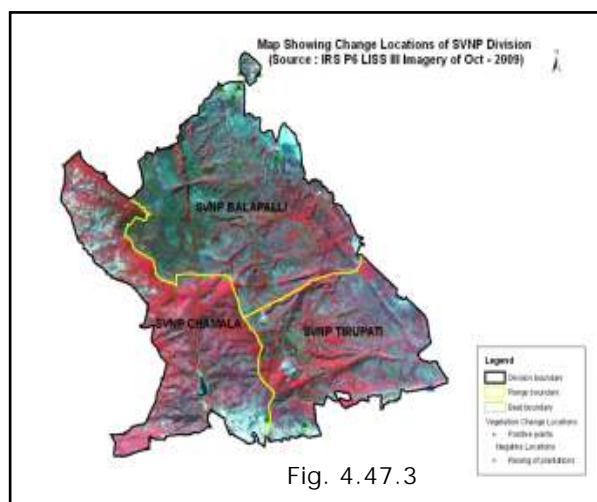


Fig. 4.47.3

The simplified forest cover change matrix is given in Table 4.47.3 and Table 4.47.4

There are 25 Beat in the division. Negative change in Forest Cover is seen in only 04 beats and 01 beat positive change and no change 20 beats. Beat wise forest cover in different forest canopy density classes is given in Table 4.47.5

Table 4.47.2: Forest Cover change matrix

(Area in Km²)

2008 (Data of Oct 2008 -Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	3.16	0.00	0.00	0.00	0.00	0.00	3.16
Moderately Dense Forest	0.00	86.64	0.00	0.00	0.00	0.00	86.64
Open Forest	0.00	0.00	404.44	0.00	0.72	0.00	405.16
Scrub	0.00	0.00	0.00	194.30	0.55	0.00	194.85
Non-Forest	0.00	0.00	0.00	0.02	22.08	0.00	22.10
Water	0.00	0.00	0.00	0.00	0.00	2.41	2.41
Total of 2009	3.16	86.64	404.44	194.32	23.35	2.41	714.32
Net Change	0.00	0.00	-0.72	-0.53	1.25	0.00	



2008 (Data of Oct 2008 - Dec 2008)	2009 (Data of Oct 2009 – Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	494.24	0.72	0.00	494.96
Degraded Forest	0.00	216.95	0.00	216.95
Water	0.00	0.00	2.41	2.41
Total of 2009	494.24	217.67	2.41	714.32
Net Change	-0.72	0.72	0.00	

2008 (Data of Dec 2008)	2009 (Data of Oct 2009 / Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	688.54	1.27	0.00	689.81
Barren	0.02	22.08	0.00	22.10
Water	0.00	0.00	2.41	2.41
Total of 2009	688.56	23.35	2.41	714.32
Net Change	-1.25	1.25	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
Balapally Range								
Balapalli West	0.00	250.69	2193.31	376.03	75.68	2895.71		0.00
Dasettipalli	0.00	40.44	2267.88	799.19	144.12	3251.63	-69.09	0.00
Gundampenta	0.00	12.54	700.14	1905.57	59.09	2677.34	0.00	0.00
Gunjana	0.00	27.30	2430.36	1504.65	78.92	4041.23	0.00	0.00
Gunjana North	0.00	53.26	1562.10	795.98	363.51	2810.52	0.00	0.00
Gunjana South	0.00	124.69	2236.22	348.37	96.75	2806.69	-35.60	0.00
Kangimadugu	0.00	67.57	2046.60	1164.29	41.97	3320.43	0.00	0.00
Mogilipenta	0.00	76.41	2038.6	2612.28	126.89	4854.27	0.00	0.00
Papanasanam	0.00	8.21	1253.76	1837.82	16.22	3116.01	0.00	0.00
Total	0.00	661.11	16729.06	11344.18	1003.15	29773.83	-104.69	0.00
Chamala Range								
Chalmala East	12.37	1369.35	2812.13	147.15	8.91	4349.91	0.00	0.00
Chalmala West	116.38	1870.73	1319.53	110.70	7.57	3424.91	0.00	0.00
Nagapatla East	5.79	901.97	2260.92	659.91	158.33	3991.25	-8.85	0.00
Nagapatla West	66.27	1389.05	2175.95	214.08	64.35	4047.77	0.00	0.00
Talakona Central	3.20	387.17	2088.76	839.83	251.37	3580.59	0.00	0.00
Talakona North	8.78	455.15	1197.84	275.03	84.46	2054.72	0.00	0.00
Talakona South	82.62	788.14	884.20	179.80	55.23	1989.99	0.00	0.00
Total	295.41	7161.56	12739.33	2426.50	630.22	23439.14	-8.85	0.00
Tirupathi Range								
Alipiri	0.00	42.89	571.06	664.93	77.15	1356.79	0.00	0.00
Karakambadi	0.00	10.29	1920.50	1016.04	133.44	3083.27	1.79	0.00

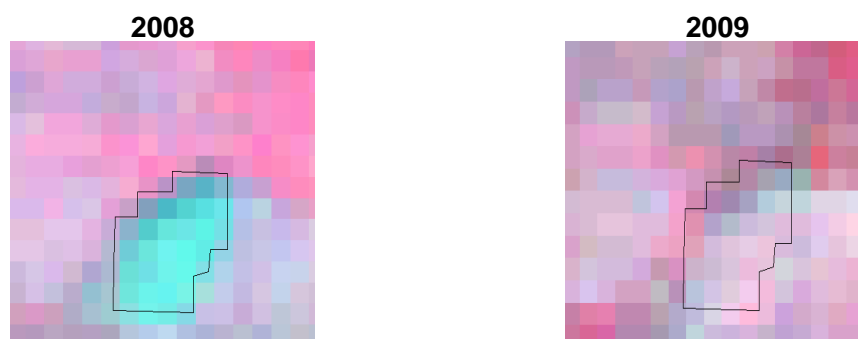


Andhra Pradesh State of Forests - 2011

Mamandur North	0.00	52.49	1500.21	340.26	48.14	1941.10	0.00	0.00
Mamandur South	0.00	48.99	2401.23	538.40	47.35	3036.84	0.00	0.00
Papavinasanam	0.00	58.28	980.89	1410.67	160.75	2623.38	0.00	0.00
Perumallapalli	20.93	423.89	879.30	436.44	67.79	1828.35	0.00	0.00
T.N.Palem	0.00	3.67	965.34	607.47	123.22	1700.46	-14.29	0.00
T.N.Palem Central	0.00	84.39	1197.47	283.03	21.34	1586.23	0.00	0.00
Tirumala	0.00	116.76	559.30	364.48	23.56	1064.10	0.00	0.00
Total	20.93	841.65	10975.30	5661.72	702.74	18220.52	-12.50	0.00
Division Total	316.34	8664.32	40443.69	19432.40	2336.11	71433.49	-126.04	0.00

* Beat wise total area including water bodies.

Satellite Imageries



Longitude	79.48911
Latitude	13.66419
Area	1.79 Ha
Change	NF to SF
Compartment No.	150
Beat	Karakambadi
Range	SVNP Tirupathi
Division	WLM Tirupathi



Chapter-IV

4.48 RAJAMPET WLM DIVISION

4.48.1 Introduction:

Rajampet Forest Division lies in the South Part of Kadapa District, between latitudes $13^{\circ} 46' 45''$ and $14^{\circ} 23' 35''$ N and longitudes $78^{\circ} 44' 44''$ and $79^{\circ} 28' 22''$ E. The Geographical Area of the Division is $3,027 \text{ Km}^2$, which is 19.71% of the total area of the District. The Division is having an altitude of 378.7 m. The rivers Penna, Chitravathi, Kundu, Papagani, Sagileru, Mandvya, Gunjaneru and Cheyyeru falling in Division.

Land use pattern of the Division is given in Table 4.48.1

The climate of this Division is generally dry with temperatures ranging from 28° C to 45° C and the annual rainfall is about 700 mm with uneven isolated rains received mainly from South-west monsoons.

The soil of the Division is mainly red ferruginous soil and black soil. These two classes can be sub divided into clay, loam sand with finer distinctions. They range from poor to fertile. Red soils occupy most of the division area and are under cultivation. These soils have a low nutrient status. The minerals like Barytes, China clay, White clay, Copper, Manganese Black Granite and lime stone are available.

The total population of the Division is 0.513 million (2011 Census). The Per capita forest area is 0.28 ha. The population density is 169 persons per Km^2 .

4.48.2 Recorded Forest Area:

The total notified forest area of the Division is $1,437.03 \text{ Km}^2$, which is 47.47% of the total geographical area. Reserved and Un-classed Forests Constitute $1,410.71 \text{ Km}^2$ (98.17%), and 26.32 Km^2 (1.83%) of the total forest area.

As per Champion and Seth's classification, the Forests of Division fall under dry deciduous forest type. Its most important species is the famous pterocarpus santalinus or red sanders. Since this is the only district of the country in which this species occurs, a positive conservation to extend them has been evolved. These forests fall under three zones wise those of Teral or Fuel Forests upto an elevation of hundred feet, Hill Forests or Red Sanders lying between the elevation of 800 and 2000 feet and Shorea Eugenia occupying elevations above 2000 feet.

4.48.3 Protected Area:

The Division is one of the three constituent Divisions of WLM Tirupathi and entire notified forest area is included in PA.

4.48.4 Community Forest Management:

There are 178 Vana Samrakshana Samities (VSSs) in the Division. An area of 445.5 Km^2 forests which is 31% of the notified forests, is under the management of the VSSs.

4.48.5 Forest Cover:

The forest cover in the Division is based on the interpretation of IRS P6 LISS III 2009 data (Oct 2009), is 1031.74 Km^2 , which is 34.11% of the total Geographical area. In terms of the forest canopy density classes the Division has 55.71 Km^2 of Moderately Dense Forest and 976.03 Km^2 of Open Forest. The area of the Scrub is 363.19 Km^2 , Non-Forest 54.10 Km^2 and Water Bodies 2.91 Km^2 . The distribution of the forest cover of the division is shown in Fig 4.46.1

Table 4.48.1: Landuse Pattern

Land use	Area in Sqkm	Percentage
Total geographical area	3027	
Forest including Scrub	1397.35	46.16
Agriculture	845.79	27.94
Land with Scrub	185.17	6.12
Fallow Lands	382.88	12.65
Grasslands	6.00	0.20
Settlements	7.65	0.25
Vegetation outside Forest	158.72	5.24
Water body	43.43	1.43

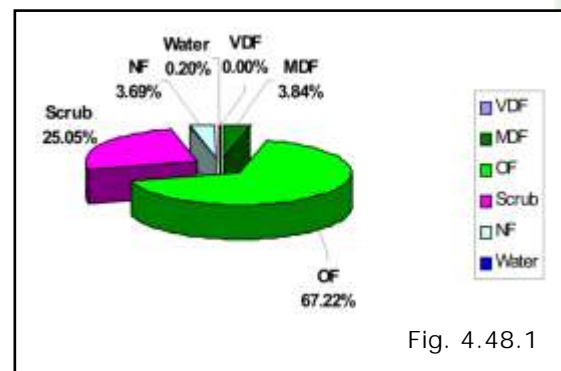


Fig. 4.48.1



4.48.6 Change in Forest Cover:

The Satellite images of 2008 and 2009 are shown in Fig 4.48.2, Fig 4.48.3 and the changes during this period are shown on the image of 2009.

