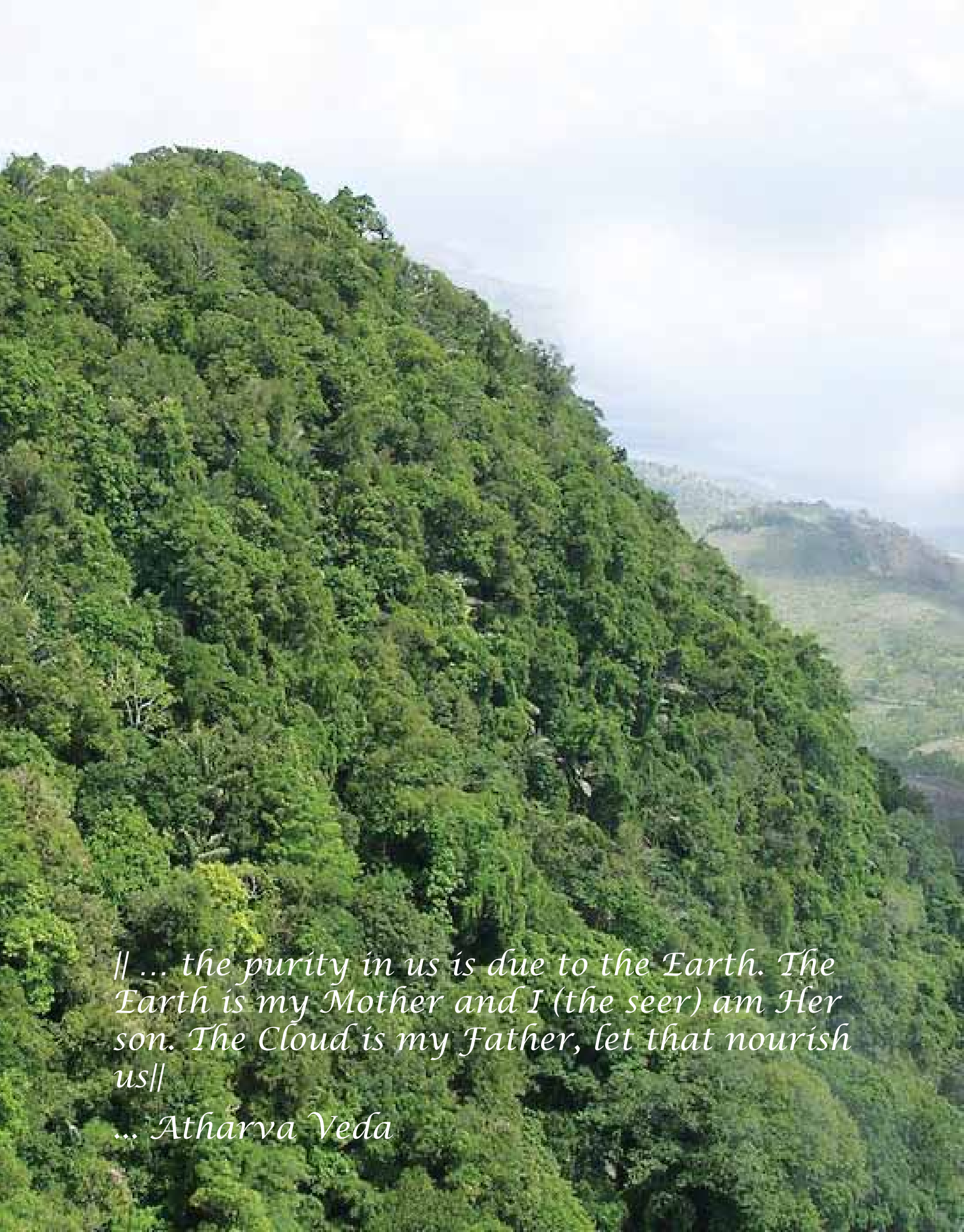
Telangana
State of Forest Report
2014



Telangana Forest Department
Government of Telangana
Hyderabad



|| ... the purity in us is due to the Earth. The Earth is my Mother and I (the seer) am Her son. The Cloud is my Father, let that nourish us||

... Atharva Veda

Telangana State of Forest Report 2014



Telangana Forest Department
Government of Telangana
Hyderabad

Telangana State of Forest Report
2014

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MESSAGE

Sri K.CHANDRASHEKAR RAO
Hon'ble Chief Minister of Telangana

I am very happy to know that Telangana State Forest Department is bringing out its first annual **"Telangana State of Forest Report 2014"** detailing the changes in forest canopy cover between 2011 and 2012 based on the interpretation of Satellite Imagery using modern tools of information technology and Geomatics like Geographical Information System (GIS) & Global Positioning System (GPS). This would help the State in planning appropriate strategies for effective protection and development of forests and natural resources.

Forests play an important role in maintaining the ecological balance including reduction of soil erosion, recharge of ground water and maintaining fertility of agricultural land. There is Global concern now to protect and expand our green cover, as our very survival depends on the existence of forests and any disturbance to the nature will lead to climate change resulting in Global warming.

Our Government has accorded topmost priority to the protection of forests and wildlife in the state and is committed to bring 33% of the geographical area under tree cover, in tune with the **National Forest Policy,** in next 3 years. To achieve this objective, we have launched a programme of massive afforestation and rejuvenation of forests by the name **'Telangana ku Harita Haram'** (TKHH) and allocated funds to the tune of Rs.346 Crores during the current financial year.

I hope the facts and figures brought out through this Report will be an eye opener and make the people as well as the planners to take a resolve to restore the past glory of the State in terms of natural resources including forests and wildlife. The data provided by this Book will be utilized for selection of appropriate sites for afforestation, rejuvenation of degraded forests, and soil and moisture conservation works for achieving the goals of **'Telangana Ku Haritha Haram'.**

I congratulate the PCCF (HoFF) and IT Wing of his office for bringing out this Report.

K.Chr

K.CHANDRASHEKAR RAO
Hon'ble Chief Minister of Telangana





MESSAGE

Sri. JOGU RAMANNA
Hon'ble Minister of Forest, Environment,
Science & Technology

Telangana State is traditionally known for rich forests and wildlife resources with 26904 km^2 of notified forests covering 24.00% of the geographical area of the State. The State has a strong protected area network with 9 Wildlife Sanctuaries and 3 National Parks covering 5856 km^{2}of the forest area with unique ecosystem and bio-diversity.

It is vital to assess the location wise change in the forest cover to analyse the impact of biotic pressure & various developmental programmes and to formulate appropriate strategies for better protection and management of forest resources which is critical for human existence and survival of other living beings. The forest and wildlife are national assets and needs to be protected and conserved for future generations.

It gives me immense pleasure that the Telangana Forest Department has done this assessment and prepared the **"Telangana State of Forest Report 2014"** showing details of forest cover changes between 2011 and 2012 using Satellite Remote Sensing data. It will not only act as guide to Forest Officers in forest protection and development of forest canopy cover in the State but also help in planning and implimentation of the prestigious 'Telangana Ku Haritha Haram' (TKHH) programme for greening of the state. The hard work done by IT wing of Telangana Forest Department is commendable and appreciated.

I compliment the Prl. Chief-Conservator of Forests and his dedicated team of Officers for bringing out this "mirror" of the Telangana forests, showing the true picture of the forests on ground using latest State of Art technology. I am sure this first annual report will help one and all in the effective protection and management of our forests and wildlife habitats.



JOGU RAMANNA
Minister of Forest, Environment,
Science & Technology
Government of Telangana



MESSAGE

Rajeshwar Tiwari, IAS
Prl Secretary to Govt
EFS&T Department

Forests are a gift from the God to the mankind. Forests contribute significantly in the improvement of the ecological conditions and also provide food, fodder, fuel etc. to the living beings, especially to the weaker section of the society in the forest fringe villages. Hence forests are considered to be a great boon to the humanity.

The natural forests of Telangana harbor several protected areas and they are hotspots of biodiversity. The Department has got a well-established Geomatics Laboratory and well trained GIS personnel. It is heartening to learn that the Telangana Forest Department is utilizing the technical outputs generated by Geomatics centre in protection and intensive management of natural forests by way of identification of suitable sites for plantations, water harvesting structures, habitat management and control of forests fire etc.

In this backdrop, I am confident that the first 'Telangana State of Forest Report 2014' bringing out details of changes in the forest cover will be immensely useful in enhancing the greenery and developing the forest wealth of Telangana state.

I compliment the Prl. Chief Conservator of Forests and the Officers and the staff of IT wing for bringing out this excellent Report.

Rajeshwar Tiwari, IAS
Prl. Secretary to Government,
Environment, Forests, Science & Technology
Government of Telangana



Foreword

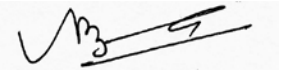


The State of Telangana stands at the 12th position in terms of the extent of forest area in the country. The department has been endowed with enormous responsibility of protecting, conserving, developing and efficiently managing the natural resources in the form of forests and wildlife under its administrative control, which is roughly one fourth of the geographical areas of the State.

Assessment of forest cover, delineating the areas of gains and losses on periodic basis, provides major inputs in this task. Forest Survey of India brings out 'India State of Forests Report' every 2 years, which gives a bird's eye view of the forest cover changes at macro level, which is useful for the national level planning, but it doesn't meet the requirement of planning at the micro level. Therefore the Department has decided to come out with annual 'Telangana State of Forests Report' giving details of the forest cover changes at the lowest level of forest administration, through IT Wing of the Department, which has highly trained officers and State of the Art Geomatics Laboratory. This data is not only highly useful in planning the development and improvement of the forests, but also in monitoring various land based activities of the Department on an annual basis.

The composite State of Andhra Pradesh has brought out 4 such Reports commencing from the year 2010 and this is the fifth report in the series and the first one for the State of Telangana after bifurcation of Andhra Pradesh state and creation of the new state of Telangana on June 2, 2014. The Telangana State Forest Report 2014 provides extensive analysis of forest cover changes in details of encroachments and depleted areas showing degradation basing on the LISS-III satellite imagery of 2011 & 2012.

I am privileged to introduce the 'Telangana State Forest Report 2014' for the use of one and all and compliment the Spl. Prl. Chief Conservator of Forests (Dev) & Chief Wildlife Warden and his dedicated team who has toiled hard to bring out this Report.



SBL Misra, IFS
I/c Prl Chief Conservator of Forests
Head of Forest Force
Government of Telangana

Preface



Newly carved out State of Telangana has 26904 Km^2 of forest area distributed over about 3500 forest Blocks. Telangana Forest Department is coming out with its first ever State of Forest Report 2014, generated through Geomatics Centre of the IT wing, using LISS-III data of 2011 and 2012 seasons. The synoptic analysis of forest cover change given in this Report provides the information upto Beat & Compartment level, with extents as small as 0.5 Ha of forestland.

The Government of Telangana has launched an ambitious programme by name 'Telangana Ku Haritha Haram' with the objectiveof bringing one third of geographical area under tree cover in next three years commencing from 2015, by way of planting 130 Crore seedlings in the State. This Report will prove to be highly useful in planning as well as execution and monitoring of the programme. It will provide help in identification of suitable sites for planting as well as treatment of degraded forest areas and ensure the success of the programme.

The Report consists of the following Chapters:
Executive Summary: Provides Background and key results.
Chapter-I: Deals with the introduction and brief history of the Geomatics wing.
Chapter-II: Deals with details of the satellite data used,the methodology used for determining the forest cover changes, advice of the TAC, accuracy assessment and cost involved.
Chapter-III: Deals with statewide results and analysis of the forest cover changes over all in the State, in VSS areas and Protected areas.
Chapter-IV: Details the Forests Division wise changes in forests canopy cover between various classes upto Beat level.
Chapter-V: Deals with forest canopy cover change statistics in various Protected Areas in the State.
Chapter-VI :Deals with forest canopy cover statistics in Joint Forest Management areas or VSS areas.
Chapter-VII; Provides details of occurrence of Forest Fires in Telangana.
Chapter-VIII: Provides a brief account of the growing stock and various health parameters of the Telangana Forests.
The special team of Forest officials at different levels has worked very hard in putting together this publication. It is hoped that the Telangana State of Forests Report 2014 shall serve the department in managing and protecting the forest & Wildlife more effectively and will be equally useful to the general public, researches and policy makers.

P.K.Sharma, IFS
Spl. Prl. Chief Conservator of Forests (Dev)
& Chief Wildlife Warden
Govt of Telangana



Acknowledgements

Bringing out the first State of Forest Report for Government of Telangana including identification and mapping of location specific Forest Cover Changes, both negative and positive, between years 2011 and 2012 using the LISS III Imagery, is a herculean task. This was possible only with the great cooperation and support from all the Officers and Staff of Telangana State Forest Department.

I gratefully acknowledge the guidance and encouragement given by Sri BSS Reddy, IFS, PCCF (HoFF) retd of the combined Andhra Pradesh and Sri SBL Misra, IFS, PCCF(HoFF), Government of Telangana in bringing out the **Telangana State of Forest Report 2014**. I sincerely acknowledge the guidance and encouragement given by Sri AV Joseph, IFS, PCCF(HoFF), AP, the then PCCF(WL) & CWLW of the combined Andhra Pradesh in bringing out this Telangana State of Forest Report-2014.

I express our profound gratitude and deep regards to Sri PK Sharma, IFS, Spl.PCCF(Dev) & CWLW, the then Spl PCCF (Dev) of combined AP for the guidance and encouragement given in bringing out changes and in refinement of the feedback mechanism and improvement of the analysis. He had gone through the entire manuscript himself and finalised. I express our gratitude and regards to Dr HC Mishra, IFS, the then APCCF(IT) of combined AP and presently APCCF(WL) of Telangana for his guidance, monitoring and encouragement in all activities starting from procurement of Satellite data till finalising the changes and receiving the feedback. He guided the team in analysis of feedback.

I sincerely acknowledge Sri Chiranjiv Choudary, IFS, the then CCF(IT&CAMPA), for his contribution in compiling the results, analysis and correcting the manuscript. I express my profound thanks to Sri P Sreenivasa Rao, DCF(FCA), Telangana for compiling the results, analysis, going through the manuscript, making suggestions, carrying out corrections and helping in finalising the report. I sincerely express my gratitude to Dr A Rama Murthy, ACF(RS) of AP, the then ACF(RS) of the combined AP for his guidance, monitoring and constant encouragement to the Project Scientists and FROs in Image Processing and Analysis, ground truthing and obtaining feedback

My sincere thanks are due to Technical Advisory Committee (TAC) constituted by Government of AP for advising in Geomatics Technology. Similarly, critical review by Dr Devendra Pandey, IFS, (Retd) former DG FSI, Dr HC Mishra, IFS, APCCF (IT), Dr CS Jha, Head Forestry & Ecology Division NRSC, Dr Krishna Bhagawan APSRAC are thankfully acknowledged.

I sincere thank Smt JP Sowjanya, FRO(GIS-I), the then FRO of combined AP for her contribution in all activities starting from procurement of Satellite data till finalising the changes and receiving the feedback and also in guiding Project Scientists in image processing and analysis, change polygonisation and also in ground truthing, correcting. Contributions of Smt Ch Deepa, FRO (GIS-III), Sri S Sreenivas, FRO (RS) of AP, the then FROs of the combined AP in guiding Project Scientists in image



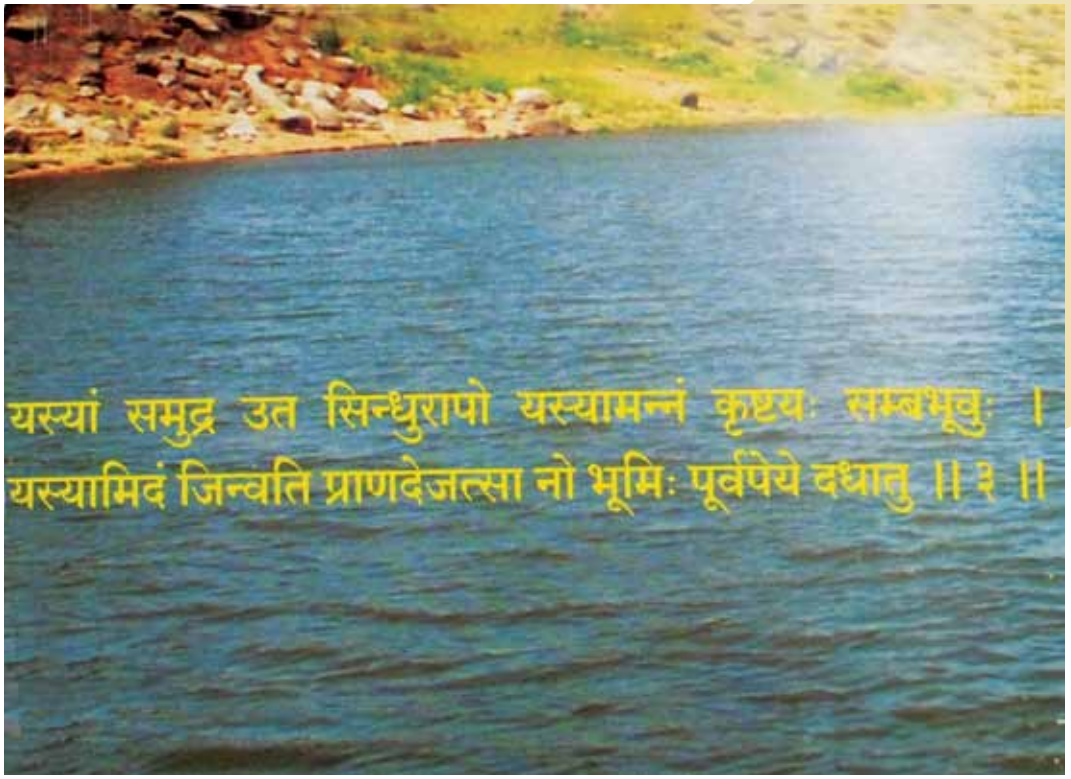
processing and analysis, change polygonisation and also in ground truthing, correcting are sincerely acknowledged.