Comparison of the current forest cover (Satellite data of Oct 2009) with that of previous assessment (Satellite data of Oct 2008), shows a negative change in Forest cover of **39.01 Ha** and no positive change. The Forest cover change matrix, given in Table 4.48.2 reveals that there has been a decrease of 14 Ha of open forest.

The positive change is on account of raising of or growth in raised plantations. Of the total negative change 32.74 Ha on account of Raising of Plantations and 6.27 on account of encroachment. Harvesting of plantations and Raising of plantations are Forest management interventions and hence not considered as loss of Forest Cover. Thus only the negative change due to encroachment is taken as loss of Forest cover. Therefore the net loss of Forest cover is 6.27 Ha only.

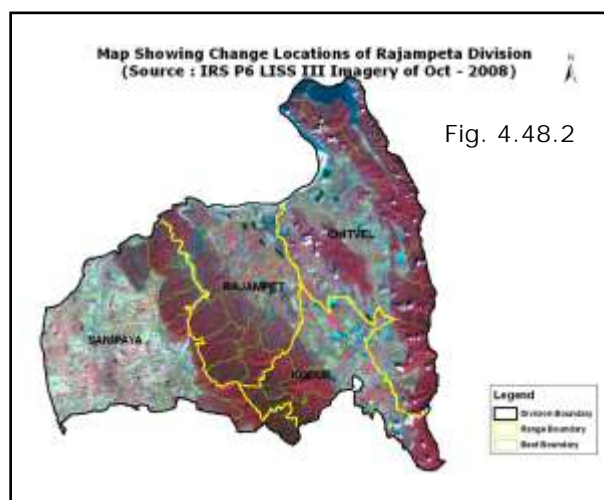


Fig. 4.48.2

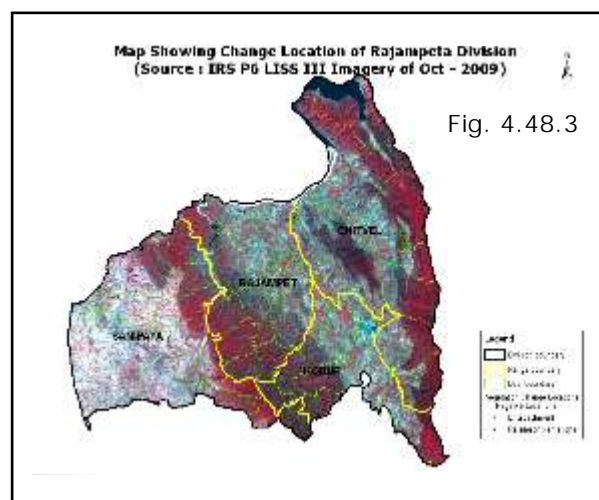


Fig. 4.48.3

The simplified forest cover change matrix is given in Table 4.48.3 and Table 4.48.4

There are 32 beats in the division. Negative change in forest cover is noticed in 3 beats, no positive change in forest cover is noticed. There is no change in the remaining 29 beats.

Details of forest cover changes in the 3 Beats where Forest Cover Change, is shown in Table 4.48.5

Table 4.48.2: Forest Cover change matrix (Area in Km²)

2008 (Data of Oct 2008 - Dec 2008)	2009 (Data of Oct 2009)						Total of 2008
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moderately Dense Forest	0.00	55.71	0.00	0.00	0.00	0.00	55.71
Open Forest	0.00	0.00	976.03	0.14	0.00	0.00	976.17
Scrub	0.00	0.00	0.00	363.05	0.25	0.00	363.30
Non-Forest	0.00	0.00	0.00	0.25	53.85	0.00	53.85
Water	0.00	0.00	0.00	0.00	0.00	2.91	2.91
Total of 2009	0.00	55.71	976.03	363.19	54.10	2.91	1451.94
Net Change	0.00	0.00	-0.14	-0.11	0.25	0.00	



2008 (Data of Oct 2008 -Dec 2008)	2009 (Data of Oct 2009- Dec 2009)			Total of 2008
	Good Forest	Degraded Forest	Water	
Good Forest	1031.74	0.14	0.00	1031.88
Degraded Forest	0.00	417.15	0.00	417.15
Water	0.00	0.00	2.91	2.91
Total of 2009	1031.74	417.29	2.91	1451.94
Net Change	-0.14	0.14	0.00	

2008 (Data of Dec 2008)	2009 (Data of Oct - Dec 2009)			Total of 2008
	Green	Barren	Water	
Green	1394.93	0.25	0.00	1395.18
Barren	0.00	53.85	0.00	53.85
Water	0.00	0.00	2.91	2.91
Total of 2009	1394.93	54.10	2.91	1451.94
Net Change	-0.25	0.25	0.00	

BEAT	Very Dense Forest	Mod.Dense Forest	Open Forest	Scrub Forest	Non-Forest	Total	change Compared 2008	Encroachment
Chitvel Range								
C.M.Rachapalli	0.00	50.08	3263.59	784.14	45.18	4149.16	0.00	0.00
Chitvel	0.00	792.13	5795.53	1776.36	160.96	8524.98	-7.73	0.00
Chukkavaripalli	0.00	61.24	2643.91	820.36	70.09	3595.60	0.00	0.00
Kondur	0.00	172.92	3176.19	477.38	102.49	3928.98	0.00	0.00
Kottur	0.00	97.32	4857.64	1732.80	58.07	6925.25	0.00	0.00
Mallelamadugu	0.00	258.77	2918.49	275.43	24.87	3477.56	0.00	0.00
Rajukunta	0.00	459.45	4182.72	821.32	266.38	5746.84	-25.01	0.00
Salivendala	0.00	65.37	2244.95	542.29	30.33	2882.94	0.00	0.00
Venkataraipalli	0.00	15.19	3737.62	1167.95	67.38	5001.01	0.00	0.00
Total	0.00	1972.49	32820.63	8398.03	825.74	44232.32	-32.74	0.00
Kodur Range								
Balapalli	0.00	32.56	1981.42	554.22	84.80	2655.03	-6.27	6.27
Chiyavaram	0.00	88.61	3157.60	84.19	0.64	3331.03	0.00	0.00
Gadela	0.00	120.13	2308.60	1172.59	37.26	3638.58	0.00	0.00
Gundampenta	0.00	0.00	5.57	3.36	0.37	9.30	0.00	0.00
K.V.Bhavi_North	0.00	149.40	3662.94	703.23	133.83	4649.40	0.00	0.00
K.V.Bhavi_South	0.00	52.25	2600.43	660.81	14.78	3328.28	0.00	0.00
Kodur	0.00	226.82	2829.18	501.86	19.81	3577.68	0.00	0.00
M.Bhavi	0.00	15.15	1848.52	1216.21	208.38	3288.25	0.00	0.00
N.G.Penta	0.00	50.78	1512.87	1394.30	4.24	2962.18	0.00	0.00
Settigunta	0.00	12.52	1369.60	216.74	11.15	1610.02	0.00	0.00
Ummethala	0.00	8.01	1298.75	1878.29	0.20	3185.25	0.00	0.00
Total	0.00	756.23	22575.49	8385.80	515.45	32235.00	-6.27	6.27

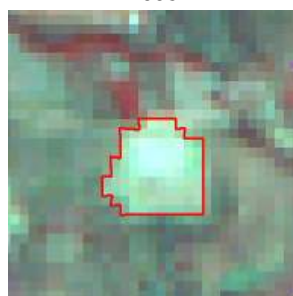


Rajampet Range								
Akepadu	0.00	0.00	898.24	1337.76	49.11	2285.11	0.00	0.00
Annasamudram	0.00	44.70	2650.31	1060.77	106.68	3863.08	0.00	0.00
Arimanipenta	0.00	85.47	2042.88	1151.01	5.55	3284.90	0.00	0.00
B.D.Bhavi	0.00	301.71	3099.08	471.00	14.85	3886.65	0.00	0.00
C.C.Kunta	0.00	15.51	2245.06	1116.39	52.18	3429.14	0.00	0.00
Rachavaripalli	0.00	0.00	220.87	1023.27	499.15	1743.85	0.00	0.00
Renuthala	0.00	46.04	3005.60	1022.63	75.56	4192.38	0.00	0.00
Rollamadugu	0.00	51.86	4117.63	623.02	25.00	4817.51	0.00	0.00
S.R.Palem	0.00	6.35	1640.49	896.16	68.85	2611.84	0.00	0.00
T.Bailu	0.00	222.96	4412.73	444.25	13.46	5093.40	0.00	0.00
Vattalur	0.00	29.87	1667.82	399.39	8.99	2106.06	0.00	0.00
Total	0.00	804.46	26000.69	9545.64	919.39	37313.91	0.00	0.00
Sanipaya Range								
Dinnela	0.00	566.70	1500.49	241.19	19.11	2329.91	0.00	0.00
Jandrapenta	0.00	44.90	2604.80	929.42	114.50	3693.62	0.00	0.00
Jillelamenta	0.00	126.62	2034.63	383.64	74.94	2622.71	0.00	0.00
Mudumpadu	0.00	683.69	1423.18	269.38	8.08	2384.32	0.00	0.00
Polimerapalli	0.00	0.00	10.36	699.59	1059.78	1772.66	0.00	0.00
Rayavaram	0.00	513.95	2632.87	1218.14	233.97	4606.72	0.00	0.00
Sanipaya	0.00	22.65	2044.47	1263.70	82.01	3412.82	0.00	0.00
T.Sundupalli	0.00	0.79	208.70	1760.52	1265.01	3246.11	0.00	0.00
Vanarajupalli	0.00	71.29	2285.50	1021.46	36.58	3417.05	0.00	0.00
Veeraballi	0.00	6.87	1460.87	2203.68	254.76	3926.17	0.00	0.00
Total	0.00	2037.43	16205.88	9990.71	3148.72	31412.09	0.00	0.00
Division Total	0.00	5570.61	97602.69	36320.18	5409.30	145193.32	-39.01	6.27

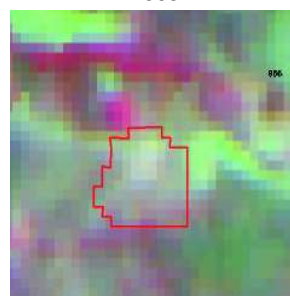
* Beat wise total area including water bodies.