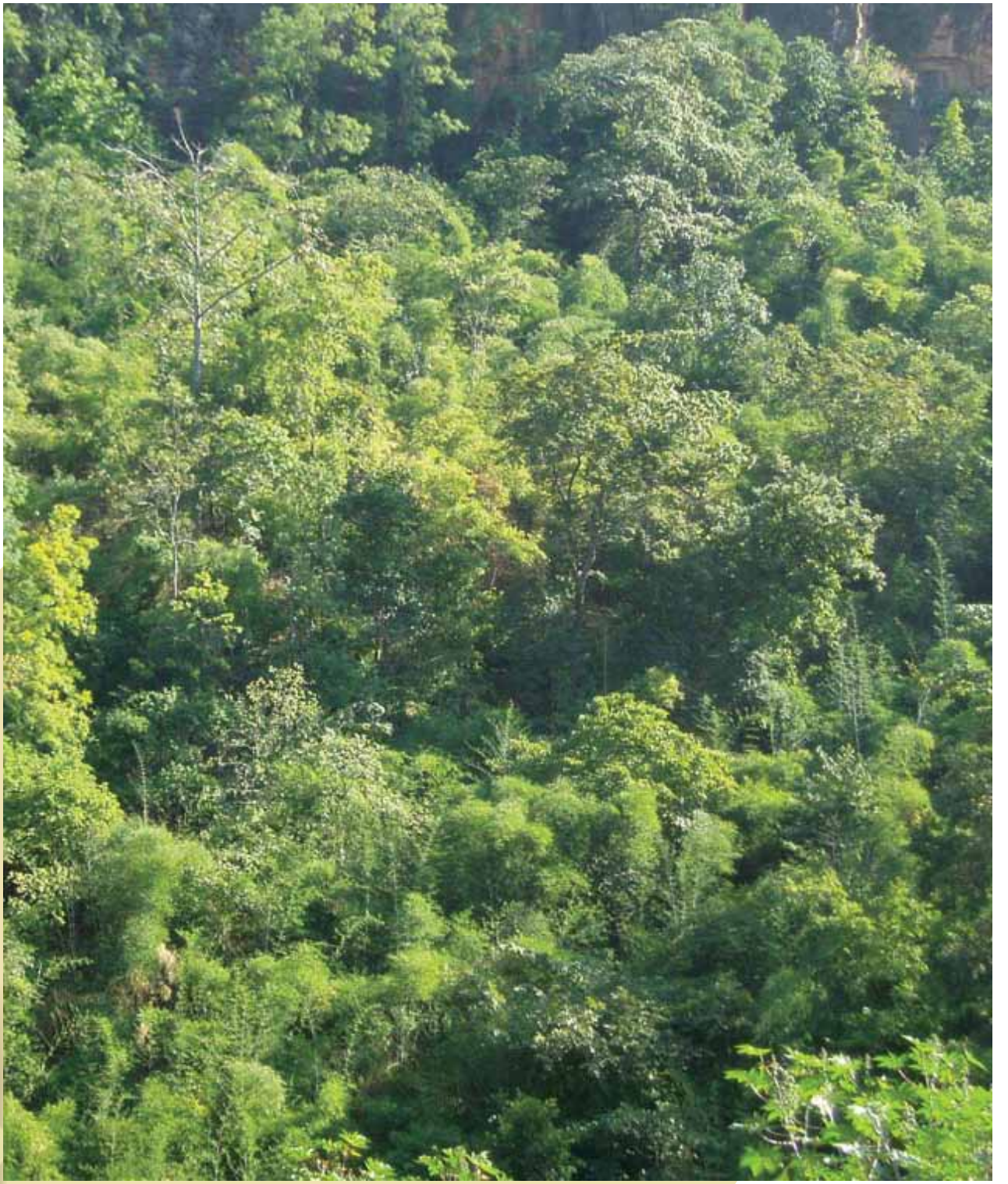
Project Scientists namely Sri M Rajeshwar Reddy, Sri B Ramakrishna, Sri K Bhaskar, Sri K Rajashekar Reddy, Smt AI Sheeba, Smt D Kavitha, Smt K Anuradha, Miss K Sravani, Smt Mounika, Sri Chakri, Sri Krishna Prasad, Sri Ashwin Kumar who worked very hard in Image Processing & Analysis, ground truthing, correction, and compilation of the report. Their sincere contribution is highly appreciated and acknowledged. Contribution of Project Scientists namely Sri Karthik and Sri Prasad in providing the reports on Forest Cover Changes from FMIS is sincerely acknowledged. This facilitated speeding up of work.

Contributions from all the field officers of the Department from Circle Heads to ABOs are highly acknowledged for Ground Checking of the change areas and furnishing of feedback without which achieving high level accuracy was impossible.

Last but not the least we would like to acknowledge all the officers & our colleagues and other staff in the head office of TSFD for their valuable contributions and suggestions in bringing out this report.

M. Prudhvi Raju, IFS,
APCCF (IT&WP)
Government of Telangana







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|| In whom the sea, canals, lakes, wells, tanks;
in whom our food and corn-fields had their being;
in whom this all that breathes and moves is active;
may this Earth (Bhumi) grant us all excellent eatable and drinkable objects like milk, fruits, water and cereals ||

--Atharva Veda 12.1.3



Abbreviations

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



Executive Summary

"**The Telangana State of Forest Report**" gives a detailed view of the health of the notified Forests in the State on Annual basis. The " **Telangana State Forest Report 2014**" is the first report after formation of the new state. It gives precise locations of the forest cover changes assessed using LISS III data of 2011 & 2012 seasons up to Compartment level. It shows that forest cover has depleted to some extent inside the notified forests during the period. The changes have been communicated to field officers and almost all plots were visited, which gives high authenticity to the results. The following are the key results of this assessment:

Key Results:

1. The state has **502.35 Km²** of Very Dense forest, **9052.41 Km²** Moderately Dense Forest & **9209.91 Km²** Open forest in 2012 and corresponding figures in 2011 are **502.35 Km²** of VDF, **9063.02 Km²** MDF, **9235.86 Km²** Open forest.
2. There is a reduction of **10.61 Km²** in MDF and **25.94 Km²** in open forest. There is net loss of **36.55 Km²** during this period.
3. There is degeneration of forests from higher canopy density class to lower canopy density class in an extent of **36.55 Km²**.
4. **7.71 Km²** MDF, **25.66 Km²** OF and **16.51 Km²** scrub has been converted into Non-forests. Also **5.80 Km²** into scrub forest. Of this, **26.02 Km²** of forest is lost due to fresh encroachments, **24.78 Km²** due to clearance of jungle growth for raising of plantations, **4.35 Km²** harvesting of matured plantations and to **0.53 Km²** is due to diversion of forest land for non-forestry purposes.







5. As negative change in forest cover due to clearance of jungle growth for raising of plantations and harvesting of plantations is only a management intervention, the same is not considered as permanent loss of forest cover. Hence, the net loss of forest cover by encroachment during this period is **26.02 Km²**.
6. **VSS** areas account for **8.27 Km²** of encroachments.
7. **Protected Areas** account for **3.37 Km²** of encroachments.
8. **Most negative change** due to encroachments of **14.45 Km²** was found in Khammam Circle followed by Warangal Circle with **6.15 Km²** and FDPT Amarabad Circle showed the **least negative change** due to encroachments of **0.11 Km²**.
9. **Encroachments** were noticed in 23 Divisions of the state. The Divisions contributing most negative changes due to encroachments are: Warangal(South) **(4.93Km²)**, Kothagudem (**4.25 Km²**), Paloncha (**3.64 Km²**), Khammam (**3.14 Km²**), Paloncha WLM (**2.69 Km²**), Nizamabad (**2.41 Km²**), KamaReddy (**0.82 Km²**).
10. **No changes** were found in Medak WLM and Mahabubnagar Divisions.
11. Though there are lot of plantations for improving vegetation cover and growing stock, they are not discernible as to their growth in most cases. This is resulting in loss for forest cover. The technical committee formed by G.O Ms.No.57, EFS&T (For III) Department, dated 07-05-2011 on Geomatic activities has noted this with concern in its meeting held on 10-06-2013 advised to take up result oriented afforestation.







Chapter - I
Introduction

Telangana is the twelth largest state in India, geographical area wise; with an area of **112101 Km²**. It is bounded by Maharastra, Chhattisgarh and Orissa in the north, Andhra Pradesh in the east and south and Karnataka & Maharastra in the west. The state was formed on 2nd June, 2014 by Government of India as 29th State. It has **26903.70 Km²** of notified forest land, which is **24.00%** of the Geographical area.

1.1 About the state

The population of the state is 33.61million (2011 census) which is 2.77 % of country's population. Nearly 61.33% of the population of the state is rural, which primarily depends on agriculture for livelihoods. Scheduled castes constitute about 15.43% and Scheduled tribes about 9.33% of the population. Hyderabad, Karim Nagar, Nizamabad, Khammam and Warangal are the principal towns in the state with over a million population. Traditionally, the state is divided into two regions called South Telangana Region, consisting of the 4 districts and North Telengana region consisting of 5 districts.

1.2 History of Geomatics in combined AP Forest Department-

Prior to 1996, there was no mechanism to monitor the Forest cover changes in composite state of Andhra Pradesh. It used to rely on the data given by the Forest Survey of India, Dehradun through its biennial 'State of Forest Reports'. However, these reports, which were brought out since 1987, did not provide the statistical information on the forest cover inside the notified forest under the control of forest Department and outside, separately. It presented a nation wide & state wise picture of the green cover, inclusive of the areas outside the notified forests. These provide data only upto the district level and no statistics of forest/tree cover were available below the district units. Therefore a necessity was felt for generating this data for the notified forest areas, which are under the control of Forest Department, upto the smallest unit of administration, i.e, Beat level and the management i.e, compartment level. This could have been possible only with the setting up of Geomatics unit at the state level. This required procurement of satellite imagery, Hardware, Software, and technical trained manpower for which huge investment was essential. The opportunity came with the launch of World Bank funded Andhra Pradesh Forestry Project in 1994. A consultancy for setting up and operationlization of a Geomatics center at Hyderabad was provided in the project and given to FAO, Rome. Dr K.D. Singh was the principal consultant for this consultancy. A small Geomatics Center was set up in a small room in the old Aranya Bhavan building with a PC (386 Processor) with 80MB harddisk and 1MB RAM. The first software installed was the IDRISI package gifted by the FAO. In due course of time, other required hardware and software were added to the Geomatics Centre.

Initially, few Officers of the Department were sent for training in the Remote Sensing, GPS, Inventory and GIS at ITC, Netherlands, Finnish Forest Research Institute, Finland, IIRS, Dehradun and NRSC, Hyderabad. On successful completion of the training, these Officers started working in the Geomatics centre and started sensitizing the other Officers in the use of Remote Sensing, GIS and GPS. Gradually, the trainings were extended to the officers & staff of Department and also to the other members like VSSs.





The first thing required for the monitoring of forest cover changes upto Beat level was to create geo-spatial database both from Administrative as well as Management point of view. It was decided to create these geo-spatial database (Vector layers) on 1:250 K Scale. This work was outsourced by tender process in 1994 to "Remote Sensing Instruments" Hyderabad, for digitization of forest blocks, administrative boundaries, rivers, water bodies, villages, roads and forest cover density layers with attribute data. These layers were generated by the end of 1995. Subsequently ERDAS software and PC Arc Info version 3.4.2 were procured. Subsequently about 250 basic and derived themes were generated on 1:50 K Scale. This data is being used in the monitoring of forest cover changes and several other applications in the department. The IT wing has been procuring all the latest hardware, software, data as and when required. Now it is equipped with latest hardware like Blade Servers, High-end workstations, Firewall, PDAs, Multi frequency DGPS receivers and the sophisticated software like ArcGIS Server, Leica Photogrammetric Suite, ERDAS 2012, ArcGIS 2012, Skyline Globe and the Center has become State of the Art facility in IT & Geomatics. It has also developed webenabled modular based GIS-MIS integrated Telangana State Forest Mangement Informations System (TGFMIS).

1.3 History of Forest cover change Monitoring

The Forest cover monitoring in United Andhra Pradesh was initiated in 1995 by Mr. Rudi Drigo of FAO who carried out and demonstrated forest cover change assessment in Adilabad District using IRS IA/IB LISS II images of 1988 and 1994 seasons using "Interdependent Visual Interpretation" method. The results were brought out in 1995-96 upto Range level only. Subsequently, for interpreting the IRS IC and IRS 1D LISS-III data of 1996 & 1998, the task was outsourced. Methodology was formulated by the department through field observations. These agencies digitally interpreted the canopy densities of the forests and submitted the results to the Forest Department. The notified forests were classified into **waterbodies, Blanks/others**, Scrub (0-10% Canopy), **Open forests** (10 to 40% canopy) and **Dense forests** (>40% canopy) inline with FSI classification.

There after the forest cover change monitoring was carried out by the officers of the Geomatics centre in-house regularly on annual basis commensing from 2000 using LISS-III data through digital interpretation methods. The classified maps were sent to the field officers for ground truthing and the corrections were carried out based on the feedback furnished by the field officers. The classified maps gave the complete picture of the beat every year. This method was followed up to 2006 and statistics on various classes of Forest canopy cover were generated upto the lowest unit i.e., beat and compartment by eliminating 0.5 Ha area.

1.4 Refinement of methodology of Forest Cover & change Assessment:

The Forests of Telangana are mostly deciduous in nature and its canopy density widely changes in different months. Experience has shown that repeated digital classification annually was prone to interpretational errors and overlaying two classified images didn't give proper change image at times because of the limitation in the technology including the interpretation techniques, LISS III image etc. It was therefore decided to use Hybrid method of NDVI cum Digital Classfication with limited visual editing and better method in terms of final accuracy in 2009. It was observed that independent classification for 2 images and then comparison is not giving the accurate results, even on application of hybrid NDVI and digital classification method which is attempted for few distrcicts. There is no foolproof method of classifying the images in such a way that the classes are coincindental to each other in two different classified images. Therefore, it was decided to classify one year image and making it as master and then compare with the other year's image to find out the changes and posting the changes only in the master classified map. This was performed using the tools available





in ERDAS Imagine Software viz., matrix tool for comparing two independent classified maps, and also the change detection tool for comparing two FCCs. The 2008 image was compared with 2007 classified map & FCC and the positive & negative changes were digitized and posted in 2007 classified map. Similarly, in subsequent years the 2009 image was compared with 2008 classified map & FCC, 2010 image with 2009 classified image & FCC, 2011 image with 2010 classified image & FCC and changes were posted accordingly in the classified image of 2007. Over last 4 years, wherever the interpretation errors were found, they were corrected in the classified image. For the present assessment 2012 image is compared with 2011 classified image & FCC using the above techniques. In all above comparisons, the change polygons digitized between 2 years were used as background. The changes were to some extent ground truthed by Geomatics wing and the remaining by the field staff for total verification. For easy access to the data, all the change points were kept on the FD's website. Feedback was obtained through a web enabled MIS package developed by the Department called as **"Forest Cover Change MIS"** and few members of staff have given their reports using traditional modes – paper reports & e-mails. The digitization of polygons improved the cartographic presentation of the output, helped map the changes more accurately and made the output available for use by protection staff. Both positive and negative changes were captured for about 736 locations and communicated to field staff for verification & feedback.

As explained above, irrespective of the method attempted, the repeated interpretation of the images are prone to errors, because of several limitations of the LISS Images. Therefore, it had been decided to do the classification during 2014-15 using the high resolution cartosat images and LISS IV data.







Chapter - II
Methodology

2.1 Satellite data and its period

The multi spectral (LISS- III Sensor) data of Resourcesat-2 satellite with a spatial resolution of 23.5M for the entire State has been procured from the National Remote Sensing Center (NRSC), Hyderabad in digital form. One scene of LISS – III covers an area of about 20,000 Km^2 (about 140 km *140 km); there is 15 to 20% overlap among adjacent scenes. Irrespective of the extent of area for an Area of Interest (AOI), the entire scene in which AOI falls has been procured. Thus in all 15 scenes were procured for covering the entire state. The scene wise details of data procured is as follows:

S.No	Path/Row	DOP 2011	DOP 2012	Remarks
1	99-58	23-Oct-11	29-Oct-12	Cloud Free
2	99-59	23-Oct-11	17-Oct-12	Cloud Free
3	99-60	23-Oct-11	29-Oct-12	Cloud Free
4	99-61	23-Oct-11	10-Nov-12	Cloud Free
5	99-62	27-Jan-12	10-Nov-12	Cloud Free
6	100-59	28-Oct-11	10-Oct-12	Cloud Free
7	100-60	21-Nov-11	10-Oct-12	Cloud Free
8	100-61	20-Jan-12	10-Oct-12	Cloud Free
9	100-62	08-Jan-12	10-Oct-12	Cloud Free
10	101-59	20-Dec-11	15-Oct-12	Cloud Free
11	101-60	06-Feb-12	15-Oct-12	Cloud Free
12	101-61	18-Feb-12	08-Nov-12	Cloud Free
13	102-60	07-Nov-11	13-Nov-12	Cloud Free
14	102-61	07-Nov-11	13-Nov-12	Cloud Free
15	103-60	19-Oct-11	12-Dec-12	Cloud Free

2.2 Technical Advisory Committee:

The State Government had constituted a **Technical Advisory Committee** Vide GOMs No.121, EFS & T- (For-III) Deptt. Dated 04.12.2009 to aid and advise the Forest Department in matters of Remote Sensing & GIS application. This committee was re-constituted by the Govt. vide G.O.Ms.No. 57, EFS & T- (For-III) Deptt. Dated 07.05.2011, with the following Members:

1. Representative from Forest Survey of India, Dehradun - Member
2. The Addl. Director(Scientific-Biosphere reserves), Representative of MoEF, N. Delhi - Member
3. The Head, Forestry Division, NRSC, Hyderabad - Member
4. The Director General, TSRAC, Hyderabad - Member
5. Dr. Devendra Pandey, IFS(Retd), Ex-DG of FSI, Dehradun, presently stationed at New Delhi - Member





6. Addl. Prl. CCF (IT), O/o Prl.CCF, Hyderabad - Convener
7. Addl. Prl. CCF (GIS), O/o Prl.CCF, Hyderabad - Member

Accordingly, the Committee met on 11.11.2011 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, forest cover assessment once in 5 -6 years etc.