Satellite Imageries

2008



2009



Longitude	14.22756
Latitude	79.17805
Area	7.73 Ha
Change	SF to NF
Compartment No.	866
Beat	Chitvel
Range	Chitvel
Division	Rajampet





Chapter – V

Forest Cover Statistics in Protected Areas

5.1. Introduction

India, being situated in the tropical region, harbors a rich Bio-Diversity. With just 2% of the world's land area, India supports about 10% of the world's Biological Diversity making it the 7th richest Bio-Diversity country in the world. This distinction bestows a great responsibility on the Government to protect and conserve its rich Floral, Faunal and Ecological Diversity. This is sought to be done by establishing a network of Protected Areas. The term Protected Areas is commonly used to describe areas of Ecological and Biological importance like Wildlife Sanctuaries, National Parks, Zoos, Game reserves etc. An area qualifies to be declared as Protected Area when it bears some floral or faunal species of great significance, which needs to be conserved or has an ecological system, which is fragile and needs to be protected. India is one of the 12 mega-biodiversities of the world (CBD).

The Andhra Pradesh state has coastline of about 1000 kms. The State has wide and varied vegetation types enriched by a variety of flora and fauna. Andhra Pradesh being located strategically in the central region of the Indian sub-continent has representatives of the magnificent Indian plant and animal life. Its varied topography ranging from the hills of Eastern Ghats and Nallamallas to the shores of Bay of Bengal supports varied ecotypes, which in turn support a rich diversity of flora and fauna. The vegetation found in the state is largely of dry deciduous type with a mixture of Teak, Terminalias, Dalbergias, Pterocarpus, Anogeissus etc. The hills of Eastern Ghats add greatly to the Biological Diversity and provide centers of endemism for plants, birds and lesser forms of animal life. The varied habitat harbors a diversity of fauna which includes Tiger, Panther, Wolf, Wild Dog, Hyena, Sloth Bear, Gaur, Black Buck, Chinkara, Chowsingha, Nilgai, Cheetal, Sambar and a number of Birds and Reptiles. The long sea coast provides the nesting ground for sea turtles, the back waters of Pulicat lake are the feeding grounds for Flamingo and Grey Pelican, the estuaries of river Godavari and Krishna support rich mangrove forests with Fishing Cat and Otters as key-stone species. The State is a proud possessor of some rare and endemic plants like *Cycas beddomei*, *Pterocarpus santalinus*, *Terminalia pallida*, *Syzygium alternifolium*, *Shorea talura*, *Shorea tumburgia*, *Psilotum nudam* etc. Similarly, the Double banded or the Jerdon's Courser, the Golden Gecko, and the Slender Loris are rare and endangered, and are endemic to the State.

5.2. Protected Area Network in AP

The State has 27 Protected Areas – 21 Wildlife Sanctuaries, 6 National Parks and 1 Tiger Reserve i.e. Nagarjuna Sagar – Srisailam Tiger Reserve (NSTR), the biggest Tiger Reserve of India. Out of 63814 Km² of notified forest area, 15280.92 Km² is included in the PA network, covering about 23.9% of notified forest area and 5.53% of Geographical area of the State.

The State with its rich forests and diverse flora and fauna provides ample scope for promoting Eco-Tourism. The natural beauty of the state has not been exposed to the visitors till now. The Government has drawn up a plan to open up the Protected Area Network of the State for visitors. Each of the Wildlife Sanctuary and National Park of the State has its own significance and has something unique to offer to the visitors.

5.3. Forest Cover in Protected Areas

The forest cover in the Protected areas based on the interpretation of IRS P6 LISS III 2009 data is 10047.95 Km², i.e. 3.7% of the Geographical area. In terms of the forest canopy density classes the protected area of the State has 208.37 Km² of Very Dense Forest, 3928.51 Km² of Moderately Dense Forest and 5911.07 Km² of Open Forest. The area of the Scrub is 2918.57 Km², Non-Forest 1368.93 Km² and Water Bodies 945.47 Km².



Comparison of the forest cover of 2009 with that of 2008 shows a net loss of 7.46 Km² of forest cover. Maximum habitat loss of 4.60 Km² has occurred in Pakhal Wild Life Sanctuary and the least loss of 0.02 Km² in Papikonda Wild Life Sanctuary. There is no loss of habitat (forest cover) in the remaining 18 Protected Areas

Protected Area wise forest cover in different forest canopy density classes along with the changes compared to 2008 assessment is given in Table 5.1.

Table 5.1 Protected Area wise Forest Cover 2009

S. No	Sanctuary	VDF	MDF	OF	Net Change*	SF	NF	WB**	TOTAL
1	ETURNAGARAM	0.00	417.46	350.19	-0.79	23.59	75.31	4.11	870.67
2	GBM WLS	23.38	760.07	295.30	0.00	52.59	17.93	0.95	1150.22
3	KAMBALAKONDA WLS	0.00	26.20	38.01	0.00	11.78	3.91	0.12	80.02
4	KAWAL WLS	48.26	332.14	300.76	-0.24	92.86	115.18	3.80	893.00
5	KBR_NP	0.00	0.04	0.03	0.00	1.11	0.25	0.00	1.43
6	KINNERASANI WLS	1.54	228.14	288.96	-0.77	181.93	109.89	15.28	825.73
7	KOLLERU LAKE WLS	0.00	12.32	103.92	0.00	82.21	100.34	78.67	377.46
8	KORINGA WLS	12.87	89.26	13.99	0.00	1.91	6.23	125.56	249.82
9	RAYALA ELEPHANT RESERVE(INCLUDING KOUNDINYA WLS)	0.01	112.88	453.32	-0.47	190.51	57.79	0.99	815.50
10	KRISHNA WLS	0.00	0.00	80.14	0.00	66.80	49.64	121.82	318.40
11	LANKAMALLESWARA	0.11	157.59	233.40	-0.20	102.97	11.43	0.10	505.60
12	MAHAVIR HARINA VANASTHALI_NP	0.00	0.18	0.55	0.00	11.95	2.39	0.00	15.07
13	MANJEERA	0.00	2.40	5.52	0.00	5.35	2.89	10.72	26.88
14	CHILKUR MRUGAVANI -NP	0.00	0.00	0.04	0.00	0.00	4.48	0.45	4.97
15	NELAPATTU WLS	0.00	0.03	5.05	0.00	1.20	3.22	0.07	9.57
16	NSTR	1.08	731.70	1970.38	0.00	1371.83	350.98	96.36	4522.34
17	PAKHAL WLS	0.00	145.63	403.28	-4.60	65.86	189.96	23.21	827.94
18	PAPIKONDA WLS	79.97	636.40	110.43	-0.02	20.64	5.92	3.23	856.60
19	PENISULA WLS	0.00	84.35	799.17	0.00	321.66	28.80	37.55	1271.54
20	POCHRAM WLS	38.19	82.89	13.38	0.00	7.63	0.13	0.16	142.38
21	PRANAHITA WLS	0.00	22.48	17.45	0.00	23.27	4.94	0.24	68.38
22	PULICAT LAKE	0.09	2.33	41.54	0.00	87.66	205.39	420.33	757.34
23	RAJIVGANTHI_NP	0.00	0.00	0.30	0.00	1.81	1.71	0.00	3.82
24	ROLLAPADU WLS	0.00	0.00	0.01	0.00	0.04	5.16	0.00	5.21
25	SHIVARAM WLS	0.00	4.00	19.17	0.00	16.12	0.76	0.04	40.09
26	SRI VENKATESWARA WLS	2.87	80.02	366.76	-0.37	175.28	14.30	1.71	640.94
		208.37	3928.51	5911.07	-7.46	2918.57	1368.93	945.47	15280.92

** Water Bodies inclusive of outside notified forests in Pulicat & Kolleru Lake, Koringa WLS etc.

* Net Change in Forest Cover Only i.e., VDF, MDF and OF to Scrub and Non-Forest between 2008 and 2009.



Table 5.2: Changes in all Classes

Change	Entire Notified Forest Areas		Vss Areas		Protected Area	
	No.of Points	Area_ha	No.of Points	Area_ha	No.of Points	Area_ha
Negative	1288	-13095.62	380	-4843.90	115	-948.40
Positive	136	2364.98	55	872.92	6	31.14
Net change	1424	-10730.64	435	-3970.98	121	-917.26

Table 5.3. Change in Forest cover(VDF,MDF,OF TO SF and NF)

Change	Entire Notified Forest Areas		Vss Areas		Protected Area	
	No.of Points	Area_ha	No.of Points	Area_ha	No. of Points	Area_ha
Negative	978	-9288.77	266	-3115.55	103	-773.41
Positive	69	844.32	24	457.70	5	27.99
Net change	1047	-8444.45	290	-2657.85	108	-745.42

The change from DF to OF and vice versa as well as Scrub to NF and vice versa are not considered as changes in the forest cover because of marginal difference. However details there of are furnished here under.

Table 5.4.Changes between DF and OF

Change	Entire Notified Forest Areas		Vss Areas		Protected Area	
	No.of Points	Area_ha	No.of Points	Area_ha	No.of Points	Area_ha
Negative	13	-161.87	3	24.60	2	-4.90
Positive	1	5.07	0	0.00	0	0.00
Net change	14	-156.8	3	24.60	2	-4.90

Table 5.5. Changes between SF and NF

Change	Entire Notified Forest Areas		Vss Areas		Protected Area	
	No.of Points	Area_ha	No.of Points	Area_ha	No.of Points	Area_ha
Negative	297	-3644.98	111	-1703.75	12	-170.09
Positive	66	1515.59	31	415.22	1	3.15
Net change	363	-2129.39	142	-1288.53	13	-166.94





Chapter - VI

Forest Cover Statistics in VSSs

6.1. Introduction

Andhra Pradesh is one of the pioneering Forest Departments in India in implementation of Community Forest Management (CFM). Joint Forest Management (JFM) was introduced in AP in 1994, as a means of protecting forests, to improve their productivity and to alleviate rural poverty, by following the national JFM model being used in most of the States at that time. This strategy was aimed at restoring forest cover in degraded forest lands, and improved access to the forest resources by communities living in forest fringe areas. Considering the potential of the forests to contribute towards poverty alleviation, the Government of Andhra Pradesh adopted a proactive stance by transforming JFM into CFM during 2002.