2.3. Image Processing Technique Adopted:

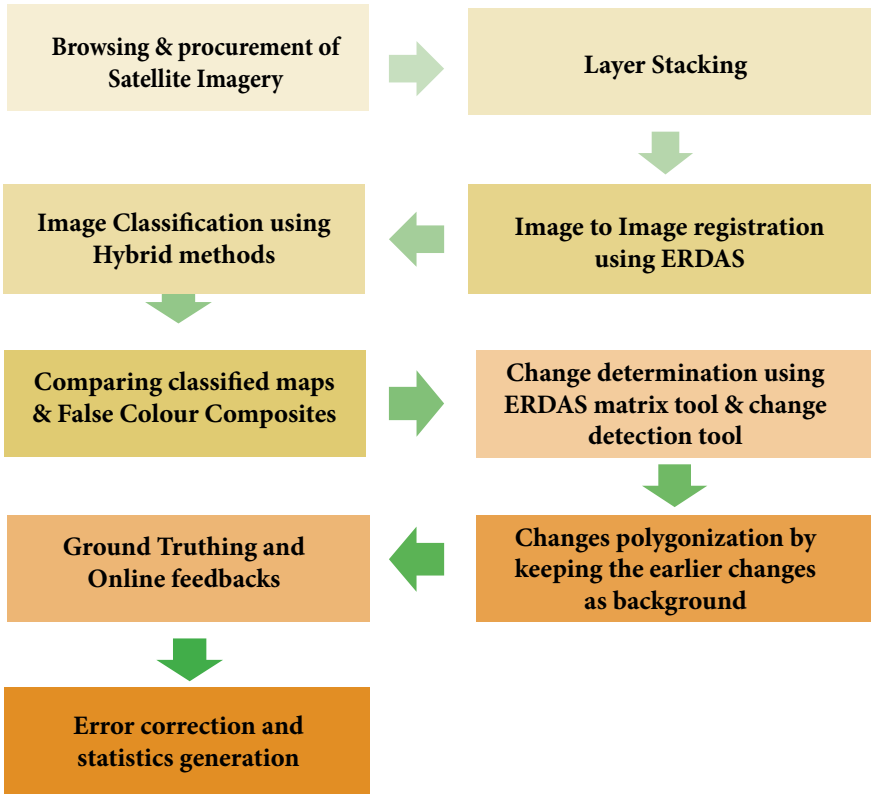
As described in Para 1.4, annually only the changes between 2 years have been polygonised and posted into the 2007 classified image starting from 2007 to 2011. To accomplish this task, the 2012 image has been registered with 2011 image using **Erdas Autosync module**. Hybrid method of NDVI cum digital Classification with visual editing has been used to classify the LISS III Image into various canopy density classes. Before classifying, the Satellite Images have been radiometrically normalized. To determine the changes from one class to another class, the tools available in ERDAS Imagine Software have been used viz., matrix tool for comparing two independent classified maps, and the change detection tool for comparing two FCCs. All the change polygons from 2007 to 2011 have been kept as background and the changes between 2011 and 2012 have been polygonized mainly through manual Polygonisation. The latitude & longitude of the 846 change Polygons as well as change classes both (from class & to class) and the extent of area changed have been communicated to field officers a request to verify and provide the feedback through the Forest Cover Change Monitoring Information System. Of the above 170 points have been verified in the field by the officers of Geomatics Wing. There was good Correlation between area, location and shape of the change points shown in the lab and the situation on ground.







The flow diagram of the work carried is as follows:



2.4 Limitations of Technology

The following are the limitations of the technology:

- As the resolution of LISS-III data is 23.5M, smaller areas of below 0.40 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 becomes 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 change as their spectral response pattern is similar to that of tree canopy.
- In encroached areas harvested agriculture crop gives a pseudo change impression.

2.5 Accuracy Assessment:

Accuracy was estimated in the monitoring activity restricting to the change polygons only. It was found that the change polygons given by Geomatics wing were accurate in extent, location and shape. The accuracy achieved was about 98%. Occasional errors were found in interpretations showing loss of vegetation because of inter-ploughing of plantations and weeding of dense weeds in plantations, deciduous nature of our forests and crop harvested areas in encroached forest lands.





Chapter - III
State-wide Results and Analysis

3.1. Introduction:

Telangana State lies between 15.85484^{0}N & 19.89643^{0}N latitudes and 77.17492^{0}E & 81.80302^{0}E longitudes. The Geographical Area of the State is **112102 Km^2** which is 3.41% of the landmass of the country. The State has two physiographic zones, the hilly region having an altitude of 500 to 1324 M; the plateau having an altitude of 46 m to 1000M. Godavari and Krishna are the 2 principal rivers of the State which drain into the Bay of Bengal through Andhra Pradesh. The River Godavari with its tributaries Pranahita, Manjeera, Maneru, Indravati, Kinnerasani, Pamuleru and Sileru, flows through the northern parts of the State into Bay of Bengal. The River Krishna with its tributaries Tungabhadra, Vedhavati, Musi, Paleru and Munneru flows through the southern parts of the State.

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

Table 3.1: Land use Pattern

Land use	Area in Km^2	Percentage
Forest including Scrub	24510.98	68.23
Agriculture	70904.91	25.54
Land with Scrub	5785.49	1.03
Fallow Lands	2219.58	0.42
Grasslands	204.50	0.00
Settlements	1220.66	1.41
Vegetation outside Forest	3645.61	1.50
Water bodies	3610.55	1.87
Total	**112102.28**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this State is generally dry with temperature ranging from 8^{0}C to 52^{0}C and the annual rainfall is about 500-1300 mm, received mainly from Southwest monsoon. The geological formations of the State are: (1) The unclassified Archaean crystalline rocks which are mainly the granite, (2) The Mesozoic coal bearing Gondwana strata, (3) Eocene lava flows (the Deccan traps) and (4) 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 35.29 million (2011 Census). The male population is 17.54 million and female 17.75 million. The Per capita forest area is 0.08 Ha. The population density is 307 persons per Km^2. The livestock population is 80 million.

3.2. Recorded Forest Area:

The notified forest area of the State is **26903.70 Km^2**, which is **23.99%** of the geographical area. Reserved-, Protected- and Un-classed forests occupy **18294.52 Km^2**(68%), **7802.07 Km^2**(29%) and **807.11 Km^2**(3%) of the forest area respectively. The Adilabad District has the highest notified forest area of 7101.30 Km^2 and the Rangareddy the lowest of 758.87 Km^2, in the State. As regards the ratio of notified forest to geographical area, Khammam District has the highest (45.49%) and Nalgonda the lowest (6.25%). As per Champion and Seth's classification, the Forests of the State fall under Dry Teak Forest, Southern Dry Mixed Deciduous Forest, Dry Deciduous Scrub, Dry Savannah Forest, Hardwickia Forest, Dry Bamboo Brakes, Southern Thorn Forest.

3.3. Protected Area:

The State has 12 Protected Areas, consisting of 9 Wildlife Sanctuaries & 3 National Parks. 2 Wildlife Sanctuaries have been notified as Tiger Reserves i.e. Amrabad Tiger Reserve and the Kawal Tiger





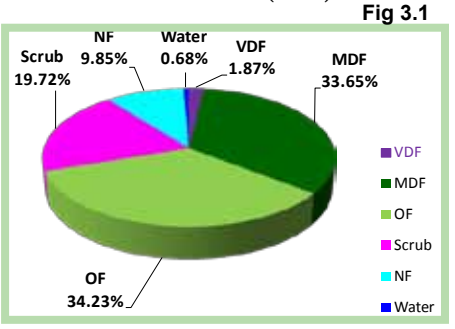
Reserve. Out of 26903.70Km² of notified forest area, 5856.04Km² is included in the PA network.

3.4. Joint Forest Management:

There are 3436 Vana Samrakshana Samities(VSSs) or Joint Forest Protection Committees(JFPCs) in the State. An area of 6756.41Km² of notified forests, which is 25.11% of the forest area, is under Joint Forest Management(JFM). Total 9.1 Lakh members are involved in JFM. It includes 2.3 Lakh members belonging to Scheduled Tribes (STs) and 1.8 Lakh members to Scheduled Castes (SCs).

3.5. Forest Cover:

Fig 3.1



The forest cover* in the State based on the interpretation of IRS R2 LISS-III 2012 data (September 2012-March 2013) is **18764.67 Km²**, which is **16.74%** of the Geographical area. In terms of the forest canopy cover density classes, the State has **502.35 Km²** of Very Dense Forest, **9052.41 Km²** of Moderately Dense Forest and **9209.91 Km²** of Open Forest. The area of the Scrub is **5305.88 Km²**, Non-Forest **2649.79 Km²** and Water Bodies **183.36 Km²**.

The distribution of the forest cover of the State is shown in **Figure 3.1.**

The distribution of Forest Cover in the JFM areas is **10.76 Km²** in Very Dense Forest, **1831.83 Km²** in Moderately Dense Forest and **2797.25 Km²** in Open Forest. The area of Scrub is **1502.80 Km²**, Non-Forest **591.86 Km²** and Water bodies **21.91 Km²**.

The distribution of Forest Cover in the PA areas is **88.01 Km²** in Very Dense Forest, **1562.09 Km²** in Moderately Dense Forest and **2383.51 Km²** in Open Forest. The area of Scrub is **1121.55 Km²**, Non-Forest **584.71 Km²** & Water bodies **116.17 Km²**.

Change in Forest Cover (Including Scrub and Non-Forest): An analysis of the total extent of Forests between 2011 and 2012 shows that degradation is seen in an area of **55.68 Km²** and positive change in **17.20 Km²**. An area of **49.88 Km²** of forests (**7.71 Km²** of MDF, **25.66 Km²** of open forests and **16.51 Km²** of scrub) is converted to Non forest during the year.

On further analysis it is seen that out of this **55.68** Km² of loss of forest an area of **26.02** Km² is due to attempts on encroachments in the State, **4.35** Km² is due to harvesting of matured plantations and **24.78** Km² is due to clearance of jungle growth for raising of plantations and **0.53 Km²** is diversion of forest land. The later three are management interventions and hence not considered as loss of forest. Hence, the loss of forest due to encroachments only is taken as net loss of forest which is **26.02 Km²**. Out of this an area of **8.27** Km² is inside VSS areas and **3.37 Km²** inside the Protected Areas.

Encroachments were noticed in 23 Divisions, positive changes in 2 Divisions and no changes in 2 Divisions (WLM Medak, and Mahabub Nagar).

Change in Forest Cover (Excluding Scrub and Non-Forest): The forest cover in VDF, MDF and OF in 2011 was **502.35 Km²**, **9063.02 Km²** and **9235.86 Km²** respectively. However in 2012 it is **502.35 Km²**, **9052.41 Km²** and **9209.91 Km²** respectively. Thus there was a reduction of **10.61 Km²** in MDF and **25.94 Km²** in OF. The net loss of forest cover in MDF and OF put together is **36.55 Km²** in the State during the year.

Divisions with most loss of Forest Cover due to encroachments are Warangal South, Kothagudem, Paloncha, Khammam, & Paloncha WLM Divisions.

In **JFM areas**, there is a net loss of **10.11 Km²** of forest cover. In Protected Areas, there is a net loss of **3.21 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

**The forest cover is defined as area covered by VDF, MDF and OF.*





reveals that there has been a decrease of **10.61 Km²** of moderately dense forest and **25.94 Km²** of open forest.

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 harvesting (clear felling) of matured plantations, clearance of bush growth and preparation of land for raising of plantations and diversion of forest land for non forestry purpose; and fresh attempts on encroachments.

Division wise forest cover in different forest canopy density classes along with the changes compared to 2011 assessment is given in **Table 3.3**.

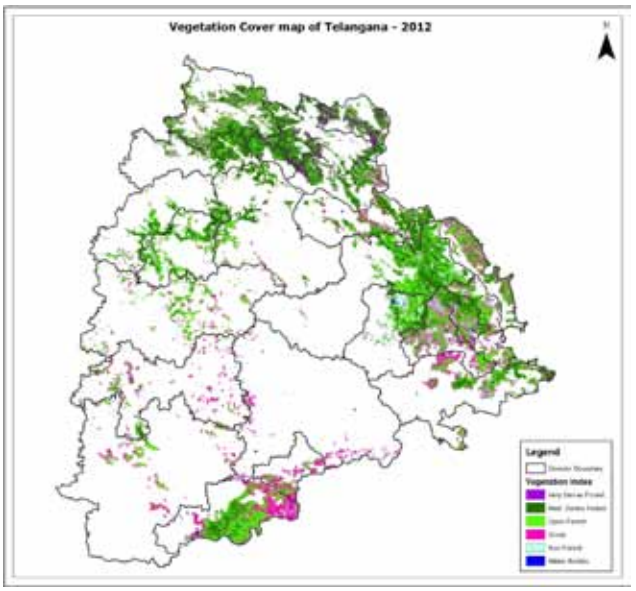


Fig 3.2

Table 3.2 Forest cover change matrix (Area in Km²)

2011 (LISS III data of Oct,2011 to Feb,2012)	2012 (LISS III data of Oct,2012 to Feb,2013)						Total of 2011
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	502.35	0.00	0.00	0.00	0.00	0.00	502.35
Moderately Dense Forest	0.00	9052.41	0.00	2.90	7.71	0.00	9063.02
Open Forest	0.00	0.00	9207.29	2.90	25.66	0.00	9235.85
Scrub	0.00	0.00	1.91	5285.50	16.51	0.00	5303.92
Non-Forest	0.00	0.00	0.71	14.58	2599.91	0.00	2615.20
Water	0.00	0.00	0.00	0.00	0.00	183.36	183.36
Total of 2012	**502.35**	**9052.41**	**9209.91**	**5305.88**	**2649.79**	**183.36**	**26903.70**
Net Change	0.00	-10.61	-25.94	1.96	34.59	0.00	

Table 3.3 Forest cover changes in divisions (Area in Km²)

Sl. No & division	VDF	MDF	OF	SF	NF	WB	TOTAL	Encr.
I. ADILABAD								
1.Adilabad	52.31	924.99	337.40	382.15	194.73	7.37	1898.95	0.09
2.Bellampally	172.82	867.09	237.68	106.22	135.10	5.88	1524.79	0.36
3.Jannaram	41.22	222.25	228.77	64.31	85.48	1.71	643.74	0.10
4.Kagaznagar	159.17	377.26	161.59	74.77	117.41	3.09	893.29	0.31
5.Mancherial	50.23	575.62	277.92	114.04	87.15	10.41	1115.37	0.61
6.Nirmal	7.18	650.20	199.67	68.79	92.95	6.37	1025.16	0.09
Total	**482.93**	**3617.41**	**1443.03**	**810.28**	**712.82**	**34.83**	**7101.30**	**1.56**
II FDPT AMARABAD								
7.Achampet	0.33	479.11	1032.29	781.72	69.96	59.96	2423.37	0.04
8.Nagarjunsagar wlm	0.00	8.28	150.63	260.08	21.98	6.18	447.15	0.07
Total	**0.33**	**487.39**	**1182.92**	**1041.80**	**91.94**	**66.14**	**2870.52**	**0.11**





III HYDERABAD								
9.Hyderabad	0.00	121.95	211.38	382.59	40.20	2.75	758.87	0.10
10.Mahabub Nagar	0.00	16.20	290.94	308.89	3.29	0.16	619.48	0.00
11.Nalgonda	0.00	1.57	38.25	241.15	158.67	2.36	442.00	0.13
Total	**0.00**	**139.72**	**540.57**	**932.63**	**202.16**	**5.27**	**1820.35**	**0.23**
IV KHAMMAM								
12.Bhadrachalam (N)	9.25	309.41	480.09	329.49	123.69	3.56	1255.49	0.73
13.Khammam	0.41	349.08	500.46	352.54	117.27	2.58	1322.34	3.14
14.Kothagudem	0.04	348.58	574.16	454.20	303.39	3.51	1683.88	4.25
15.Palvoncha	7.96	201.05	455.82	248.98	129.49	3.87	1047.17	3.64
16.Palvoncha wlm	1.43	219.38	268.64	125.79	58.39	12.75	686.38	2.69
Total	**19.09**	**1427.50**	**2279.17**	**1511.00**	**732.23**	**26.27**	**5995.26**	**14.45**
V NIZAMABAD								
17.Kamareddy	0.00	327.19	488.52	85.30	76.28	4.00	981.29	0.82
18.Medak	0.00	92.64	488.78	276.63	55.85	2.68	916.58	0.29
19.Medak wlm	0.00	20.56	21.68	3.58	0.70	0.02	46.54	0.00
20.Nizamabad	0.00	307.76	309.11	79.98	84.96	5.32	787.13	2.41
Total	**0.00**	**748.15**	**1308.09**	**445.49**	**217.79**	**12.02**	**2731.54**	**3.52**
VI WARANGAL								
21.Karimnagar east	0.00	657.81	405.37	258.15	59.22	6.26	1386.81	0.37
22.Karimnagar west	0.00	501.38	335.37	119.75	16.19	1.78	974.47	0.20
23.Warangal north	0.00	950.56	1015.34	91.02	246.60	6.73	2310.25	0.63
24.Warangal south	0.00	303.98	423.71	80.45	344.22	22.29	1174.65	4.93
25.Warangal wlm	0.00	218.50	276.37	15.30	26.61	1.77	538.55	0.02
Total	**0.00**	**2632.23**	**2456.16**	**564.67**	**692.84**	**38.83**	**6384.73**	**6.15**
Grand total	**502.35**	**9052.41**	**9209.91**	**5305.88**	**2649.79**	**183.36**	**26903.70**	**26.02**





Chapter - IV

Forest division-wise results







Laknavaram Lake view in Warangal (N) Division





4.1. ADILABAD DIVISION

4.1.1. Introduction:

Adilabad Forest Division lies in Northern Part of Adilabad District between latitudes 19^0 9' 50" N and 19^0 54' 59" N and longitudes 78^0 7' 28" E and 79^0 5' 37" E. The Geographical Area of the Division is 4403.94 Km^2 which constitutes 27.31 % of the total area of the District. The highest hill ranges are situated in the southeast corner of the Division. They are Kuchanpally 646 m above MSL and Tummidipally gutta 634 m above MSL. The important rivers of the Division are Kadam, Penuganga and Peddavagu; which are tributaries of River Godavari.