The difference between JFM and CFM is that while JFM uses participation of communities mainly for forest protection, by giving them the access to non-timber forest products and modest benefit-sharing in timber, with their limited involvement in forest management. CFM aims to improve forests both in coverage and productivity by empowering VSSs to take more autonomous decisions regarding the management and use the forest resources in livelihood development. This means a greater devolution of power and responsibilities to VSSs in planning, management and decision making on the forest areas marked for the VSSs, at the same time redefining roles of APFD frontline staff to act as facilitators. It is important to note that Andhra Pradesh is the only State which has adopted CFM and provided 100% of gross revenue generated from the VSS forest areas with a minimum of 50% of it being required to be ploughed back in forest development works, as per the key strategy to address the use of forest resources for poverty alleviation.

6.2. Joint Forest Protection Committee (JFPCs)

There are 7,718 Vana Samrakshana Samities (VSSs) or JFPCs in the State. 15,200 Km² forest area, which constitutes 23.8 % of forest area, is under CFM. 1539 thousand members are involved in CFM which includes 465 thousand members belonging to Scheduled Tribes and 323 thousand members belonging to Scheduled castes.

6.3. Forest Cover in VSS Areas

The forest cover in the VSS areas based on the interpretation of IRS P6 LISS III 2009 data is 9265.13 Km², which is 3.36% of the Geographical area. In terms of the forest canopy density classes the State has 76.78 Km² of Very Dense Forest, 3776.60 Km² of Moderately Dense Forest and 5411.74 Km² of Open Forest. The area of the Scrub is 3792.21 Km², Non-Forest is 2094.10 Km² and Water Bodies is 47.97 Km².

Comparison of the forest cover of 2009 with that of 2008 shows a net loss of 26.58 Km² of forest cover. It is seen that contribution of Encroachment in the loss of forest cover in VSS s areas is 18.6 Km²

Division wise forest cover VSSs in different forest canopy density classes along with the changes compared to 2008 assessment is given in **Table 6.1**.

The 15 VSSs where the most loss of forest cover was noticed (VDF,MDF, OF,SC) are

Bandaralagudem(Eluru), Palakunta(Eluru) Vepakoyya ramamarm(Paloncha), Pata gulagudem (Eluru), Turakala pudi(Visakhapatnam), Boddugonda(Warangal South), Govindapur(Warangal-S), Vagoddugudem (Khammam), Bedadanole(Eluru), Jagannathapuram(Khammam),Punyathanda (Warangal_south) Gajula Ramaram(Hyderabad),Chowdaram-b(Khammam), Recharla (Eluru), Thurupondla (Nellore), Ravisettigudem (Palvoncha)

The 15 VSSs, where the forest cover has gained most(VDF, MDF, OF, Scrub) are:

Kothapanduvarigu(Eluru), Puttupalli (Nandyal), Basvapuram (Nandyal), kolluvarigudem (Eluru), SIRRivarigudem(Eluru), Veluturvarigudu(Eluru), N.R.Kunta(Nandyal), RSvaram(Eluru) Dubicherla (Eluru) Fathimapuram(Eluru), Mudicherla (Eluru), Ramasingavaram (Eluru), Jandaguda (Bellampelli), Subbaraopalli (Bellampelli), Srinagaram (Nandyal).



Table 6.1.: Divisionwise Forest Cover in VSS areas 2009 (Area in Km²)

S.no	Division	VDF	MDF	OF	NET CHANGE*	SF	NF	WB	TOTAL
1	Achampet	0.01	42.35	102.64	0.00	83.94	4.42	3.60	236.96
2	Adilabad	1.10	112.21	157.62	-0.30	39.76	48.21	0.45	359.34
3	Anathapur	0.00	0.35	78.84	0.01	241.90	307.16	0.11	628.36
4	Atmakur	0.02	8.30	30.13	0.00	19.34	76.40	1.12	135.31
5	Bellampally	2.33	100.37	71.74	-0.09	13.15	18.92	0.41	206.92
6	Bhadrachalam North	0.01	30.55	44.26	-0.50	27.70	15.97	0.33	118.82
7	Bhadrachalam South	0.90	35.16	37.29	-0.04	11.85	1.58	0.09	86.87
8	Chittoor East	0.02	17.20	321.75	0.08	142.07	86.49	0.17	567.69
9	Chittoor West	0.00	34.60	202.28	-0.47	151.25	73.67	0.71	462.50
10	Eluru	0.03	260.37	99.64	-6.77	27.13	27.32	0.06	414.54
11	Giddalur	0.15	10.11	35.54	0.00	114.67	123.49	3.12	287.08
12	Guntur	0.00	0.00	24.72	-0.33	199.43	34.67	1.99	260.80
13	Hyderabad	0.00	65.18	114.36	-0.70	161.76	11.16	1.03	353.49
14	Jannaram WLM	1.67	56.81	55.91	0.12	3.95	2.41	1.28	122.03
15	Kadapa	0.00	11.24	180.83	0.05	169.28	32.52	0.21	394.08
16	Kagaznagar	3.95	62.52	51.83	-0.18	15.19	14.58	0.34	148.41
17	Kakinada	61.19	905.32	89.07	-0.47	54.39	27.73	10.35	1148.05
18	Kamareddy	0.00	83.48	177.43	-0.11	34.65	28.81	1.28	325.65
19	Karimnagar East	0.00	382.65	171.36	-0.48	60.37	7.39	0.45	622.22
20	Karimnagar West	0.00	120.28	118.21	-0.75	83.80	10.13	1.30	333.71
21	Khammam	0.10	47.80	96.07	-3.22	69.37	24.65	0.76	238.75
22	Kothagudem	0.00	26.16	103.86	-0.98	71.15	37.29	0.17	238.63
23	Kurnool	0.00	0.02	111.00	0.00	138.82	142.52	0.27	392.63
24	Mahabubnagar	0.00	13.74	246.34	0.00	223.61	1.64	0.09	485.42
25	Mancherial	0.56	47.88	55.42	0.00	21.06	12.25	0.51	137.68
26	Markapur WLM	0.28	39.87	119.08	-0.07	135.23	52.48	0.21	347.15
27	Medak	0.00	69.29	361.20	0.00	180.55	15.77	1.02	627.83
28	Medak WLM	0.00	20.57	22.62	-0.27	4.03	2.96	0.03	50.21
29	Nagarjunasagar	0.00	2.88	44.66	0.00	106.66	21.87	0.15	176.22
30	Nalgonda	0.00	0.21	23.31	0.00	134.05	55.86	0.32	213.75
31	Nandyal	1.29	62.43	53.47	1.78	20.11	28.58	0.96	166.84
32	Narsipatnam	0.87	99.31	95.69	-0.52	20.28	14.98	0.00	231.13
33	Nellore	0.00	6.60	123.52	-1.22	289.83	224.59	1.40	645.94
34	Nirmal	0.29	107.46	123.10	0.03	29.23	21.74	0.68	282.50
35	Nizamabad	0.00	131.24	183.43	-0.77	46.53	41.65	2.54	405.39
36	Paderu	0.29	40.21	133.14	0.00	59.73	46.44	0.00	279.81
37	Paloncha	0.34	52.41	147.37	-3.86	63.27	20.70	0.16	284.24
38	Paloncha WLM	0.44	60.15	76.69	-0.27	41.14	18.78	2.13	199.33
39	Proddatur	0.00	46.02	148.15	-0.68	153.71	106.72	1.77	456.38
40	Rajampet	0.00	4.29	131.00	0.00	117.20	36.36	0.08	288.93
41	Srikakulam	0.00	41.40	189.01	-0.21	41.61	15.66	2.54	290.22
42	Tirupathi WLM	0.94	16.18	57.88	-0.35	24.17	8.07	0.21	107.44
43	Vijayawada	0.00	0.04	27.45	0.00	44.78	8.22	0.88	81.37
44	Visakhapatnam	0.00	102.27	114.18	-0.64	35.30	19.98	0.22	271.95
45	Vizianagaram	0.00	172.55	114.97	-3.00	15.34	12.05	0.02	314.93
46	Warangal North	0.00	107.31	149.85	-0.09	18.98	55.56	0.67	332.37
47	Warangal South	0.00	85.49	136.82	-1.29	28.44	87.53	1.19	339.47
48	Warangal WLM	0.00	33.80	57.04	0.00	3.05	6.18	0.59	100.66
Total		76.78	3776.60	5411.74	-26.58	3792.8	2094.10	47.97	15200

*Net Change in Forest Cover Only, i.e. VDF, MDF and OF to Scrub and Non-Forest between year 2008 and 2009.



Table 6.2: Changes in all Classes

Change	Entire Notified Forest Areas		Vss Areas		Protected Area	
	No.of Points	Area_ha	No.of Points	Area_ha	No.of Points	Area_ha
Negative	1288	-13095.62	380	-4843.90	115	-948.40
Positive	136	2364.98	55	872.92	6	31.14
Net change	1424	-10730.64	435	-3970.98	121	-917.26

Table 6.3. Change in Forest cover(VDF,MDF,OF TO SF and NF)

Change	Entire Notified Forest Areas		Vss Areas		Protected Area	
	No.of Points	Area_ha	No.of Points	Area_ha	No. of Points	Area_ha
Negative	978	-9288.77	266	-3115.55	103	-773.41
Positive	69	844.32	24	457.70	5	27.99
Net change	1047	-8444.45	290	-2657.85	108	-745.42

The change from DF to OF and vice versa as well as Scrub to NF and vice versa are not considered as changes in the forest cover because of marginal difference. However details there of are furnished here under.

Table 6.4.Changes between DF and OF

Change	Entire Notified Forest Areas		Vss Areas		Protected Area	
	No.of Points	Area_ha	No.of Points	Area_ha	No.of Points	Area_ha
Negative	13	-161.87	3	24.60	2	-4.90
Positive	1	5.07	0	0.00	0	0.00
Net change	14	-156.8	3	24.60	2	-4.90

Table 6.5. Changes between SF and NF

Change	Entire Notified Forest Areas		Vss Areas		Protected Area	
	No.of Points	Area_ha	No.of Points	Area_ha	No.of Points	Area_ha
Negative	297	-3644.98	111	-1703.75	12	-170.09
Positive	66	1515.59	31	415.22	1	3.15
Net change	363	-2129.39	142	-1288.53	13	-166.94



Chapter - VII Forest cover change in selected areas between 1988 to 2000 & 2000 to 2010

7.1. Introduction : Indian Remote sensing Satellite for Resources management was first launched in 1988 in the name of IRS IA. It is important to examine the **Forest cover** change from 1988 onwards as APFD has a rich resource of digital data available from 1988 onwards. Accordingly an attempt is made here to compare the Forest cover using the following data.

- ? 1988 IRS 1A LISS II data (36mts resolution),
- ? 2000 IRS 1C / 1D LISS III data (23mts resolution)
- ? and 2010 IRS P6 LISS III data (23mts resolution).

A comparison is made between forest cover in 1988 and 2000 and again between 2000 and 2010 bringing out the changes in three areas.