Land use pattern of the Division is given in Table 4.1.1.

Table 4.1.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	1699.55	38.59
Agriculture	2153.17	48.89
Land with Scrub	293.57	6.67
Fallow Lands	78.95	1.79
Settlements	20.03	0.45
Vegetation outside Forest	108.20	2.46
Water body	50.47	1.15
Total	**4403.94**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

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 15^{0}C to 40^{0}C. The average annual rainfall of the Division is 1051 mm, received mainly from south-west monsoons.

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

The total population of the Division is 0.71million (2011 Census). The Per capita forest area is 0.27 Ha. The population density is 148 persons per Km^2.

4.1.2. Recorded Forest Area:

The notified forest area of the Division is **1830.35 Km^2** which is 41.56 % of the geographical area. The area under Reserved, Protected and Un-classed Forests is **996.47 Km^2** (54.45 %), **820.32 Km^2** (44.8%) and **13.56 Km^2** (0.7%) 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 **506.6 Km^2** of Protected Area which is part of Kawal Tiger Reserve in the Division.

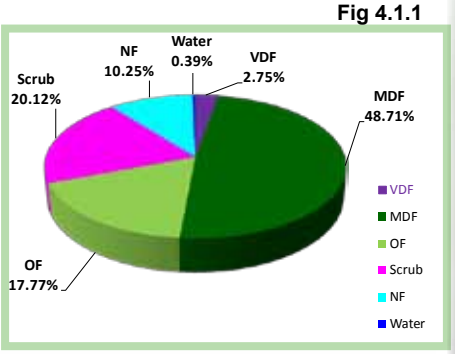
4.1.4. Joint Forest Management:

There are 390 Vana Samrakshana Samities (VSSs) or Joint Forest Protection Committees (JFPCs) in the Division. An area of **359.34 Km^2** 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 R2 LISS III 2012 data (Oct 2012) is **1314.70 Km^2** which is 29.85% of the Geographical area. In terms of the forest canopy density classes the Division has **52.31 Km^2** of Very Dense Forests, **924.99 Km^2** of Moderately Dense Forests and **337.40 Km^2** of Open Forests. The area of the Scrub is **382.14 Km^2**, Non-Forest **194.73 Km^2** and Water Bodies **7.37 Km^2**. The distribution of the forest cover of the Division is shown in Fig 4.1.1.

Fig 4.1.1







4.1.6. Change in Forest Cover:

The Satellite images of 2011 and 2012 have been shown in Fig (4.1.2 & 4.1.3) and the changes between this period are shown on the image of 2012.

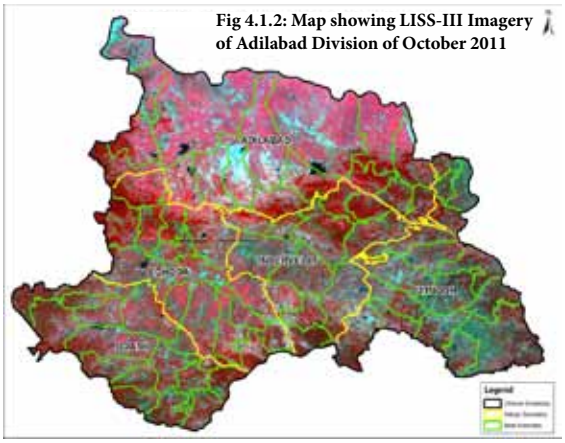


Fig 4.1.2: Map showing LISS-III Imagery of Adilabad Division of October 2011

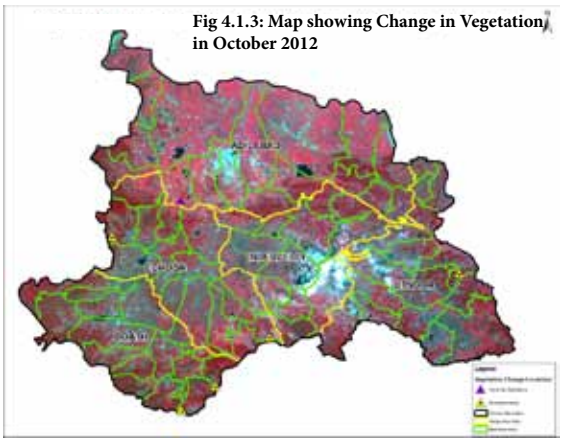


Fig 4.1.3: Map showing Change in Vegetation in October 2012

Comparison of the current forest cover with that of previous assessment year shows a **negative change of 11.02 Ha.** However, including the scrub, the total negative change comes to **11.02 Ha.** The forest cover change matrix given in Table 4.1.2 reveals the changes from one class to another class.
Of the total negative change including scrub of **11.02 Ha**, **2.04 Ha** is on account of carrying advance operations for raising of plantation, and **8.98 Ha** is on account of encroachments. As advance operations etc. are forest management interventions; the same are not considered as loss of forest cover. Hence the negative change on account of encroachments alone is taken as loss of forest cover. Therefore the **net loss of forest is 8.98 Ha** only.
There are 75 Beats in the Division. Negative changes in forest cover are noticed in 6 Beats only. There are no changes in the remaining 69 Beats.
Details of forest cover in all Beats of the Division are shown in Table 4.1.3.

Table 4.1.2: Forest Cover change matrix (Area in Km^2)

2011	2012						Total of 2011
	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	**924.99**	0.00	0.00	0.02	0.00	**925.01**
Open Forest	0.00	0.00	**337.40**	0.00	0.09	0.00	**337.49**
Scrub	0.00	0.00	0.00	**382.15**	0.00	0.00	**382.14**
Non-Forest	0.00	0.00	0.00	0.00	**194.62**	0.00	**194.62**
Water	0.00	0.00	0.00	0.00	0.00	**7.37**	**7.37**
Total of 2012	**52.31**	**924.99**	**337.40**	**382.15**	**194.73**	**7.37**	**1898.95**
Net Change	0.00	-0.02	-0.09	0.00	0.11	0.00	

Table 4.1.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
ADILABAD Range									
Ankoli	301.09	2051.37	406.60	327.84	52.65	9.49	3149.04	0.00	0.00
Arjuni	70.20	1181.82	445.16	491.65	34.69	16.43	2239.95	0.00	0.00
Arli(N)	0.00	34.95	197.28	179.03	743.62	0.01	1154.89	0.00	0.00





Arli(S)	0.00	217.63	300.04	257.12	411.08	3.59	1189.46	0.00	0.00
Bhadi	124.11	1520.17	219.93	462.87	189.67	0.01	2516.76	0.00	0.00
Devapur	0.00	317.39	127.19	91.05	8.45	0.00	544.08	**-2.04**	0.00
Dhaba	15.89	1128.50	502.60	330.70	39.29	2.38	2019.36	0.00	0.00
Downa	189.62	2076.43	414.88	153.73	22.41	0.00	2857.07	0.00	0.00
Khandu	61.46	1685.79	354.14	1068.10	312.35	10.56	3492.40	0.00	0.00
Kosai	0.00	1752.96	480.73	251.92	472.31	12.68	2970.60	0.00	0.00
Kuchlapur	0.00	1358.44	439.31	201.44	183.26	0.00	2182.45	0.00	0.00
Masala	90.85	1676.57	272.83	231.14	35.90	0.00	2307.29	0.00	0.00
Mavala	0.00	633.61	390.58	283.57	164.22	0.00	1471.98	0.00	0.00
Tamsi	0.00	228.58	317.79	183.87	650.62	0.00	1380.86	0.00	0.00
Tantoli	0.00	384.79	329.65	582.52	613.81	1.04	1911.81	0.00	0.00
Toyaguda	306.50	1735.30	500.56	306.80	95.63	2.92	2947.71	0.00	0.00
Yapalguda	28.06	371.73	350.91	699.69	310.46	7.25	1768.10	0.00	0.00
Total	**1187.78**	**18356.03**	**6050.18**	**6103.04**	**4340.42**	**66.36**	**36103.81**	**-2.04**	**0.00**
BOATH Range									
Arepally	1.12	1410.88	610.85	729.30	562.64	0.00	3314.79	**-2.12**	**2.12**
Boath	0.00	1850.16	679.65	244.48	172.55	0.00	2946.84	0.00	0.00
Bondidi	0.00	1379.37	488.86	341.60	350.88	0.00	2560.71	0.00	0.00
Boregaon	0.00	651.25	651.05	1107.73	821.66	1.25	3232.94	0.00	0.00
Jeedipally	0.00	601.77	252.55	126.05	250.04	0.00	1230.41	0.00	0.00
Kowta	0.00	540.78	351.45	800.99	786.99	19.68	2499.89	0.00	0.00
Kuntala	0.00	183.58	179.37	108.92	32.71	16.72	521.30	0.00	0.00
Marlapally	0.00	3221.21	1536.62	489.41	608.72	3.20	5859.16	0.00	0.00
Neradigonda	0.00	647.94	383.45	684.18	452.94	0.00	2168.51	0.00	0.00
Pardi	0.00	391.33	458.08	227.75	340.37	0.71	1418.24	0.00	0.00
Pisra	18.32	2026.94	393.54	249.52	190.79	37.08	2916.19	**-2.99**	**2.99**
Sonala	0.00	2141.79	1206.56	825.12	947.89	19.30	5140.66	0.00	0.00
Wadoorpet	0.00	965.42	619.21	428.49	520.80	0.00	2533.92	0.00	0.00
Wagdhari	0.00	140.26	105.01	429.00	211.05	0.01	885.32	0.00	0.00
Wankidi(E)	0.00	1534.89	612.57	458.00	465.84	22.53	3093.83	0.00	0.00
Wankidi(W)	0.00	1574.27	607.50	370.05	362.72	1.70	2916.24	0.00	0.00
Total	**19.44**	**19261.84**	**9136.32**	**7620.59**	**7078.60**	**122.16**	**43238.95**	**-5.11**	**5.11**
ECHODA Range									
Bharampur	0.00	646.33	513.47	576.95	650.69	0.00	2387.44	0.00	0.00
Bhutai	0.00	249.49	234.25	236.46	615.71	0.00	1335.91	0.00	0.00
Dedra	0.00	2093.19	752.69	788.84	1416.80	0.01	5051.53	**-1.09**	**1.09**
Dignoor	0.00	408.22	198.89	497.59	395.69	0.00	1500.39	0.00	0.00
Echoda	0.00	642.31	196.57	271.14	179.96	0.00	1289.98	0.00	0.00
Gairjam	5.36	910.88	263.06	506.26	146.60	4.06	1836.22	0.00	0.00
Gudihathnoor	0.00	771.21	467.38	737.46	359.62	0.00	2335.67	0.00	0.00
Harkai	0.00	603.64	350.20	675.82	365.64	0.00	1995.30	0.00	0.00
Jhari	0.00	1329.19	717.24	321.64	467.43	0.00	2835.50	0.00	0.00
Madhapur	185.75	864.61	290.25	532.63	49.58	0.01	1922.83	0.00	0.00
Sirchalma	47.69	1976.58	249.24	595.11	59.04	3.38	2931.04	0.00	0.00
Sirkonda	22.33	692.87	221.32	831.72	131.31	0.01	1899.56	0.00	0.00
Talamadri	128.90	1260.04	203.39	672.81	53.88	0.00	2319.02	0.00	0.00
Waipet	14.60	1571.83	308.91	608.42	128.61	0.00	2632.37	**-1.96**	**1.96**
Total	**404.63**	**14020.39**	**4966.86**	**7852.85**	**5020.56**	**7.47**	**32272.76**	**-3.05**	**3.05**

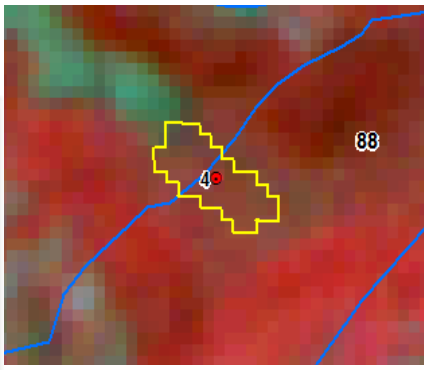




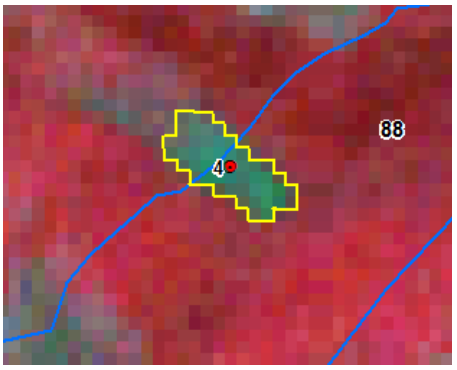
INDERVELLY Range									
Chorgaon	260.82	1488.20	488.42	1579.95	152.86	0.65	3970.90	0.00	0.00
Dhanora	6.29	269.11	199.65	385.10	177.12	1.01	1038.28	0.00	0.00
Indervelly	381.74	2165.78	671.45	1081.27	120.16	1.69	4422.09	0.00	0.00
Muthnoor	89.59	473.35	108.57	304.13	18.22	1.80	995.66	0.00	0.00
Pataguda	174.35	1873.11	342.62	520.35	34.21	21.36	2966.00	0.00	0.00
Pochampally(N)	122.19	841.73	375.28	1470.06	238.69	12.03	3059.98	0.00	0.00
Pochampally(S)	32.63	1734.40	611.97	1036.36	194.07	43.17	3652.60	0.00	0.00
Sayeedpur	317.43	1511.70	448.91	511.22	65.74	20.33	2875.33	0.00	0.00
Shampur	85.94	1833.56	776.11	1022.21	175.69	66.40	3959.91	0.00	0.00
Tosham	32.73	863.04	193.42	294.22	70.55	0.00	1453.96	0.00	0.00
Wadgaon	80.76	777.69	336.18	741.22	90.77	1.56	2028.18	0.00	0.00
Waipet[South]	2.75	2558.32	385.74	414.29	62.92	162.46	3586.48	0.00	0.00
Total	**1587.22**	**16389.99**	**4938.32**	**9360.38**	**1401.00**	**332.46**	**34009.37**	**0.00**	**0.00**
UTNOOR Range									
Chinnakohinoor	164.83	610.00	80.82	91.11	29.88	0.00	976.64	0.00	0.00
Daboli	168.67	2032.94	815.74	555.09	187.02	0.00	3759.46	0.00	0.00
Gadiguda	9.24	613.02	328.72	324.07	53.42	0.00	1328.47	0.00	0.00
Ghanpur	44.19	692.27	152.64	389.39	66.93	1.18	1346.60	0.00	0.00
Gudamamada	76.84	1940.73	521.25	661.92	165.41	0.00	3366.15	**-0.82**	**0.82**
Hasnapur	387.81	971.71	235.48	481.09	29.53	0.01	2105.63	0.00	0.00
Kobbaiguda	108.65	392.63	145.78	431.07	107.84	0.00	1185.97	0.00	0.00
Limbori	19.48	973.33	893.38	469.99	121.74	0.00	2477.92	0.00	0.00
Lokari	104.29	948.11	242.60	291.20	11.88	0.00	1598.08	0.00	0.00
Netnoor	576.69	5727.96	1339.55	1682.35	311.02	186.63	9824.20	0.00	0.00
Raghapur	129.22	1683.65	275.55	303.98	49.26	3.72	2445.38	0.00	0.00
Rasimetta	53.27	1752.22	1024.44	461.98	98.65	9.78	3400.34	0.00	0.00
Sedwai	13.93	561.72	331.65	342.69	14.26	3.55	1267.80	0.00	0.00
Umri	21.00	1386.30	889.66	306.34	77.95	0.00	2681.25	0.00	0.00
Utnoor	133.72	3460.72	916.89	237.83	229.44	3.80	4982.40	0.00	0.00
Yempally	20.07	724.60	453.86	247.78	77.44	0.00	1523.75	0.00	0.00
Total	**2031.90**	**24471.91**	**8648.01**	**7277.88**	**1631.67**	**208.67**	**44270.04**	**-0.82**	**0.82**
Division Total	**5230.97**	**92500.16**	**33739.69**	**38214.74**	**19472.25**	**737.12**	**189894.93**	**-11.02**	**8.98**

Satellite Imageries

2011



2012



Longitude	78.50974 ° E
Latitude	19.22167 ° N
Area in Ha	2.99
Change	OF TO NF
Comp No.	38
Beat	Pisra
Range	Boath
Division	**Adilabad**





4.2 BELLAMPALLY DIVISION

4.2.1 Introduction:

Bellampally Forest Division lies in Adilabad District between latitudes 18^0 56' 16" N and 19^0 36' 58" N and longitudes 78^0 56' 8" E and 79^0 56' 53" E. Geographical Area of the Division is 3287.20 Km^2 which is 20.38% of the 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 125 m to 570 m above MSL. Deccan gutta is the highest peak with an elevation of 633 m above MSL.

Land use pattern of the Division is given in Table 4.2.1.

Table 4.2.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	1392.19	42.35
Agriculture	1563.56	47.57
Land with Scrub	135.56	4.12
Fallow Lands	7.24	0.22
Grasslands	0.10	0.00
Settlements	11.68	0.36
Vegetation outside Forest	95.62	2.91
Water body	81.25	2.47
Total	**3287.20**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The temperature varies from 15^0C to 40^0C. The average annual rainfall of the Division is 1051 mm received mainly from south-west monsoons. The soils are predominantly black cotton and red 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 are Archean Granites and Gneisses, the Deccan trap and the Gondwana sand stones. The lower Gondwanas bear 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 population of the Division is 0.40 million (2011 Census). The per capita forest area is 0.37 Ha. The population density is 116 persons per Km^2.

4.2.2 Recorded Forest Area:

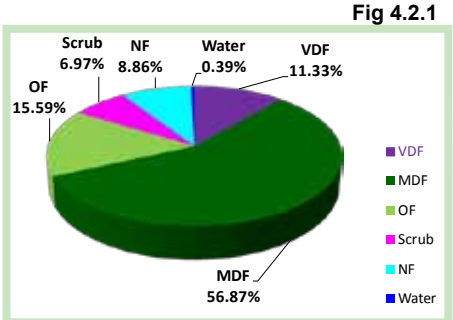
The area of notified forests of the Division is **1540.56 Km^2** which is 46.87% of the geographical area. Reserved, Protected and un-classed forests comprise of **1337.74 Km^2** (86.8 %), **163.58 Km^2** (10.64%) and **39.24 Km^2** (2.5 %) of the forest area respectively.

As per Champion and Seth's classification the Forests of Division fall under Tropical Dry Deciduous forests but for the convenience of forest management classified as Teak forests and Mixed forests.

4.2.3 Protected Area:

There is no Protected Area in the Division.

Fig 4.2.1



4.2.4 Joint Forest Management:

There are 228 Vana Samrakshana Samities (VSSs) or Joint Forest Protection Committees (JFPCs) in the Division. An area of **206.92 Km^2** forests, which is 13.43% of the notified forests, is under the management of the VSSs.

4.2.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **1277.59 Km^2** which is **38.87%** of the geographical area. In terms of the forest canopy density classes the Division has **172.82 Km^2** of Very Dense Forests, **867.09**





Km² of Moderately Dense Forests and **237.68 Km²** of Open Forests. The area of the Scrub is **106.22 Km²**, Non-Forest **135.10 Km²** and Water Bodies **5.58 Km²**. The distribution of the forest cover of the division is shown in Fig 4.2.1.

4.2.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 are shown in Figures (4.2.2 & 4.2.3) and the changes between

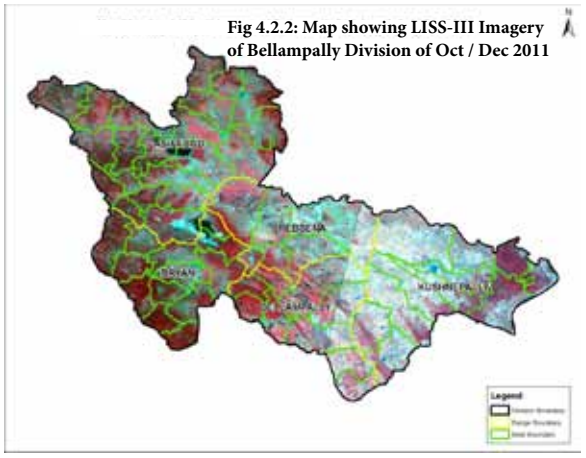


Fig 4.2.2: Map showing LISS-III Imagery of Bellampally Division of Oct / Dec 2011

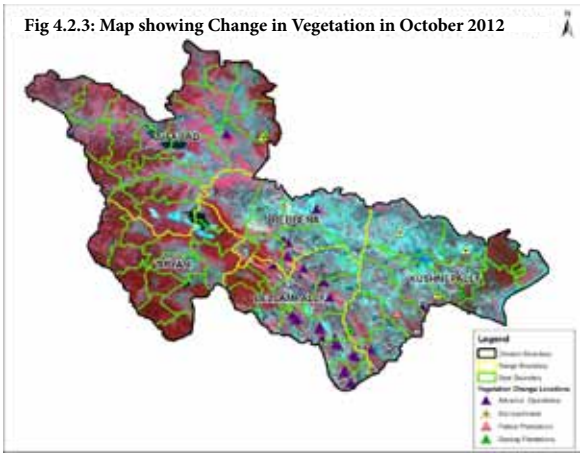


Fig 4.2.3: Map showing Change in Vegetation in October 2012

this period are shown on the image of 2012.

Comparison of the current forest cover with that of previous assessment year shows a **positive change of 19.58 Ha** and a **negative change of 244.02 Ha.** However, including the scrub, the **total negative change** comes to **359.68 Ha**. The forest cover change matrix given in Table 4.2.2 reveals the changes from one class to another class.

The total positive including scrub of **19.58 Ha** is on account of growth in plantations raised. Of the total negative change including scrub, **323.61** Ha is on account of carrying advance operations for raising of plantations **36.07 Ha** is an account encroachments. As advance operations and failure of plantations are forest management interventions; the same are not considered as loss of forest cover. Hence the negative change on account of encroachments alone is taken as loss of forest cover. Therefore the **net loss of forest cover in the Division 36.07 Ha** only.

There are 60 Beats in the Division. Negative changes in forest cover are noticed in 15 Beats and positive changes in 2 Beats. There are no changes in remaining 43 Beats.

Details of forest cover in all the Beats of the Division are shown in Table 4.2.3.

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

2011	2011						Total of 2011
	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	**867.09**	0.00	0.00	0.13	0.00	**867.22**
Open Forest	0.00	0.00	**237.48**	0.46	1.86	0.00	**239.80**
Scrub	0.00	0.00	0.20	**105.76**	1.16	0.00	**107.12**
Non-Forest	0.00	0.00	0.00	0.00	**131.95**	0.00	**131.95**
Water	0.00	0.00	0.00	0.00	0.00	**5.88**	**5.88**
Total of 2012	**172.82**	**867.09**	**237.68**	**106.22**	**135.10**	**5.88**	**1524.79**
Net Change	0.00	**-0.13**	**-2.12**	**-0.90**	**3.15**	0.00	





Table 4.2.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
ASIFABAD Range									
Asifabad	496.02	1180.34	199.40	85.17	66.26	8.12	2035.31	0.00	0.00
Balhanpur	175.66	940.64	159.94	160.67	48.80	0.01	1485.72	0.00	0.00
Bambara	637.58	1627.73	451.01	164.58	360.43	0.00	3242.33	0.00	0.00
Chichpally	66.13	1979.66	889.71	136.43	162.30	0.00	3234.23	0.00	0.00
Chintaguda	355.55	1963.85	161.40	161.54	104.13	24.69	2771.16	0.00	0.00
Chirrakunta	423.29	979.93	156.79	30.91	33.49	2.31	1626.72	0.00	0.00
Dantanpally	618.98	3513.16	681.45	274.74	96.45	1.72	5186.50	0.00	0.00
Dhanora	130.74	2558.90	466.88	316.24	86.85	0.00	3559.61	0.00	0.00
Goyegoan	160.72	1402.87	160.38	134.59	53.68	0.00	1912.24	0.00	0.00
Indapur	63.85	1550.61	515.29	325.48	63.16	2.47	2520.86	0.00	0.00
Indhani	126.96	1217.32	426.71	157.35	263.22	42.68	2234.24	0.00	0.00
Kanergoan	544.01	742.34	122.18	93.56	69.33	0.00	1571.42	**-3.69**	0.00
Karangjiwada	52.18	2860.93	2567.55	508.75	482.62	115.68	6587.71	0.00	0.00
Keremeri	114.91	2041.35	491.96	526.39	218.14	55.13	3447.88	0.00	0.00
Kodanmovad[N]	273.01	1326.83	173.74	60.01	91.90	0.01	1925.49	0.00	0.00
Kodanmovad[S]	112.37	1310.35	130.28	22.85	37.81	0.00	1613.66	0.00	0.00
Nawdhari	149.95	1182.88	528.21	73.09	141.70	0.00	2075.83	0.00	0.00
Sangvi	63.16	2378.22	1036.03	261.51	111.89	0.00	3850.81	0.00	0.00
Wankidi	428.17	1538.30	426.59	116.03	180.38	0.00	2689.47	0.00	0.00
Waudham	335.56	1365.02	164.60	280.93	182.65	0.00	2328.76	0.00	0.00
Welgi	728.99	1754.17	226.40	262.97	301.42	5.14	3279.09	**-0.53**	**0.53**
Total	**6057.79**	**35415.40**	**10136.50**	**4153.79**	**3156.62**	**257.94**	**59179.04**	**-4.22**	**0.53**
BELLAMPALLY Range									
Adilpet	0.00	745.73	606.84	200.23	410.25	7.44	1970.49	**-25.60**	0.00
Bellampally	2.36	656.11	580.44	516.07	979.57	7.10	2741.65	**-72.10**	0.00
Dharmaraopet	900.68	902.88	184.12	64.88	67.62	30.61	2150.79	0.00	0.00
Madaram	431.86	1066.47	284.14	118.82	73.10	0.00	1974.39	**-10.64**	0.00
Murliguda	574.92	1699.13	289.43	141.64	122.82	0.00	2827.94	0.00	0.00
Narwaipet	4.14	717.01	520.87	158.29	617.47	16.81	2034.59	**-50.55**	0.00
Rallapet	1.81	475.87	368.49	188.43	259.29	0.00	1293.89	**-29.75**	0.00
Tandur	34.66	513.95	296.85	154.22	114.08	1.10	1114.86	**-20.66**	0.00
Venkatapur	765.29	1049.33	150.05	36.77	31.98	0.00	2033.42	0.00	0.00
Total	**2715.72**	**7826.48**	**3281.23**	**1579.35**	**2676.18**	**63.06**	**18142.02**	**-209.30**	**0.00**
KUSHNEPALLY Range									
Girelly	0.00	14.56	123.53	121.13	303.14	17.97	580.33	**-9.56**	**9.56**
Gopalpet	1007.98	2778.34	214.06	60.67	19.57	6.05	4086.67	0.00	0.00
Hathni	0.00	12.46	30.67	227.82	1392.05	6.62	1669.62	**-10.52**	**10.52**
Kushnepally	0.79	678.20	567.75	173.47	347.24	19.22	1786.67	**-25.04**	**15.46**
Lingala	104.80	904.36	381.53	166.87	215.32	3.52	1776.40	0.00	0.00
Nagaram	251.78	1558.30	355.52	134.39	229.84	5.19	2535.02	**9.36**	0.00
Nennel	0.56	815.28	463.42	83.71	74.36	7.11	1444.44	**-9.98**	0.00
Rampur	0.95	1401.32	277.56	129.57	14.62	1.96	1825.98	0.00	0.00
Rangapet	60.08	993.47	409.93	500.56	1003.73	56.50	3024.27	**7.89**	0.00
Rebbena[Kpl]	6.98	880.56	684.76	402.41	498.40	25.44	2498.55	**-10.63**	0.00
Vemanpally	495.37	3424.82	959.10	519.24	220.77	36.01	5655.31	0.00	0.00
Total	**1929.29**	**13461.67**	**4467.83**	**2519.84**	**4319.04**	**185.59**	**26883.26**	**-48.48**	**35.54**

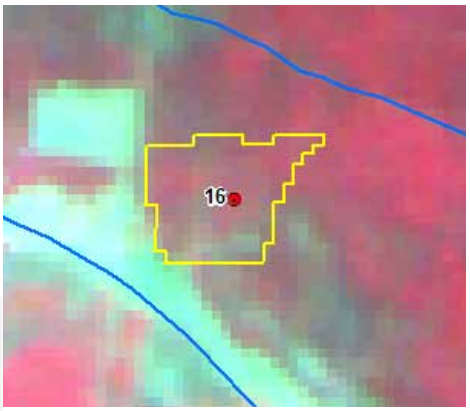


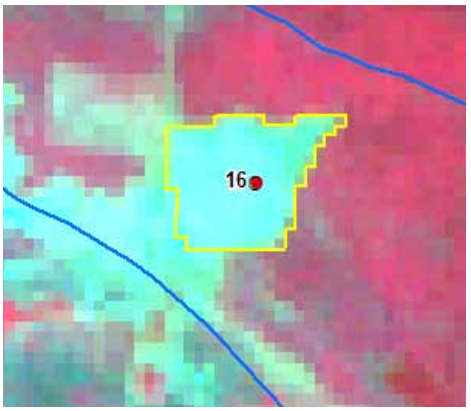


REBBENA Range									
Abbapur	196.27	822.90	222.50	193.19	299.52	21.84	1756.22	0.00	0.00
Ameenguda	491.38	729.26	177.61	53.20	30.13	0.01	1481.59	0.00	0.00
Dharmaram	0.00	144.06	841.71	289.94	1601.19	2.40	2879.30	**-59.97**	0.00
Edulawada	980.83	682.93	106.67	51.04	69.32	0.00	1890.79	0.00	0.00
Rebbena	20.27	579.02	253.06	305.24	276.18	3.99	1437.76	0.00	0.00
Takkallapally	122.02	625.04	210.64	128.96	252.23	4.93	1343.82	**-18.13**	0.00
Total	**1810.77**	**3583.21**	**1812.19**	**1021.57**	**2528.57**	**33.17**	**10789.48**	**-78.10**	**0.00**
TIRYANI Range									
Bhimrelly	305.55	1944.13	549.69	84.47	42.15	1.63	2927.62	0.00	0.00
Chintalamadira	188.65	1504.89	255.01	8.28	7.08	0.00	1963.91	0.00	0.00
Devaiguda	571.25	1749.52	236.83	56.34	210.95	0.00	2824.89	0.00	0.00
Ginnedhari	225.45	1623.67	437.67	46.72	23.89	0.00	2357.40	0.00	0.00
Gopera	300.54	2705.62	213.01	261.70	69.39	4.43	3554.69	0.00	0.00
Goyena	520.40	4790.86	404.56	441.42	89.24	1.01	6246.49	0.00	0.00
Gudipet	123.33	1223.06	752.76	142.07	122.82	16.21	2380.25	0.00	0.00
Gundal[East]	507.76	1703.18	163.96	13.56	13.17	5.25	2406.88	0.00	0.00
Gundal[West]	378.26	2133.45	133.97	23.56	11.62	0.01	2680.87	0.00	0.00
Irkepally	174.33	1820.68	467.08	93.76	41.48	0.01	2597.34	0.00	0.00
Kannepally	530.76	2214.49	304.87	63.70	46.16	0.00	3159.98	0.00	0.00
Mangi	373.70	2455.60	88.68	46.70	24.48	0.00	2989.16	0.00	0.00
Meddi	568.40	553.25	62.48	65.21	127.35	19.20	1395.89	0.00	0.00
Total	**4768.38**	**26422.40**	**4070.57**	**1347.49**	**829.78**	**47.75**	**37485.37**	0.00	0.00
Division Total	**17281.95**	**86709.16**	**23768.32**	**10622.04**	**13510.19**	**587.51**	**152479.17**	**-340.10**	**36.07**

Satellite Imageries

2011 **2012**





Longitude	79.52452 ° E
Latitude	19.11985 ° N
Area in Ha	9.89
Change	OF TO NF
Comp No.	380
Beat	Rallapet
Range	Bellampally
Division	**Bellampally**





4.3 JANNARAM WLM DIVISION

4.3.1 Introduction:

Jannaram WLM Division lies in the central portion of Adilabad District between latitudes 18^0 55' 21" N and 19^0 21' 5" N and longitudes 78^0 45' 10" E and 79^0 14' 5" E. Geographical Area of the Division is **925.21 Km²** which is 5.74% of the area of the District. The northwestern corner of this Division is Birsaipet plateau which is 396 m above MSL. This plateau is all undulating and drains from either side into Peddavagu stream which runs across the plateau from north-east to south-west.

Land use pattern of the Division is given in Table 4.3.1.

Table 4.3.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km²	Percentage
Forest including Scrub	631.29	68.23
Agriculture	236.33	25.54
Land with Scrub	9.47	1.02
Fallow Lands	3.91	0.42
Settlements	13.03	1.41
Vegetation outside Forest	13.90	1.50
Water body	17.28	1.87
Total	**925.21**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The temperature varies from 15^0C to 40^0C. Average annual Rainfall of the Division is 750 mm, received mainly from south-west monsoons.

In this Division, 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 outside the Reserve Forest. Red soils are extensive, followed by Black soils. Alluvial and laterite soils are found occasionally to a small extent.

Population of the Division is 0.10 million(2011 Census); Per capita forest area is 0.63Ha and the population density is 144 persons per Km².

4.3.2 Recorded Forest Area:

The notified forest area of the Division is **617.94 Km²** which is 66.79 % of the geographical area. Reserved and Protected Forests constitute 80.82 Km² (13.2 %) and **537.12 Km²** (86.8 %) of the 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 and Dry Mixed Forests).