1. Jannaram Forest division
2. Kawal Wildlife Sanctuary
3. Pakhal Wildlife Sanctuary

7.2. Jannaram Forest Division:

The Jannaram Forest Division is one of the 6 Divisions in the Adilabad district of Adilabad circle. The Kawal Sanctuary covers the Jannaram division and part of Nirmal division. The Forest of Jannaram has good Teak and Bamboo Forests. It has good Wild life including Tiger, Leopard, Herbivores and lesser Carnivores etc,. The Forest is mostly South Indian Dry deciduous in nature.

The Forest cover of Jannaram division was interpreted in 1988 by NDVI slicing cum visual interpretation taking clue from available Cartosat -1 data and Google and Bhuvan. After this 1988 data has been compared by Erdas matrix tool as well as visually with 2000&2010 LISS III data. The vegetation cover maps for the years 1988, 2000 & 2010 are shown in fig. 7.1, fig. 7.2 and fig. 7.3 respectively. The vegetation change locations are shown in figure 7.4.

The Forest Cover Statistics for 1988, 2000 and 2010 are as follows: (Area in Sq Km)

Year	VDF	MDF	OF	Scrub	NF	Water	Total
1988	41.22	258.91	233.34	64.41	44.15	1.71	643.74
2000	41.22	236.88	230.86	64.41	68.66	1.71	643.74
2010	41.22	222.25	228.78	64.41	85.37	1.71	643.74

The following are the Changes in various forest cover classes between 1988 to 2000 and 2000 to 2010: (Area in Sq Km)

Year	VDF	MDF	OF	Scrub	NF	Water
1988 - 2000	0.00	-22.03	-2.48	0.00	24.51	0.00
2000 - 2010	0.00	-14.41	-2.08	0.00	16.71	0.00
Total	0.00	-36.44	-4.56	0.00	41.22	0.00



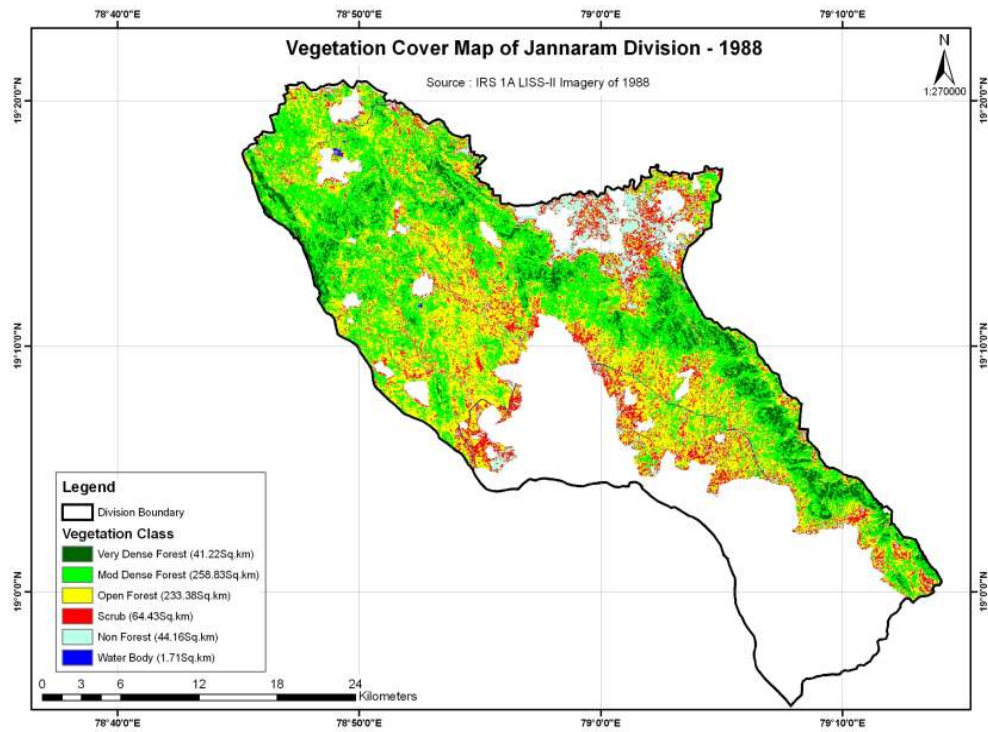


Fig . No. 7.1

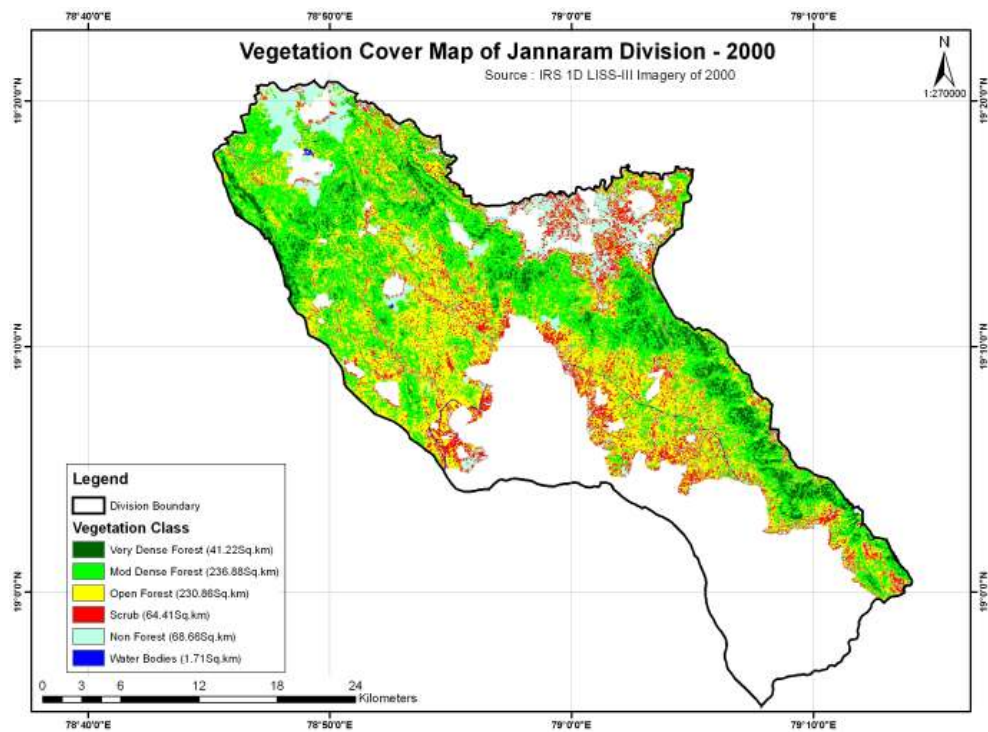


Fig . No. 7.2



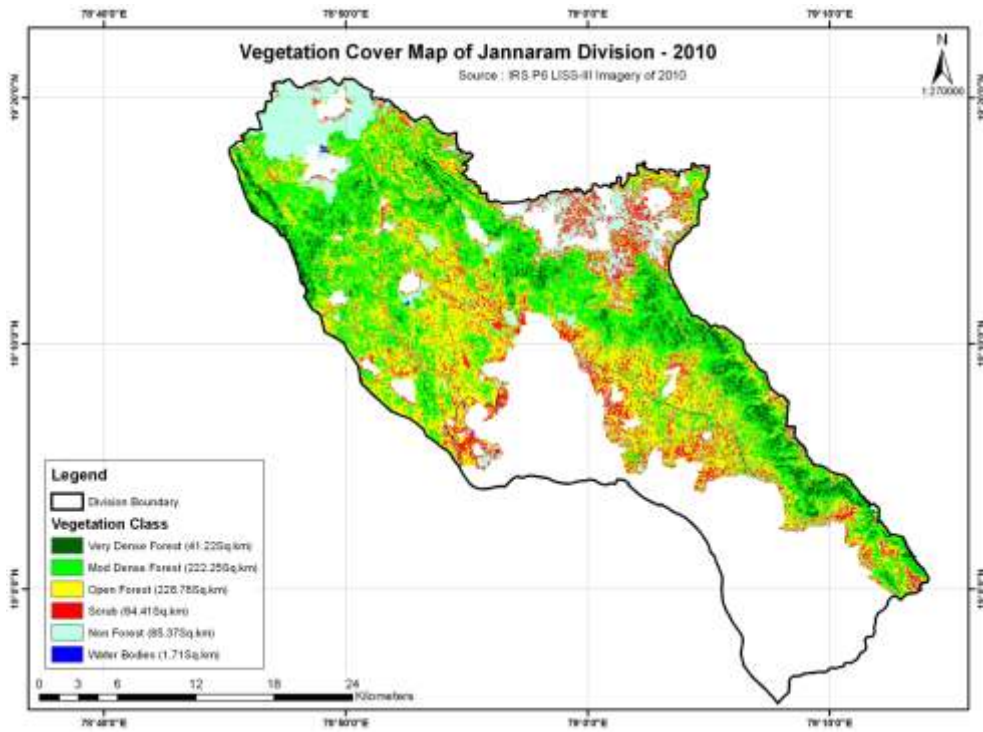


Fig . No. 7.3

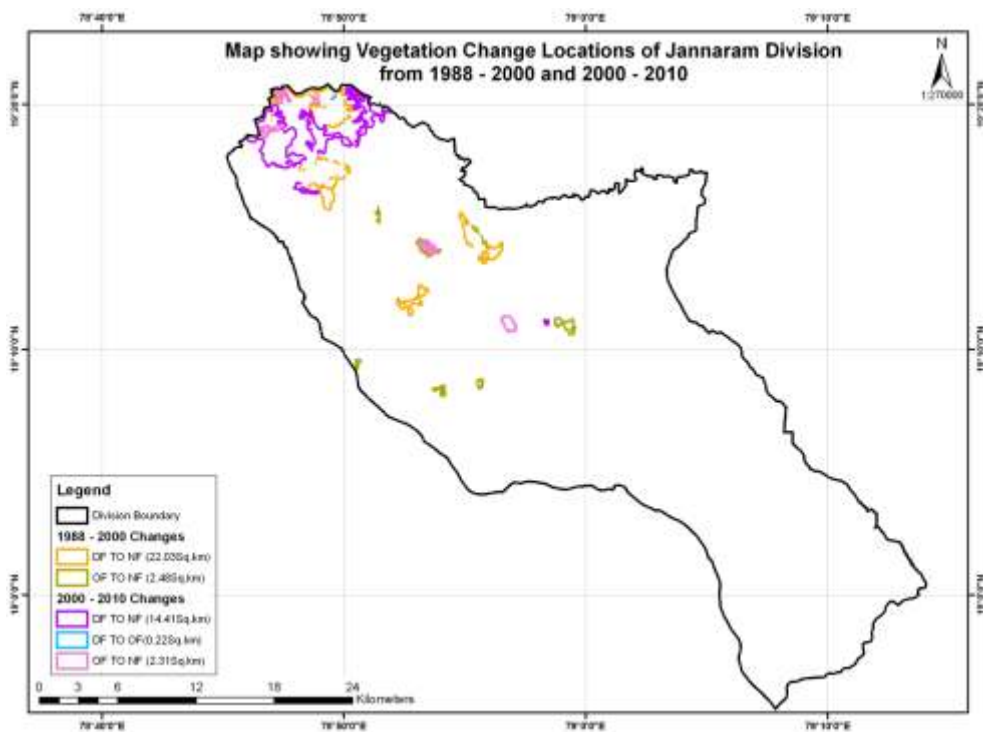


Fig . No. 7.4



7.3. Changes in Kawal Sanctuary:

History: It is the largest and oldest sanctuary in the north Telangana region of the state, and it is well known for its abundant flora and fauna. This sanctuary acts as a catchment for the river Godavari that flows towards the south of the sanctuary. The Sanctuary was **notified on 18.11.1965**.