4.3.3 Protected Area:

Large part of the Kawal Wildlife Sanctuary & Tiger Reserve (TR) falls in this Division. The entire notified forest area of the Division is included in Kawal WLS & TR.

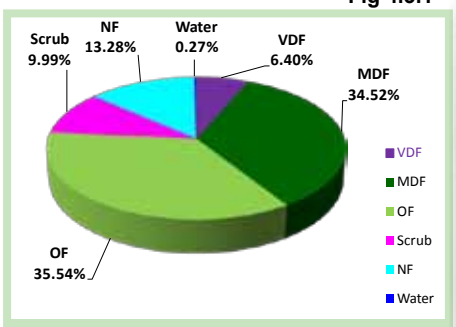
4.3.4 Community Forest Management:

There are 75 Vana Samrakshana Samities (VSSs) or Joint Forest Protection Committees (JFPCs) 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 /EDCs.

4.3.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **492.24 Km²** which is

Fig 4.3.1







53.20 % of the Geographical area. In terms of the forest canopy density classes the Division has **41.22 Km²** of Very Dense Forests, **222.25 Km²** of Moderately Dense Forests and **228.77 Km²** of Open Forests. The area of the Scrub is **64.31 Km²**, Non-Forest **85.48 Km²** and Water Bodies **1.71 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 the Division of 2011 and 2012 seasons are shown in Figures 4.3.2 & 4.3.3 respectively and the changes during this period are shown on the image of 2012.

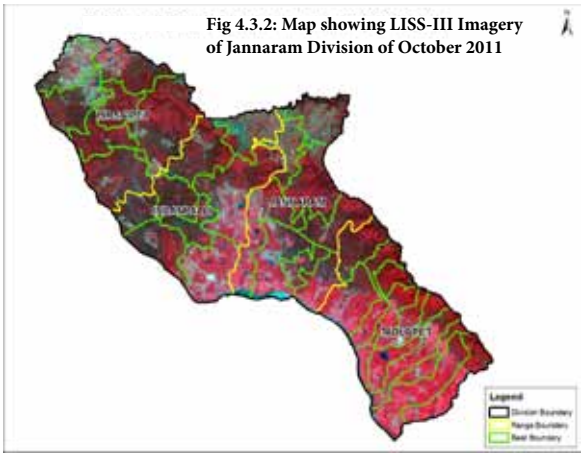


Fig 4.3.2: Map showing LISS-III Imagery of Jannaram Division of October 2011

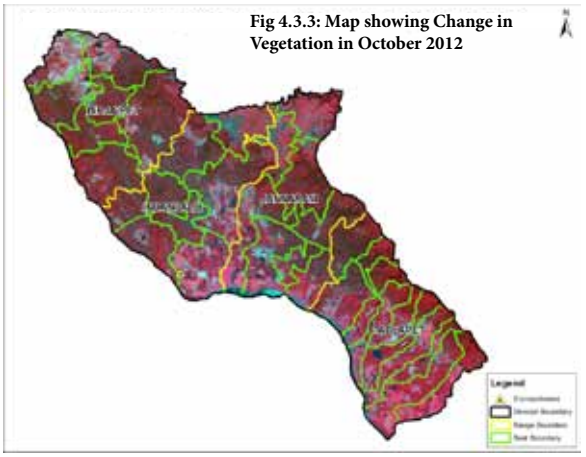


Fig 4.3.3: Map showing Change in Vegetation in October 2012

Comparison of the current forest cover with that of previous assessment year does not show any change in the forest cover. However, including the scrub, **the total negative change comes to 10.27 Ha.** The forest cover change matrix given in Table 4.3.2 reveals the changes from one class to another class.

The entire negative change including scrub of **10.27 Ha** is on account of encroachments. Therefore the **net loss of Forest is 10.27 Ha**.

There are 34 beats in the Division. Negative change in forest cover is noticed only in 1 Beat. There are no changes in the remaining 33 Beats.

Table 4.3.2: Forest Cover change matrix (Area in Km²)

2011	2012						Total of 2011
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	**41.22**	0.00	0.00	0.00	0.00	0.00	**41.22**
Moderately Dense Forest	0.00	**222.25**	0.00	0.00	0.00	0.00	**222.25**
Open Forest	0.00	0.00	**228.77**	0.00	0.00	0.00	**228.77**
Scrub	0.00	0.00	0.00	**64.31**	0.10	0.00	**64.41**
Non-Forest	0.00	0.00	0.00	0.00	**85.38**	0.00	**85.38**
Water	0.00	0.00	0.00	0.00	0.00	**1.71**	**1.71**
Total of 2012	**41.22**	**222.25**	**228.77**	**64.31**	**85.48**	**1.71**	**643.74**
Net Change	0.00	0.00	0.00	-0.10	0.10	0.00	

Details of Forest Cover in all the Beats of the Division are shown in Table 4.3.3.





Table 4.3.3: Beat wise Forest Cover **(Area in Ha)**

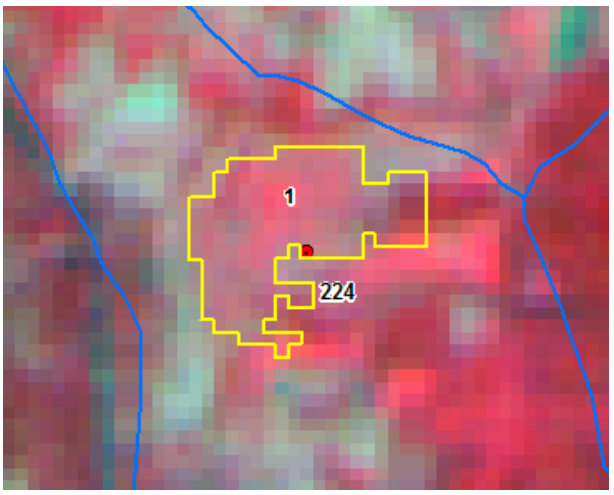
Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
BIRSAIPET Range									
Birsaipet-e	193.09	1160.92	371.08	70.87	81.06	4.66	1881.68	0.00	0.00
Birsaipet-w	46.77	818.79	1116.36	295.35	341.99	38.86	2658.11	0.00	0.00
Dantanpalli-e	47.45	1006.26	1220.49	254.99	343.82	12.44	2885.43	0.00	0.00
Dantanpalli-w	2.25	257.09	981.77	512.07	594.81	3.89	2351.89	0.00	0.00
Gandigopalpur	737.45	2532.32	1651.61	288.31	287.77	6.22	5503.67	0.00	0.00
Maisampet	164.80	1507.12	1694.28	167.63	149.83	15.55	3699.20	0.00	0.00
Rampur	268.00	1494.80	416.96	32.27	26.85	0.00	2238.88	0.00	0.00
Total	**1459.81**	**8777.29**	**7452.54**	**1621.48**	**1826.13**	**81.61**	**21218.86**	**0.00**	**0.00**
INDANPALLI Range									
Dosthnagar	5.20	425.33	821.42	127.36	115.87	3.89	1499.06	0.00	0.00
Indanpalli	22.84	276.42	706.14	379.22	405.06	2.33	1792.02	0.00	0.00
Islampur	200.19	1128.66	1285.13	315.28	370.04	2.33	3301.63	0.00	0.00
Kalamadugu	0.51	48.66	260.73	156.52	668.56	2.33	1137.31	**-10.27**	10.27
Kalleda	81.05	557.72	1249.28	329.42	258.12	3.89	2479.47	0.00	0.00
Kawal	243.13	1349.51	1176.36	368.13	519.56	23.32	3680.00	0.00	0.00
Kothapalli	115.16	312.83	427.35	404.09	766.50	0.00	2025.93	0.00	0.00
Narlapur	6.19	289.82	1322.33	241.68	153.52	15.55	2029.08	0.00	0.00
Total	**674.27**	**4388.95**	**7248.73**	**2321.69**	**3257.23**	**53.63**	**17944.50**	**-10.27**	**10.27**
JANNARAM Range									
Alinagar	295.38	1413.67	675.06	80.34	45.45	0.00	2509.91	0.00	0.00
Chintaguda	0.00	131.17	616.79	224.53	231.14	0.00	1203.63	0.00	0.00
Dongapalli	537.86	1826.48	660.24	156.56	221.34	0.00	3402.48	0.00	0.00
Jamuldhara	0.78	156.46	855.35	433.74	742.74	10.10	2199.18	0.00	0.00
Jannaram	0.00	100.88	459.48	259.69	455.09	0.00	1275.14	0.00	0.00
Kistapur	91.65	634.01	697.52	204.74	241.67	0.00	1869.58	0.00	0.00
Mamidipalli	30.40	187.44	470.35	295.38	513.87	19.43	1516.87	0.00	0.00
Paidipalli	0.38	152.81	548.90	186.42	189.04	3.89	1081.43	0.00	0.00
Total	**956.46**	**4602.91**	**4983.68**	**1841.40**	**2640.34**	**33.42**	**15058.21**	**0.00**	**0.00**
TADLAPET Range									
Chintapalli	83.45	434.71	295.31	79.62	89.02	0.00	982.12	0.00	0.00
Dammannapet	169.63	342.54	125.01	24.53	23.09	0.00	684.80	0.00	0.00
Lingapur	97.31	313.40	183.70	50.37	125.48	0.00	770.27	0.00	0.00
Makulpet	110.37	377.90	167.04	22.31	18.29	0.00	695.91	0.00	0.00
Mallial	254.10	1126.28	770.29	135.69	138.99	0.00	2425.36	0.00	0.00
Mohammadabad	0.50	202.33	470.29	141.72	213.28	2.33	1030.45	0.00	0.00
Patha mamidipalli	23.75	168.67	254.40	59.50	74.81	0.00	581.13	0.00	0.00
Ralli	3.03	152.31	112.33	25.77	28.14	0.00	321.58	0.00	0.00
Singaraipet	168.79	548.04	236.39	43.68	50.91	0.00	1047.80	0.00	0.00
Tadlapet	120.31	609.97	245.13	38.07	37.95	0.00	1051.43	0.00	0.00
Tanimadugu	0.24	179.68	332.06	24.89	24.71	0.00	561.58	0.00	0.00
Total	**1031.47**	**4455.85**	**3191.94**	**646.16**	**824.67**	**2.33**	**10152.42**	**0.00**	**0.00**
Division Total	**4122.00**	**22225.00**	**22876.90**	**6430.73**	**8548.37**	**171.00**	**64374.00**	**-10.27**	**10.27**



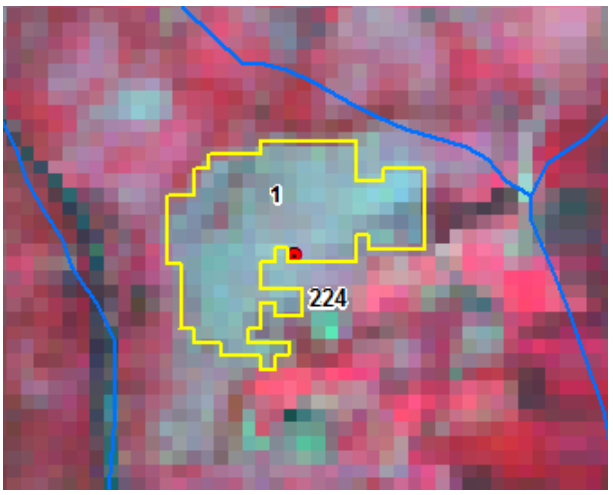


Satellite Imageries

2011



2012



Longitude	79.91559 ° E
Latitude	19.09664 ° N
Area in Ha	10.27
Change	SF TO NF
Comp No.	224
Beat	Kalamadu
Range	Indanpalli
Division	**Jannaram**







4.4 KAGAZNAGAR DIVISION

4.4.1 Introduction:

Kagaz Nagar Forest Division lies in the North Eastern side of Adilabad District between latitudes 19^0 11' 51" N and 19^0 36' 20"N and longitudes 79^0 22' 28" E and 79^0 58' 21" E. Geographical area of the Division is 1645.05 Km^2 which is 10.20% of the area of the District. The important rivers and streams of the Division are Wardha, Pranahitha and Peddavagu; which finally join River Godavari.

Land use pattern of the Division is given in Table 4.4.1.

Table 4.4.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	777.61	47.27
Agriculture	706.05	42.92
Land with Scrub	72.37	4.40
Fallow Lands	11.61	0.71
Settlements	8.51	0.52
Vegetation outside Forest	34.68	2.11
Water body	34.22	2.08
Total	**1645.05**	100.00

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of the Division is generally dry and hot. The temperatures vary from 15^0C to 40^0C. The normal Annual rainfall of the Division is 904 mm, received mainly from south-west monsoons.

The rock formations in the Division are Archaean Granites and Genesis, the Deccan trap and the Gondwana sand stones. Soils formed from these rocks support good Teak forests. Soil types are Black cotton, Chalka and Red loams, Sandy loams, Saline and Alkaline.

The total population of the Division is 0.25million (2011 Census). The Per capita forest area is 0.35 ha. The population density is 155 persons per Km^2.

4.4.2 Recorded Forest Area:

The notified forest area of the Division is 858.81 Km^2 which is 52.21 % of the geographical area. Reserved, Protected and Un-classed Forests constitute 650.62 Km^2 (75.74 %), 206.58 Km^2 (24 %) and 1.61 Km^2 (0.18 %) of the 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.

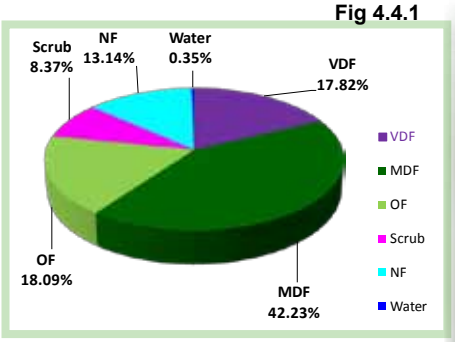
4.4.4 Community Forest Management:

There are 113 Vana Samrakshana Samities (VSSs) in the Division. 148.42 Km^2 forest area, which is 17.27% of the forest area, is under the management of the VSSs.

4.4.5 Forest Cover:

The forest cover in the Division, based on the interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **698.02 Km^2** which is **42.43 %** of the Geographical area. In terms of the forest canopy density classes, the Division has **159.17 Km^2** of Very Dense Forests, **377.26 Km^2** of Moderately Dense Forests and 161.59 Km^2 of Open Forests. The area of the Scrub is **74.77 Km^2**, Non-Forests **117.41 Km^2** and Water Bodies **3.09 Km^2**. The distribution of the forest cover of the division is shown in Fig 4.4.1.

Fig 4.4.1







4.4.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 are shown in Figures 4.4.2 & 4.4.3 respectively and the changes during this period are shown on the image of 2012.

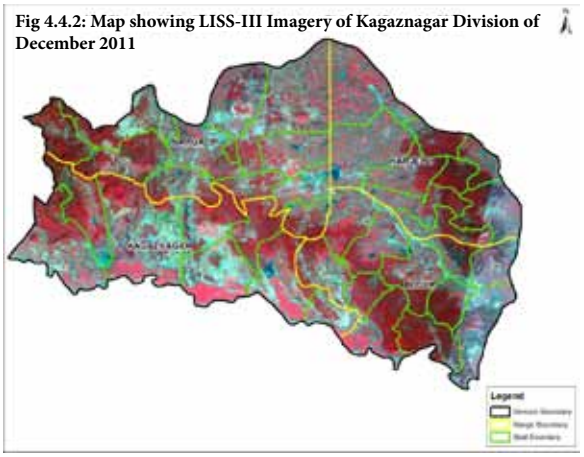


Fig 4.4.2: Map showing LISS-III Imagery of Kagaznagar Division of December 2011

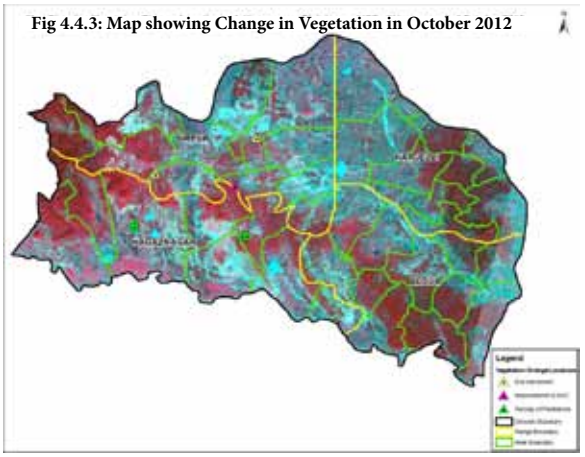


Fig 4.4.3: Map showing Change in Vegetation in October 2012

Comparison of the current forest cover with that of previous assessment year **doesn't show any change** in the forest cover. However, including the scrub, the positive change is **75.55 Ha** and the negative change is **30.73 Ha**. The forest cover change matrix given in Table 4.4.2 reveals the changes from one class to another class.

Of the total positive change including scrub of **75.55 Ha, 58.28 Ha** is on account of growth in plantations raised and **17.27 Ha** is improvement of forest due to protection and management interventions. The total negative change including scrub of **30.73 Ha is on account of encroachments**. As advance operations etc are Forest management interventions; the same are not considered as loss of forest cover. Hence, the negative change on account of encroachments alone is taken as loss of forest cover. Therefore, the **net loss of forest in the Division 30.73 Ha only**.

There are 39 Beats in the Division. Negative changes in Forest Cover are noticed in 2 Beats and positive change in 3 Beats. There are no changes in remaining 34 Beats.