Climate: The temperature varies between 15°C to 45°C, **Rainy season occurs during** June – September; and **Average annual rainfall is** 750mm.

Forest type: Southern tropical dry deciduous forests with Southern dry mixed deciduous forest and Dry teak forests.

Indicator species: Tiger.

Flora: Kawal WLS has got a wonderful faunal representation of Teak, Bamboo, Pterocarpus marsupium, Terminalia crenulata, Bombax ceiba, Diospyros melanoxylon, Butea monosperma, Holoptelia integrifolia, etc.

Fauna: Extremely rich faunal life is supplemented with equally rich invertebrate fauna. Reptiles like Peninsular rock agama, Monitor lizard, Chameleon, etc; reside here along with 10 amphibian species. The avifauna is represented by 1200 species including birds like Vultures, Herons, Red rumped swallow, Black winged kite, Brain fever bird, Small green barbet; which make Kawal a wonderful place for bird watching. The Sanctuary is also abode for Mammals like Tiger, Leopard, Jackal, Wild dog, Indian fox, Jungle cat, Leopard cat, Sloth bear, Giant squirrel, Sambar, Nilgai, spotted deer, Chowsingha, etc.

Accommodation: Forest rest house at Jannaram and Mancherial.

When to visit: November to May.

The vegetation cover maps for the years 1988, 2000 & 2010 are shown in fig. 7.5, fig. 7.6 and fig. 7.7 respectively. The vegetation change locations are shown in figure 7.8.

The Forest Cover Statistics for 1988, 2000 and 2010 are as follows: (Area in Sq Km)							
Year	VDF	MDF	OF	Scrub	NF	Water	Total
1988	48.26	374.45	320.93	93.36	52.20	3.80	893.00
2000	48.26	348.77	310.78	93.36	88.03	3.80	893.00
2010	48.26	332.03	300.58	93.15	115.18	3.80	893.00

The following are the Changes in various forest cover classes between 1988 to 2000 and 2000 to 2010: (Area in Sq Km)						
Year	VDF	MDF	OF	Scrub	NF	Water
1988 - 2000	0.00	-25.68	-10.15	0.00	35.83	0.00
2000 - 2010	0.00	-16.74	-10.20	-0.21	27.15	0.00
Total	0.00	-42.42	-20.35	-0.21	62.98	0.00