Details of forest cover in all the Beats of the Division are shown in Table 4.4.3

Table 4.4.2: Forest Cover change matrix (Area in Km^2)

2011	2012						Total of 2011
	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	**377.26**	0.00	0.00	0.00	0.00	377.26
Open Forest	0.00	0.00	**161.59**	0.00	0.00	0.00	161.59
Scrub	0.00	0.00	0.00	**74.01**	0.31	0.00	74.32
Non-Forest	0.00	0.00	0.00	0.76	**117.10**	0.00	117.86
Water	0.00	0.00	0.00	0.00	0.00	**3.09**	3.09
Total of 2012	**159.17**	**377.26**	**161.59**	**74.77**	**117.41**	**3.09**	**893.29**
Net Change	**0.00**	**0.00**	**0.00**	**0.45**	**-0.45**	**0.00**	





Table 4.4.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
BIJJUR Range									
Bijjur	500.21	1443.17	293.53	103.09	427.57	0.00	2767.57	0.00	0.00
Ellur	1295.97	918.24	148.98	13.84	13.46	0.00	2390.49	0.00	0.00
Gundepally	902.80	1431.62	604.44	172.46	49.23	23.18	3183.73	0.00	0.00
Indergaon	40.27	638.18	452.48	205.38	63.73	0.00	1400.04	0.00	0.00
Kondapally	383.20	1027.04	453.63	172.75	668.01	7.62	2712.25	0.00	0.00
Kuntala-	353.25	924.17	91.21	98.60	522.14	5.32	1994.69	0.00	0.00
manepally	523.26	985.54	219.82	47.05	42.24	0.00	1817.91	0.00	0.00
Lodpally	0.00	618.54	545.83	526.81	85.17	9.15	1785.50	0.00	0.00
Mogelly	0.00	568.49	1250.41	1010.49	167.39	14.19	3010.97	0.00	0.00
Murliguda	300.14	1051.93	385.33	258.17	129.56	14.78	2139.91	0.00	0.00
Papanpet	282.41	1183.69	83.80	84.13	527.55	21.36	2182.94	0.00	0.00
Sulgupally									
Total	**4581.51**	**10790.61**	**4529.46**	**2692.77**	**2696.05**	**95.60**	**25386.00**	**0.00**	**0.00**
KAGAZNAGAR Range									
Bombaiguda	20.13	430.36	287.98	189.95	428.47	6.55	1363.44	0.00	0.00
Chedwai	706.40	1208.64	572.86	256.26	378.00	63.80	3185.96	0.00	0.00
Kadamba	1104.87	1455.20	399.42	72.25	201.78	0.00	3233.52	28.94	0.00
Kag-Ankoda	763.51	756.75	160.19	30.69	122.26	0.00	1833.40	0.00	0.00
Korsini	929.39	1302.21	311.46	134.36	240.97	7.43	2925.82	0.00	0.00
Kothapet	1226.97	1449.64	493.24	196.50	424.07	15.22	3805.64	0.00	0.00
Raspalli	102.51	403.58	449.09	66.85	732.72	35.33	1790.08	0.00	0.00
Vempalli	1145.26	1285.83	550.90	135.95	172.38	2.45	3292.77	**29.34**	0.00
Total	**5999.04**	**8292.21**	**3225.14**	**1082.81**	**2700.65**	**130.78**	**21430.63**	**58.28**	**0.00**
KARJELLI Range									
Dimda	78.94	649.56	207.43	365.10	393.98	30.48	1725.49	0.00	0.00
Gudem	176.43	1029.83	949.95	843.08	378.51	0.01	3377.81	0.00	0.00
Gudlabori	0.50	109.40	366.90	113.72	355.88	0.01	946.41	0.00	0.00
Kar-Ankoda	61.77	316.24	437.08	86.93	313.52	0.00	1215.54	0.00	0.00
Karjelly	514.13	1041.99	136.60	53.95	320.51	0.00	2067.18	0.00	0.00
Katepally	236.95	1039.42	327.16	71.18	218.75	0.00	1893.46	0.00	0.00
Keethani	482.52	1013.76	24.93	9.14	51.50	0.52	1582.37	0.00	0.00
Korsana	439.51	1145.44	147.15	23.79	101.24	2.42	1859.55	0.00	0.00
Kukuda	131.00	1048.17	374.35	114.53	82.53	14.87	1765.45	0.00	0.00
Total	**2121.75**	**7393.81**	**2971.55**	**1681.42**	**2216.42**	**48.31**	**16433.26**	**0.00**	**0.00**
SIRPUR Range									
Bhupal_Patnam	167.37	708.48	443.38	177.19	96.87	0.01	1593.30	17.27	0.00
Cheelapally	660.92	2791.59	690.38	131.49	278.52	1.86	4554.76	0.00	0.00
Chintakunta	167.65	960.70	453.55	107.27	277.45	0.00	1966.62	-2.40	2.40
Dabba	33.63	358.45	285.68	214.95	568.29	4.08	1465.08	0.00	0.00
Kanki	8.32	434.23	448.49	307.59	693.71	3.58	1895.92	0.00	0.00
Loanvelly	25.21	423.12	405.75	244.17	499.67	0.00	1597.92	0.00	0.00

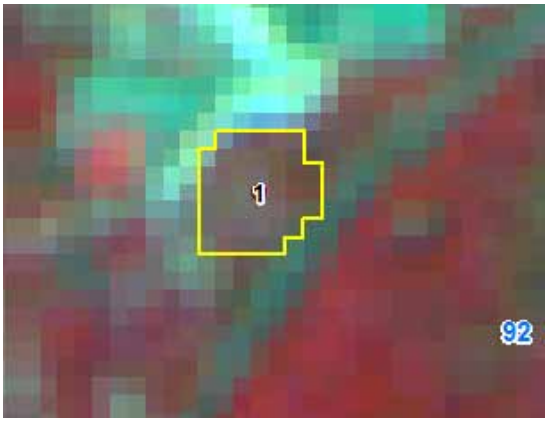




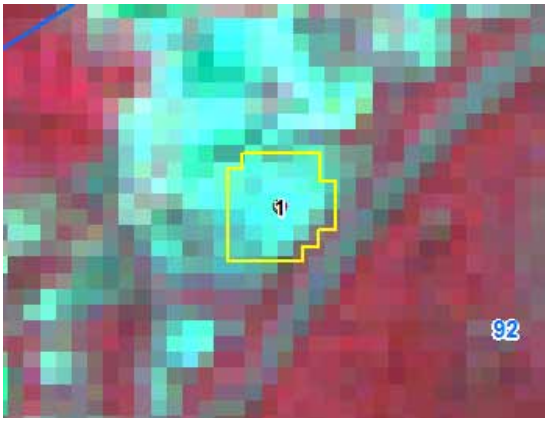
Makodi	677.64	1570.78	614.41	193.63	510.85	0.01	3568.09	0.00	0.00
Malini	943.41	1729.15	276.99	49.28	41.59	0.00	3039.67	0.00	0.00
Muthampet	70.80	857.73	900.00	248.10	540.72	9.63	2626.98	-28.33	28.33
Rebbena	449.73	792.23	232.05	121.19	268.25	8.87	1872.04	0.00	0.00
Sirpur	10.02	622.91	682.17	225.14	351.96	6.27	1898.47	0.00	0.00
Total	**3214.70**	**11249.37**	**5432.85**	**2020.00**	**4127.88**	**34.31**	**26078.85**	**-13.46**	**30.73**
Division Total	**15917.00**	**37726.00**	**16159.00**	**7477.00**	**11741.00**	**309.00**	**89328.74**	**44.82**	**30.73**

Satellite Imageries

2011



2012



Longitude	79.54162 ° E
Latitude	19.44445 ° N
Area in Ha	2.4
Change	SF TO NF
Comp No.	92
Beat	Chintakunta
Range	Sirpur
Division	Kagaznagar





4.5 MANCHERIAL DIVISION

4.5.1 Introduction:

Mancherial Forest Division lies in the south-eastern part of Adilabad District between latitudes 18^0 40' 10" N and 19^0 8' 42" N and longitudes 79^0 10' 15" E and 79^0 57' 53" E. Geographical area of the Division is 2347.64 Km^2 which is 14.56% of the area of the District. The elevation of hill ranges varies from 135 m – 540 m above MSL. The highest point in the Division is 556 m above MSL. Godavari and Pranahita are the major rivers of the Division. River Pranahita forms eastern boundary and the River Godavari forms southern boundary of the Division.

Land use pattern of the Division is given in Table 4.5.1. The temperature varies from 15^0C to 40^0C. The average annual rainfall of the Division is 1100mm received mainly from south-west monsoon.

Table 4.5.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	1026.02	43.70
Agriculture	983.23	41.88
Land with Scrub	134.86	5.74
Fallow Lands	63.42	2.70
Settlements	13.76	0.59
Vegetation outside Forest	65.25	2.60
Water body	61.10	2.63
Total	**2347.64**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The soils of Mancherial Division range from Black cotton, Chalka, sandy loam, Red loam to saline and alkaline. 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 suited for cement manufacture.

Population of the Division is 0.56 million (2011 Census), per capita forest area is 0.20 Ha and the population density is 261 persons per Km^2.

4.5.2 Recorded Forest Area:

The notified forest area of the Division is **1205.83 Km^2** which is **51.36 %** of the geographical area. Reserved, Protected and Un-classed Forests constitute 1180.64 Km^2 (97.92 %), 24.09 Km^2 (0.0199 %) and 1.10 Km^2 (0.09 %) of the 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).

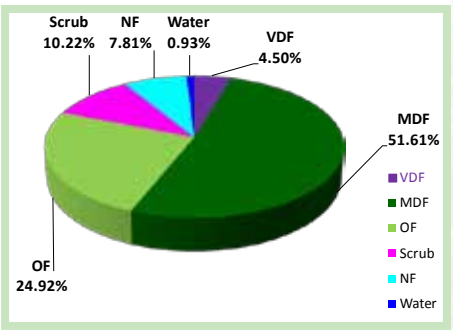
4.5.3 Protected Area:

There are 2 Protected Areas in the Division. The Pranahita Wild Life Sanctuary with an area of 68.37 Km^2 or 2.9% of the geographic area of the Division, and a part of Shivaram Wild Life Sanctuary which includes 2 Beats of the Division with an area of 14.23 Km^2.

4.5.4 Community Forest Management:

There are 113 Vana Samrakshana Samities (VSSs) in the Division. 137.67 Km^2 or 11.41 % of notified forest area is under the management of VSSs.

Fig 4.5.1



4.5.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **903.77 Km^2** which is **38.50 %** of the Geographical area. In terms of the forest canopy density classes, the Division has **50.23 Km^2** of Very Dense Forests, **575.62 Km^2** of Moderatelv Dense Forests and **277.92 Km^2**





of Open Forests. The area of the Scrub is **114.04 Km²**, Non-Forest **87.15 Km²** and Water Bodies **10.41 Km²**. The distribution of the forest cover of the division is shown in Fig 4.5.1

4.5.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 are shown in Figures 4.5.2 & 4.5.3 respectively and the changes during this period are shown on the image of 2012.

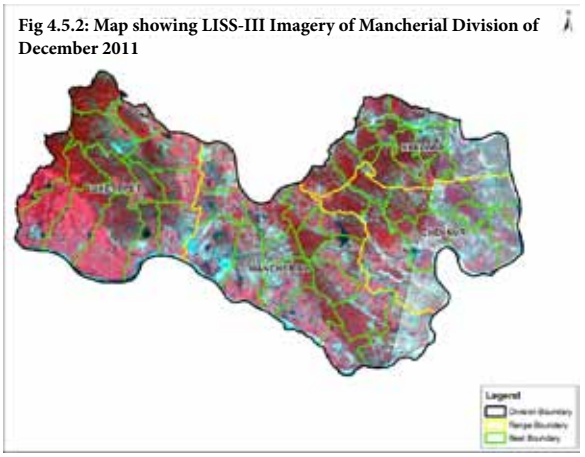


Fig 4.5.2: Map showing LISS-III Imagery of Mancherial Division of December 2011

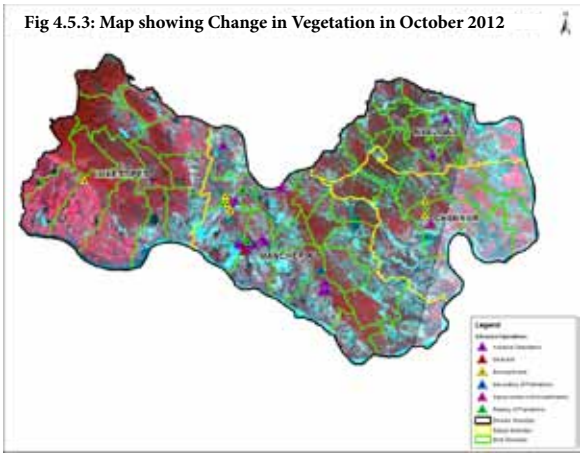


Fig 4.5.3: Map showing Change in Vegetation in October 2012

Comparison of the current forest cover with that of previous assessment year shows a **positive change of 23.71 Ha** and is a **negative change of 245.99 Ha**. However including the scrub, the positive change comes to **59.83 Ha** and the negative change **315.49 Ha**. The forest cover change matrix given in Table 4.5.2 reveals the changes from one class to another class.

Out of the total positive including scrub of **59.83 Ha, 23.71 Ha** is on account of growth in plantations raised, **36.12 Ha** is on account of evacuation of encroached land and subsequent improvement in the greenness. Out of the total negative change including scrub of **315.49 Ha, 215.71 Ha** is on account of carrying advance operations for raising of plantation, **1.20 Ha** is on account of harvesting of plantations, **37.10 Ha** is an account of diversion of forest lands for on-forestry purpose and 61.47 Ha is on account of encroachments. As advance operations and harvesting of plantations, diversion of forest lands etc. are forest management interventions; the same are not considered as loss of forest cover. Hence the negative change on account of encroachments alone is taken as loss of forest cover. Therefore the net loss of forest in the Division **61.47 Ha** only.

There are 50 Beats in the Division. Negative changes in the forest cover are noticed in 11 Beats and positive change in 1 Beat only. There are no changes in remaining 38 Beats.

Details of forest cover changes in all the Beats of the Division are shown in Table 4.5.3.

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

2011	2012						Total of 2011
	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	**575.62**	0.00	0.00	1.01	0.00	**576.63**
Open Forest	0.00	0.00	**277.68**	0.00	1.45	0.00	**279.13**
Scrub	0.00	0.00	0.24	**113.68**	0.69	0.00	**114.61**
Non-Forest	0.00	0.00	0.00	0.36	**84.00**	0.00	**84.36**
Water	0.00	0.00	0.00	0.00	0.00	**10.41**	**10.41**
Total of 2012	**50.23**	**575.62**	**277.92**	**114.04**	**87.15**	**10.41**	**1115.37**
Net Change	**0.00**	**-1.01**	**-1.21**	**-0.57**	**2.79**	**0.00**	





Table 4.5.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
CHENNUR Range									
Annaram	0.00	316.82	722.19	744.31	105.46	0.00	1888.78	0.00	0.00
Chennur	0.00	1410.39	898.79	438.99	67.16	0.00	2815.33	**-28.75**	28.75
Kistampet	31.41	2021.29	1060.22	272.49	393.90	47.48	3826.79	0.00	0.00
Kotapalli	4.49	1128.39	1299.32	313.02	305.42	5.94	3056.58	**-5.44**	5.44
Lingannapet	0.00	602.75	533.64	543.66	40.18	14.54	1734.77	0.00	0.00
Nagampet	0.00	844.37	598.04	484.71	89.44	0.00	2016.56	0.00	0.00
Pangidiso-	0.00	1078.67	708.43	196.16	240.47	4.15	2227.88	0.00	0.00
maram	0.00	226.17	593.64	877.11	105.01	1.69	1803.62	0.00	0.00
Parpalli	0.00	291.55	306.80	750.96	123.22	10.85	1483.38	0.00	0.00
Sirsa	30.42	1817.90	517.45	150.86	209.49	0.00	2726.12	0.00	0.00
Venkatapur									
Total	**66.32**	**9738.30**	**7238.52**	**4772.27**	**1679.75**	**84.65**	**23579.81**	**-34.19**	**34.19**
LUXETTIPET Range									
Devapur	342.28	2827.38	923.65	197.86	72.23	126.65	4490.05	0.00	0.00
Gadhpur	89.48	1220.03	504.10	138.50	61.96	4.56	2018.63	0.00	0.00
Hanmanthpally	1065.42	1957.81	120.19	8.86	12.85	0.00	3165.13	0.00	0.00
Korichelma	1102.27	939.06	89.07	8.86	5.73	0.00	2144.99	0.00	0.00
Medaram	247.31	1033.17	320.97	99.33	96.27	5.34	1802.39	0.00	0.00
Mulkalla	2.07	1107.80	419.98	42.84	17.25	226.11	1816.05	0.00	0.00
Muthampalli	191.08	1642.63	652.64	105.69	99.75	4.74	2696.53	0.00	0.00
Old Mancherial	33.12	913.94	529.05	101.37	86.66	17.61	1681.75	0.00	0.00
Peddampet	811.68	893.02	209.45	93.45	13.89	0.00	2021.49	**-2.27**	**2.27**
Ralli	20.05	1997.91	733.32	79.23	52.28	9.37	2892.16	0.00	0.00
Sonapur	404.97	2832.45	418.66	88.96	97.65	0.01	3842.70	0.00	0.00
Tikannapalli	115.77	2705.79	1142.87	152.57	96.96	22.07	4236.03	0.00	0.00
Venkatapur	259.44	1191.04	256.65	40.37	36.06	1.35	1784.91	0.00	0.00
Total	**4684.94**	**21262.03**	**6320.60**	**1157.89**	**749.54**	**417.81**	**34592.81**	**-2.27**	**2.27**
MANCHERIAL Range									
Arapelli	0.00	1035.72	652.15	133.80	160.79	1.13	1983.59	0.00	0.00
Asnad	1.68	1908.03	588.98	118.07	365.44	3.58	2985.78	0.00	0.00
Audam	20.57	839.61	287.48	64.33	52.92	2.86	1267.77	0.00	0.00
Bhimaram	5.25	757.37	601.25	193.23	441.01	64.69	2062.80	0.00	0.00
Burugupalli	20.80	1181.24	569.88	115.97	172.32	124.99	2185.20	0.00	0.00
Dampur	0.00	1443.32	309.22	23.44	73.60	0.00	1849.58	0.00	0.00
Gudipally	12.44	1074.12	430.27	109.65	168.03	4.38	1798.89	**-10.14**	0.00
Indaram	0.00	422.29	747.59	474.93	589.92	0.16	2234.89	**-34.49**	0.00
Jaipur	5.23	568.43	313.81	112.47	159.33	7.07	1166.34	0.00	0.00
Kundaram	2.42	1287.63	529.58	22.07	199.24	0.00	2040.94	**-24.94**	0.00
Mancherial	0.00	590.32	561.90	206.28	677.40	8.59	2044.49	**-73.31**	**22.10**
Mandamarry	7.54	196.76	372.54	190.65	329.76	28.63	1125.88	**-4.63**	0.00
Pegadapally	1.07	896.00	536.53	163.00	197.40	4.76	1798.76	**-1.20**	0.00
Pownur	6.14	1215.42	381.28	49.88	42.83	2.76	1698.31	0.00	0.00