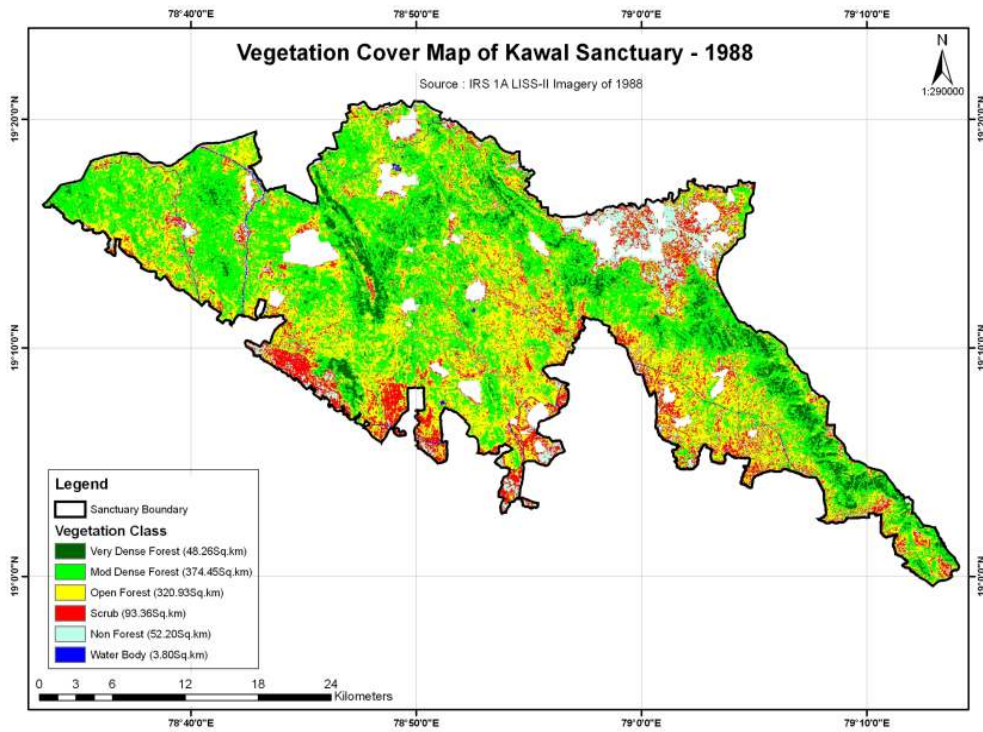


Fig . No. 7.5

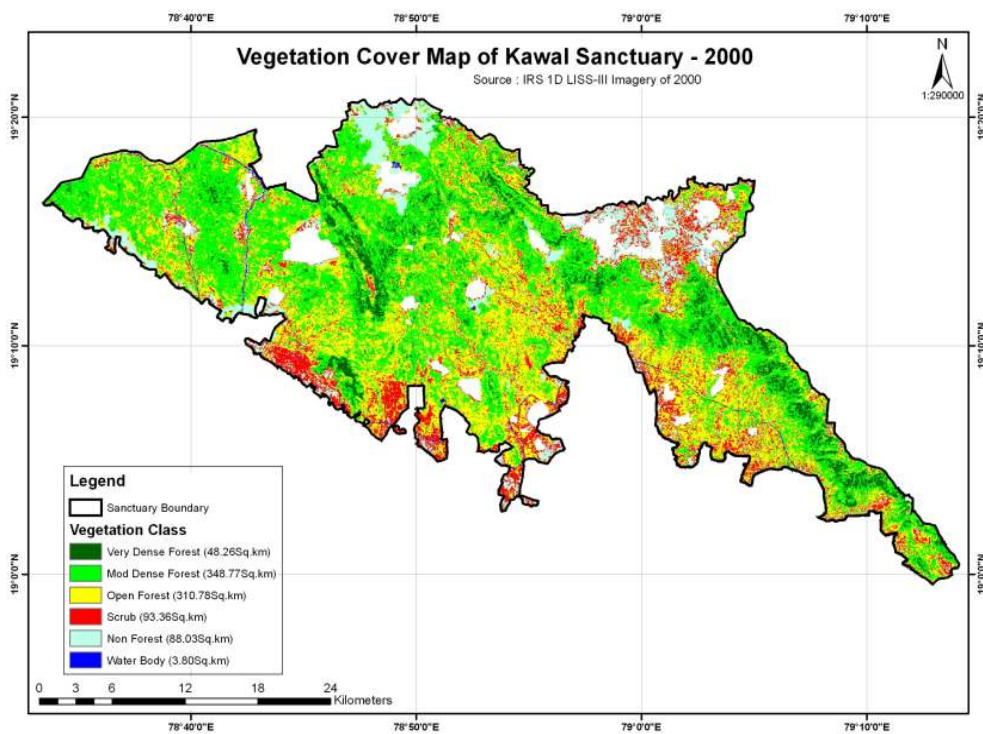


Fig . No. 7.6



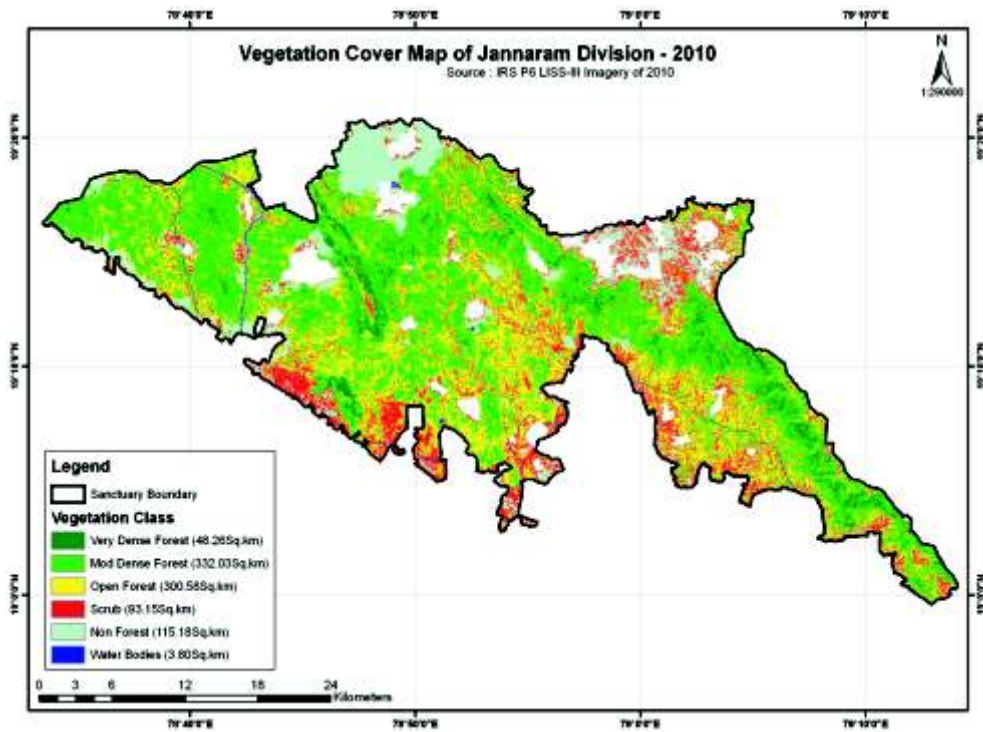


Fig . No. 7.7

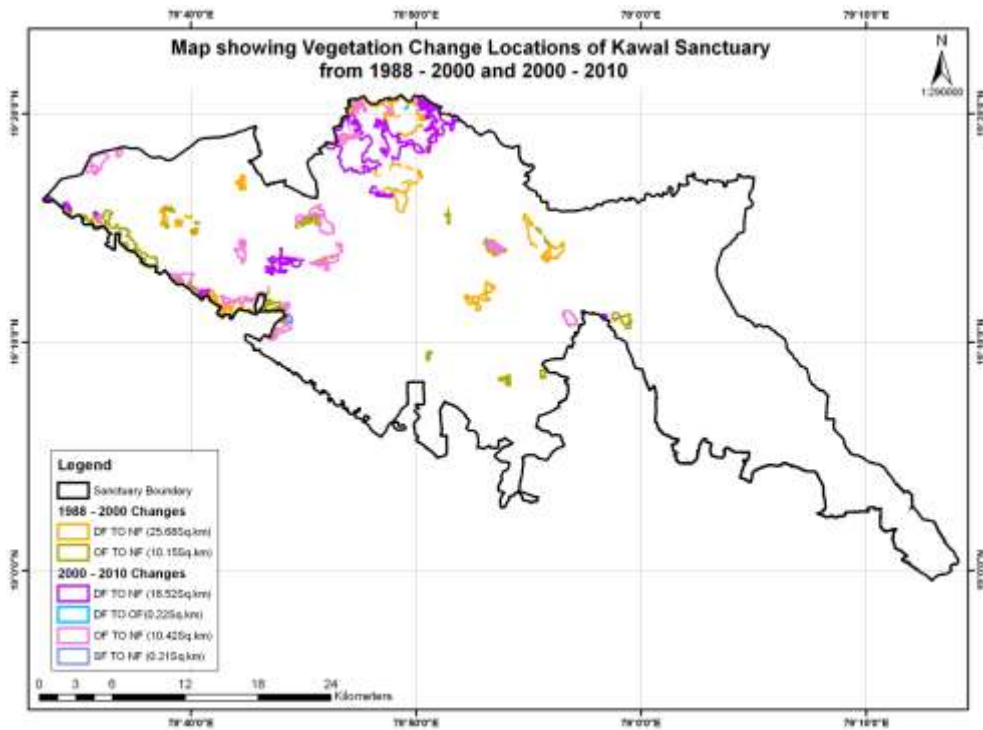


Fig . No. 7.8



7.4. Changes in Pakhal Sanctuary:

History: The Pakhal lake has rich historical importance. It was constructed during Pratapa Rudra Regime in 1323 A.D. The Sanctuary was **Notified on** 20-05-1999. This was originally notified under Hyderabad Fasli Act, 1952, for the conservation of Marsh crocodiles and then was again notified as a Wildlife Sanctuary on 20-05-1999, under the Wildlife (Protection) Act, 1972.

About the Sanctuary: Named after Pakhal lake, located to the south of Eturnagaram Wildlife Sanctuary, is one of the oldest sanctuaries of Andhra Pradesh – Pakhal Wildlife Sanctuary. The sanctuary forms partly the catchment for two drainage systems –one draining in to Godavari river through Laknavaram tank and the other joining Krishna river through Maner tributary. The hilly and an undulating terrain of the sanctuary is an abode for a vivacious plants and animal life.

Climate: Temperature varies from 15°C to 45°C **Rainfall:** Rainy season is from **June** to September; Average annual rainfall is 1015mm.

Forest type: A Riverine ecosystem with islands in between.

Indicator species: Marsh crocodile.

Uniqueness: Pakhal lake in the sanctuary is a haven for aquatic birds and Marsh crocodiles.

Place to visit: Narasampet Forest, Warangal fort, Ramappa temple, etc.

Flora: The sanctuary has a rich diversity of flora (over 200 species of plants). Teak, Anogeissus latifolia (tirman), Terminalia tomentosa, Cleistanthus collonus (Kedisa), Bamboo, Madhuca indica (Mahua), etc.

Fauna: Mammals like Tiger, Panther, Hyena, Wolf, Sloth bear, Hanuman langur, etc: represent the mammalian fauna. Mugger or Marsh crocodile is the prominent reptile along with other species like Common Cobra, Russell's viper, Monitor lizard, etc. Resident as well as migratory birds like cotton teals, Painted storks, Spotted owlet, Brain fever bird, Purple sunbird, Golden oriole, etc: are among the few birds that inhabit the forest.

Accommodation: Forest rest house having two suites at Narasampet forest and Tourist Rest house at Pakhal.

When to visit: October to April.

The vegetation cover maps for the years 1988, 2000 & 2010 are shown in fig. 7.9, fig. 7.10 and fig. 7.11 respectively. The vegetation change locations are shown in figure 7.12.

The Forest Cover Statistics for 1988, 2000 and 2010 are as follows: (Area in Sq Km)

Year	VDF	MDF	OF	Scrub	NF	Water	Total
1988	0.00	153.61	452.86	64.15	134.42	22.90	827.94
2000	0.00	149.91	413.29	63.57	178.11	23.06	827.94
2010	0.00	144.95	401.62	66.72	191.44	23.21	827.94

The following are the **Changes** in various forest cover classes between 1988 to 2000 and 2000 to 2010: (Area in Sq Km)

Year	VDF	MDF	OF	Scrub	NF	Water
1988 - 2000	0.00	-3.70	-39.57	-0.58	43.69	0.16
2000 - 2010	0.00	-4.96	-11.67	3.15	13.33	0.15
Total	0.00	-8.66	-51.24	2.57	57.02	0.31



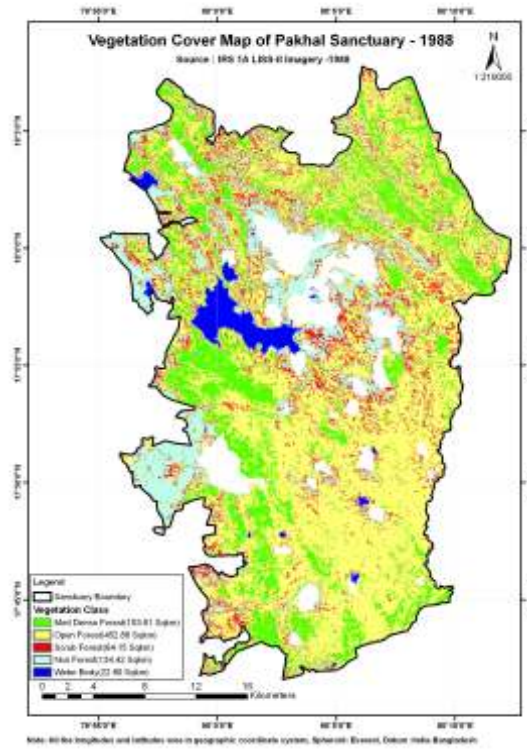


Fig . No. 7.9

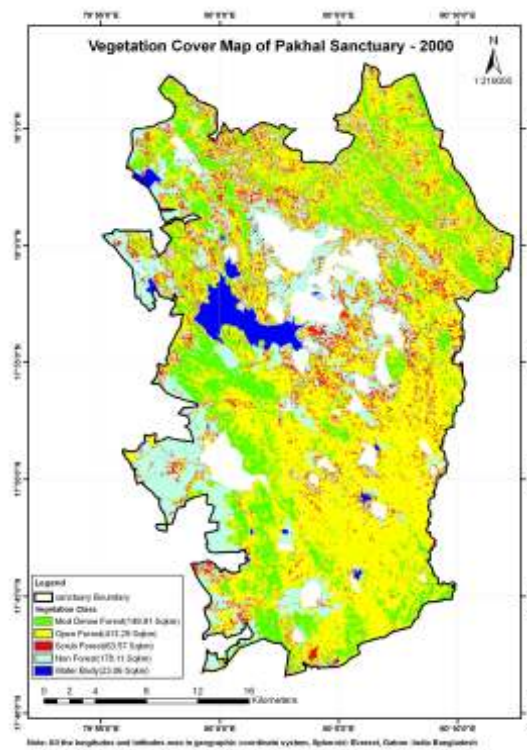


Fig . No. 7.10



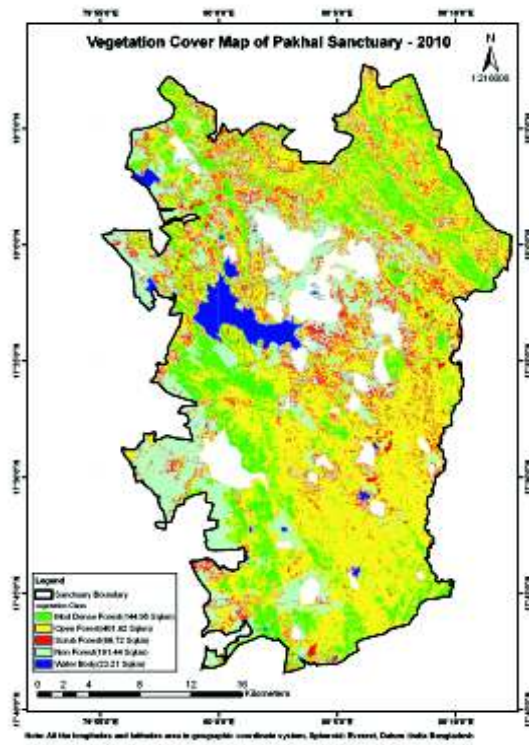


Fig . No. 7.11

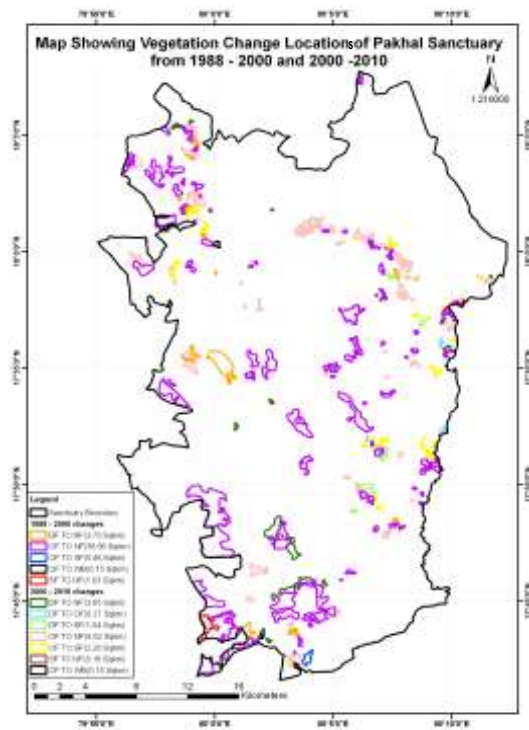


Fig . No. 7.12





Glossary of Technical Terms

Allowable Error: A systemic error that is 'acceptable', both statistically and analytically. The amount of error that can be tolerated without invalidating the usefulness of the analytic result.

AWiFS: Advanced Wide Field Sensor

Band: A wavelength interval in the electromagnetic spectrum. For example, in IRS images the bands designate specific wavelength intervals at which images are acquired.

Calibration: Process of comparing an instrument's measurements with a standard.

Classification: Process of assigning individual pixels of an image to categories, generally on the basis of spectral reflectance characteristics.

Classification accuracy: The extent to which a manual or automatic processing system correctly identifies selected classes.

Color Composite Image: Color image prepared by projecting individual black-and-white multi-spectral images, each through a different color filter. When the projected images are superposed, a color composite image results.

Confidence Interval: A confidence interval (CI) is a particular kind of interval estimate of a population parameter. Confidence intervals are used to indicate the reliability of an estimate. How likely the interval is to contain the parameter is determined by the confidence level or confidence coefficient. Increasing the desired confidence level will widen the confidence interval, however the estimated value will be away from the absolute value.

Consumer's accuracy: It is a measure of the reliability of an output map generated from a classification scheme. It is a statistic that can tell the user of the map what percentage of a class corresponds to the ground-truthed class.

Contrast: The ratio between the energy emitted or reflected by an object and its immediate surroundings.

Contrast enhancement: Image-processing procedure that improves the contrast ratio of images. The original narrow range of digital values is expanded to utilize the full range of available digital values.

Contrast ratio: On an image, the ratio of reflectance's between the brightest and darkest parts of an image.

Contrast stretching: Expanding a measured range of digital numbers in an image to a larger range, to improve the contrast of the image and its component parts.

Density slicing: Process of converting the continuous gray tones of an image into a series of density intervals, or slices, each corresponding to a specific digital range. The density slices are then displayed either as uniform gray tones or as colors.

Digital Image Processing: Computer manipulation of the digital-number values of an image.

Digital Number (DN): Value assigned to a pixel in a digital image

Error Matrix: A matrix or table that displays statistics for assessing image classification accuracy by showing the degree of misclassification among classes.

Errors of Commission: Pixels incorrectly assigned to a particular class that actually belong in other classes.

Errors of Omission: Pixels incorrectly excluded from a particular class.

False color image: An image produced by displaying multiple spectral bands as colors different from the spectral range they were taken in. A color image where parts of the non-visible EM spectrum are expressed as one or more of the red, green, and blue components, so that the colors produced by the Earth's surface do not correspond to normal visual experience. Also called a falsecolor composite (FCC). The most commonly seen false-color images display the very-near infrared as red, the red as green, and the green as blue.

Forest: Land with tree crown cover (or Equivalent stocking level) of more than 10 % and area of more than 0.5 ha. The trees should be able to reach a minimum height of 5 m at maturity in situ. May consist of either closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground, or open forest formations with a continuous vegetation cover, in which tree crown cover exceeds 10 %. Young natural stands and all plantations established for forestry purposes which have yet to reach above criteria are included under forest, as are areas normally forming part of the forest area which are temporarily unstocked as a result of human intervention or natural causes but which are expected to revert to forest.



Forest Canopy Density: Forest Canopy Density (FCD) refers to the proportion of an area in the field/ground that is covered by the crown of trees and is expressed in percentage of the total area.

Forest Type: Forest type is defined as a unit of vegetation which possess broad characteristics in physiognomy and structure sufficiently pronounced to permit its differentiation from other such units (Champion & Seth 1968)

Geographic Information System (GIS): A computer based system for capturing, storing, manipulating, analyzing and displaying data, which are spatially referenced to the earth.

Global Positioning System (GPS): The Global Positioning System (GPS) is a space-based global navigation satellite system. It provides reliable positioning, navigation, and timing services to worldwide users on a continuous basis in all weather, day and night, anywhere on or near the Earth which has an unobstructed view of four or more GPS satellites.

Good Forest and Degraded Forest: Good Forest includes VDF, MDF and OF; degraded forest includes Scrub and Non-Forest.

Green and Barren: Green includes VDF, MDF, OF and Scrub; Barren includes Non-Forest.

Ground control point (GCP): A geographic feature of known location that is recognizable on images and can be used to determine geometric corrections.

Ground truth: Information acquired by field study for the purpose of calibration and/or verification of remotely sensed data.

Geometric correction: Image-processing procedure that corrects spatial distortions in an image. The geographic correction of image data to conform to a map projection.

Histogram: A means of expressing the frequency of occurrence of values in a data set within a series of equal ranges/bins, the height of each bin representing the frequency at which values in the data set fall within the chosen range. A cumulative histogram expresses the frequency of all values falling within a bin and lower in the range. A smooth curve derived mathematically from a histogram is termed as probability density function (PDF).

Image: A pictorial representation acquired in any wavelength of the electromagnetic spectrum. Although image is a general term, it is commonly restricted to representations acquired by non-photographic methods.

Imagery: The products of image forming instruments.

Interpretation: The process in which a person extracts information from an image.

Interpretation key: Characteristic or combination of characteristics that enable an interpreter to identify an object on an image.

Kappa coefficient: A statistical measure of the agreement, beyond chance, between two maps (e.g. output map of classification and ground-truthed map). It is represented by the symbol kappa hat or Khat.

Mangroves : Salt tolerant ever green forest ecosystem found mainly in tropical and sub – tropical coastal and / or inter tidal regions.

Medium Dense Forest: All lands with forest cover having a canopy density between 70-40%

Multi-spectral classification: Identification of terrain categories by digital processing of data acquired by multi-spectral scanners.

Multi-spectral scanner: Scanner system that simultaneously acquires images of the same scene at different wavelengths.

Mid-infrared (MIR): The range of EM wavelengths from 8 to 14 micrometres dominated by emission of thermally generated radiation from materials; also known as thermal infrared.

NDVI: The Normalized Difference Vegetation Index (NDVI) is defined as the ratio of the difference in the NIR & Red radiance values to the sum of the NIR & Red radiance values.

NDWI: The Normalized Difference Water Index (NDWI) is defined as the ratio of the difference in the SWIR and NIR radiance values to the sum of the SWIR and NIR radiance values.

Near infrared (NIR): The shorter wavelength range of the infrared region of the EM spectrum, from 0.7 to 2.5 m. It is often divided into very-near infrared (VNIR) covering the range accessible to photographic emulsions (0.7 to 1.0m), and the short-wavelength infrared (SWIR) covering the remainder of the NIR atmospheric window from 1.0 to 2.5m.

Noise: Random or repetitive events that obscure or interfere with the desired information.

Open Forest: Lands with forest cover having a canopy density between 40 to 10%.

Overall accuracy: The percentage of correctly classified pixels. It is a good measure of the accuracy of a classification scheme as it is not biased towards the smaller classes.

Path and Row: Path is an approximate specific orbital track of a Satellite which may vary due to drift and other factors. Row refers to the latitudinal center line of a frame of imagery.

Pixel: Contraction of picture element

Producer's accuracy: A measure of the accuracy of a particular classification scheme. It shows what percentage of a particular ground class was correctly classified.

Protected Forest (PF): An area notified under the provisions of the Indian Forest Act or other State Forest Acts, having limited degree of protection. In protected forest all activities are permitted unless prohibited.



Radiometric correction: Calibration of recorded radiance values reflected from (or emitted by) the ground scene.

Radiometric Resolution: The expected spread of variation in each estimate of scene reflectivity as observed in an image. Smaller radiometric resolution is "better". Radiometric resolution for a given image may be improved by averaging, but at the cost of spatial resolution.

Raster format: A means of representing spatial data in the form of a grid of DN, each line of which can be used to modulate the lines of a video raster.

Ratio image: An image prepared by processing digital multi-spectral data as follows: for each pixel, the value for one band is divided by that of another. The resulting digital values are displayed as an image.

Remote sensing: Collection and interpretation of information about an object with an instrument without being in physical contact with the object.

Reserved Forests (RF): An area so constituted under the provisions of the Indian Forest Act or other State Forest Acts, having full degree of protection. In Reserved forests all activities are prohibited unless permitted.

SAVI: Soil-Adjusted Vegetation Index. A vegetation index that accounts for, and minimizes, the effect of soil background conditions.

Scene: As the satellite moves along its path, the observatory instruments are continuously scanning the terrain below. The instrument signals are transmitted to Earth and correlated with telemetry ephemeris data to form individual framed images. During this process, the continuous data are segmented into individual frames of data known as scenes

Scrub: Degraded forest lands having canopy density less than 10% and areas with dwarf and stunted growth.

Spatial resolution: Ability to separate closely spaced objects on an image or photograph. A measure of the smallest angular or linear separation between two objects usually expressed in radians or meters.

Spectral resolution: The ability of a sensing system to resolve or differentiate electromagnetic radiations of different frequencies.

Standard Deviation and Variance: In probability theory and statistics, the variance of a random variable or distribution is the expected, or mean, value of the square of the deviation of that variable from its expected value or mean. Thus the variance is a measure of the amount of variation within the values of that variable, taking account of all possible values and their probabilities or weightings (not just the extremes which give the range).

The standard deviation of a statistical population, a data set, or a probability distribution is the square root of its variance.

Standard deviation is a widely used measure of the variability or dispersion.

Statistic: A statistic is a single measure of some attribute of a sample (e.g. its arithmetic mean value). It is calculated by applying a function (Statistical algorithm) to the values of the items comprising the sample which are known together as a set of data.

A Statistic as a function of a sample where the function itself is independent of the sample's distribution; that is, the function can be stated before realisation of the data. The term statistic is used both for the function and for the value of the function on a given sample.

Stereo pair: Two overlapping images or photographs that may be viewed stereoscopically.

Supervised classification: Digital-information extraction technique in which the operator provides training-site information that the computer uses to assign pixels to categories

Tone: Each distinguishable shade of gray from white to black on an image

Training area: A sample of the Earth's surface with known properties; the statistics of the imaged data within the area are used to determine decision boundaries in classification.

Training site: Area of terrain with known properties or characteristics that is used in supervised classification.

Tree: A woody perennial with a single main stem, or in the case of coppice with several stems, having a more or less definite crown, having diameter 10 cm or more at breast height (1.37m). If there are stems below 1.37 m height then individual branch/stem which has attained 10 cm DBH will be considered as individual tree. It also includes bamboo, palms, coconut, neem, peepal, fruit trees etc.

Unsupervised classification: Digital information extraction technique in which the computer assigns pixels to categories with no instructions from the operator.

Vegetation Canopy: The layers of vegetation above the level of the ground, formed by the leaves of the plants.

Very Dense Forest: All lands with forest cover having a canopy density more than 70%

Visible radiation: Energy at wavelengths from 0.4 to 0.7mm that is detectable by the human eye.