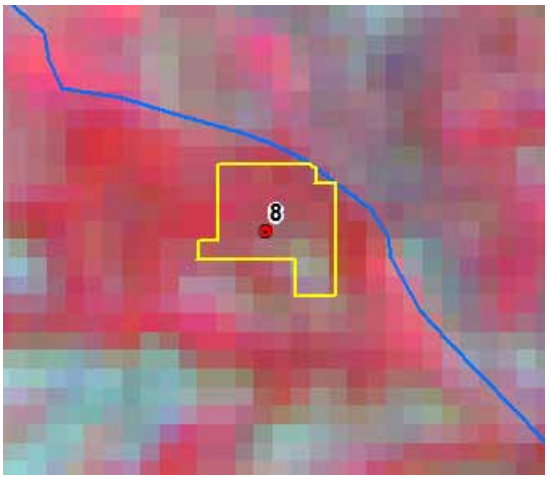




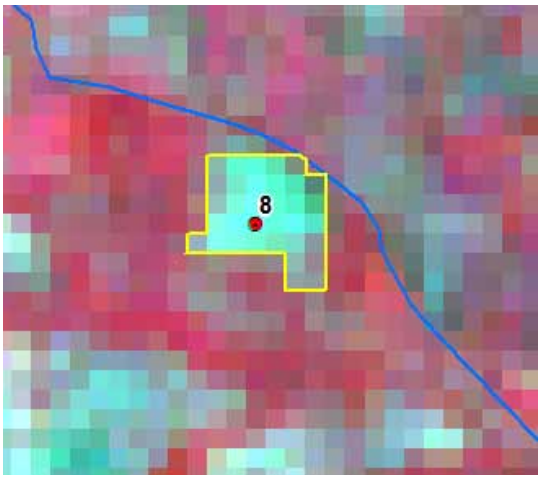
Sarangapalli	0.00	579.96	696.27	308.75	803.35	18.71	2407.04	**-73.27**	**2.91**
Somanpally	0.00	383.28	477.44	464.80	184.47	8.15	1518.14	0.00	0.00
Total	**83.14**	**14379.50**	**8056.17**	**2751.32**	**4617.81**	**280.46**	**30168.40**	**-221.98**	**25.01**
NEELWAI Range									
Bopparam	0.00	915.51	347.46	262.71	37.62	0.00	1563.30	0.00	0.00
Katepally	166.63	1085.16	276.54	70.87	78.48	50.87	1728.55	0.00	0.00
Kharji	2.58	1209.15	228.62	28.34	98.10	44.16	1610.95	0.00	0.00
Kothur	8.07	1387.64	714.22	204.55	234.64	0.99	2550.11	0.00	0.00
Mailaram	3.83	1327.02	778.79	164.47	179.49	9.73	2463.33	0.00	0.00
Mallampet	1.24	1653.35	498.67	86.49	66.64	5.95	2312.34	**-19.99**	0.00
Nakkalpally	0.00	1186.68	319.38	47.32	38.51	11.85	1603.74	0.00	0.00
Neelwai	0.00	524.01	774.38	222.69	174.87	23.23	1719.18	**-13.34**	0.00
Sawanpally	6.20	1110.46	437.71	119.35	208.85	80.85	1963.42	0.00	0.00
Shankarapur	0.00	1304.85	964.46	193.06	231.81	6.55	2700.73	0.00	0.00
Yenchapalli	0.00	478.34	836.48	1322.67	318.89	23.90	2980.28	0.00	0.00
Total	**188.55**	**12182.17**	**6176.71**	**2722.52**	**1667.90**	**258.08**	**23195.93**	**-33.33**	**0.00**
Division Total	**5022.95**	**57562.00**	**27792.00**	**11404.00**	**8715.00**	**1041.00**	**111536.95**	**-291.77**	**61.47**

Satellite Imageries

2011



2012



Longitude	78.41615 ° E
Latitude	19.11336 ° N
Area in Ha	2.01
Change	OF TO NF
Comp No.	976
Beat	Neelaipet
Range	Nirmal
Division	**Nirmal**





4.6 NIRMAL DIVISION

4.6.1 Introduction:

Nirmal Forest Division lies in the south-western part of Adilabad District between latitudes 18^0 50' 39" N and 19^0 20' 31"N and longitudes 77^0 45' 45" E and 78^0 56' 34" E. Geographical area of the Division is 3518.46 Km^2 which is 21.82% of the area of the District. Godavari is the major river of the Division and forms its southern boundary. Siddha and Kadam are other important rivers, which are tributaries of River Godavari.

Land use pattern of the Division is given in Table 4.6.1.

The temperature varies from 15^0C to 40^0C. The normal Annual rainfall of the Division is 800 mm received mainly from south-west monsoons.

Soils found in the Division are black, chalka and red, sandy loams, saline and alkaline. The Division has reserves of iron ore, lime stone and clays.

Table 4.6.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	927.25	26.35
Agriculture	1951.56	55.47
Land with Scrub	74.59	2.12
Fallow Lands	75.74	2.15
Grasslands	0.46	0.01
Settlements	32.49	0.92
Vegetation outside Forest	144.85	4.12
Water body	311.52	8.85
Total	**3518.46**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

Population of the Division is 0.68 million (2011 Census), per capita forest area is 0.15 Ha and the population density is 209 persons per Km^2.

4.6.2 Recorded Forest Area:

The total notified forest area of the Division is **1178.4 Km^2**, which is **33.49 %** of the total geographical area. Reserved, Protected and un-classed Forests Constitute 354.57 Km^2 (30%), 743.17 Km^2 (63%) and 80.66 Km^2 (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:

A part of the Kawal Wildlife Sanctuary & Tiger Reserve, with an area of 315.01 Km^2 of notified forests or 30.27 % of Division Forest area; is included in the Division.

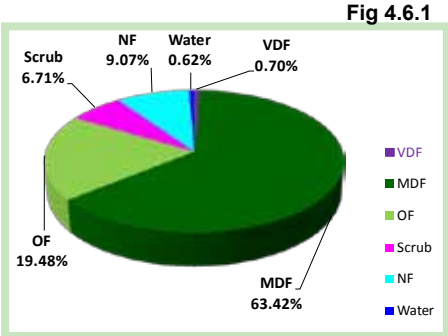
4.6.4 Community Forest Management:

There are 205 Vana Samrakshana Samities (VSSs) in the Division. An area of 282.48 Km^2 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 R2 LISS III 2012 data (Oct 2012) is **857.05 Km^2** which is **24.36 %** of the geographical area. In terms of the forest canopy density classes the Division has **7.18 Km^2** of Very Dense Forests, **650.20 Km^2** of Moderately Dense Forests and **199.67 Km^2** of Open Forests. The area of the Scrub is **68.79 Km^2**, Non-Forest **92.95 Km^2** and Water Bodies **6.37 Km^2**. The distribution of the forest cover of the Division is shown in Fig 4.6.1.

Fig 4.6.1







4.6.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 are shown in Fig 4.6.2 & Fig 4.6.3 respectively and the changes during this period are shown on the image of 2012.

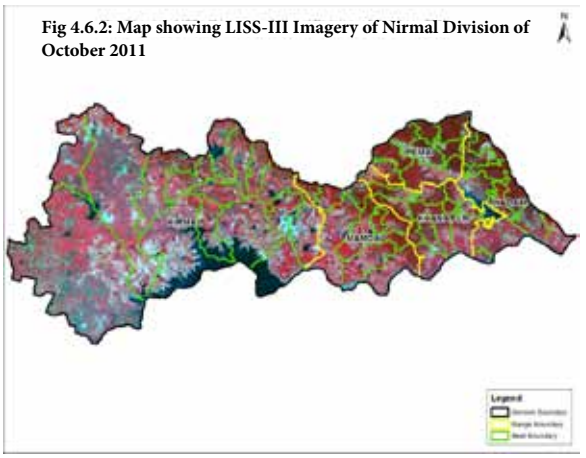


Fig 4.6.2: Map showing LISS-III Imagery of Nirmal Division of October 2011

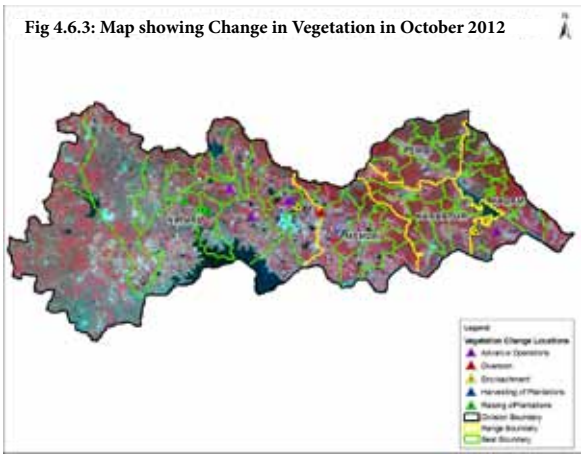


Fig 4.6.3: Map showing Change in Vegetation in October 2012

Comparison of the current forest cover with that of previous assessment year shows a **negative change of 40.19 Ha**. However, including the scrub, **the total negative change is 48.74 Ha** and positive change is **33.07 Ha.** The forest cover change matrix given in Table 4.6.2 reveals the changes from one class to another class. The total positive change (including scrub) of **33.07 Ha** is on account of growth in raising plantations. Of the total negative change (including scrub) of **48.74 Ha, 29.49 Ha** is on account of clearance of jungle growth for raising of plantations, **8.69 Ha** is on account of harvesting of plantation, **2.01 Ha** is an account of diversion of forest lands for on-forestry purpose and **8.55 Ha** is on account of encroachments. As clearance of jungle growth for raising of plantations, harvesting of plantations and diversion land are forest management interventions the same are not considered as loss of forest cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the **net loss of forest is 8.55 Ha** in the Division.

There are 56 Beats in the division. Negative changes in forest cover are noticed in 4 Beats and positive in 3 Beats. There are no changes in the remaining 49 Beats.

Details of Forest Cover in all the Beats of the Division are shown in Table 4.6.3.

Table 4.6.2: Forest Cover change matrix (Area in Km^2)

2011	2012						Total of 2011
	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	**650.20**	0.00	0.00	0.00	0.00	**650.20**
Open Forest	0.00	0.00	**199.67**	0.00	0.40	0.00	**200.07**
Scrub	0.00	0.00	0.00	**68.46**	0.09	0.00	**68.55**
Non-Forest	0.00	0.00	0.00	0.33	**92.47**	0.00	**92.80**
Water	0.00	0.00	0.00	0.00	0.00	**6.37**	**6.37**
Total of 2012	**7.18**	**650.20**	**199.67**	**68.79**	**92.96**	**6.37**	**1025.16**
Net Change	**0.00**	**0.00**	**-0.40**	**0.24**	**0.16**	**0.00**	





Table 4.6.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
KADAM Range									
Alampally_	50.11	1866.77	248.20	55.72	188.62	0.00	2409.42	0.00	0.00
east	5.53	1648.19	491.54	27.10	84.85	11.63	2268.84	0.00	0.00
Alampally_	1.85	717.78	182.26	94.01	88.34	0.00	1084.24	0.00	0.00
west	60.48	2171.59	376.05	36.16	151.23	2.60	2798.11	0.00	0.00
Dasturabad	0.00	262.23	32.86	0.00	0.00	168.53	463.62	0.00	0.00
Dattojipet	31.26	1317.66	1111.28	192.78	165.15	5.45	2823.58	0.00	0.00
Dildarnagar	80.38	2318.30	369.01	6.80	2.56	0.00	2777.05	0.00	0.00
Gangapur	142.88	640.13	132.33	104.75	127.07	12.92	1160.08	0.00	0.00
Lakshmipur	27.05	1967.67	412.61	108.90	104.98	19.28	2640.49	0.00	0.00
Munial	117.25	1345.08	273.22	37.54	59.97	52.98	1886.04	**-22.17**	**7.52**
Pandavapur									
Peddur									
Total	**516.79**	**14255.40**	**3629.36**	**663.76**	**972.77**	**273.39**	**20311.47**	**-22.17**	**7.52**
KHANAPUR Range									
Beernandi	11.88	1255.67	209.69	92.93	157.40	78.41	1805.98	0.00	0.00
Iqbalpur	0.35	1020.90	14.59	0.65	29.71	0.00	1066.20	0.00	0.00
Khanapur	1.95	1330.14	256.32	14.13	15.99	0.01	1618.54	0.00	0.00
Mandapally	1.96	1426.55	211.50	9.98	35.60	0.00	1685.59	0.00	0.00
Maskapur	0.00	693.53	183.72	4.60	11.02	0.00	892.87	0.00	0.00
Muthyampet	7.25	1116.33	223.31	38.05	75.16	1.37	1461.47	0.00	0.00
Nagapur	19.32	2026.00	184.09	3.04	4.55	3.79	2240.79	0.00	0.00
Pochampally	4.97	1056.40	322.75	74.57	229.78	0.16	1688.63	0.00	0.00
Rajura	1.13	1314.01	133.47	24.32	70.81	9.33	1553.07	0.00	0.00
Sattanpally	10.07	921.35	326.50	19.58	21.26	0.00	1298.76	0.00	0.00
Singapur	12.01	1557.02	218.68	17.41	28.85	12.47	1846.44	0.00	0.00
Somwarpet	2.40	1149.44	203.03	51.87	228.81	26.22	1661.77	0.00	0.00
Total	**73.29**	**14867.34**	**2487.65**	**351.13**	**908.94**	**131.76**	**18820.11**	**0.00**	**0.00**
MAMDA Range									
Arepally	3.02	701.32	907.80	550.40	286.11	0.00	2448.65	0.00	0.00
Bandal khan-	2.28	1163.65	635.31	140.78	97.80	32.14	2071.96	0.00	0.00
apur	5.87	723.91	558.59	337.13	138.38	0.01	1763.89	0.00	0.00
Boregaon	3.28	1087.90	204.73	17.47	17.60	34.51	1365.49	0.00	0.00
Dimmadurthy	0.00	72.50	445.76	515.92	282.63	0.00	1316.81	0.00	0.00
Gaidpally	2.46	1550.23	73.10	6.70	39.89	20.58	1692.96	0.00	0.00
Kappanpally	2.92	1011.21	221.03	27.58	29.49	0.00	1292.23	0.00	0.00
Mamda	0.00	1480.81	197.17	127.88	153.93	3.09	1962.88	0.00	0.00
Medpally	9.23	1726.61	520.86	73.47	43.31	15.96	2389.44	0.00	0.00
Naldurthy	0.00	814.74	172.66	74.39	62.42	11.91	1136.12	0.00	0.00
Ranapur									
Total	**29.06**	**10332.88**	**3937.01**	**1871.72**	**1151.56**	**118.20**	**17440.43**	**0.00**	**0.00**

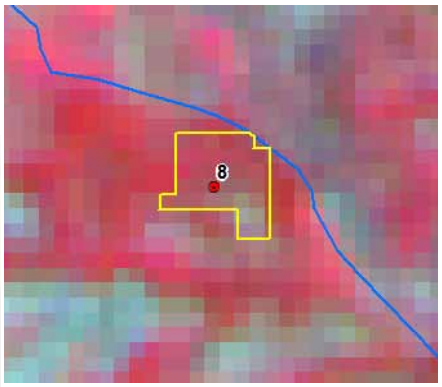




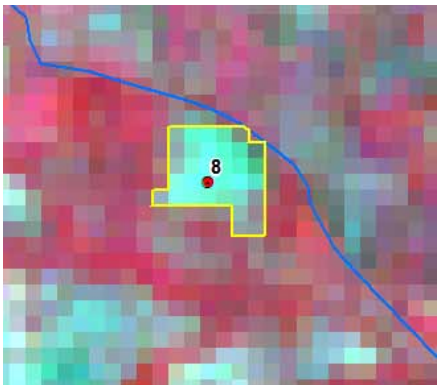
NIRMAL Range									
Bamini	0.00	300.10	248.68	103.68	124.79	20.77	798.02	**9.93**	0.00
Chincholi	0.00	817.19	194.08	94.13	66.06	5.78	1177.24	**-15.61**	0.00
Dhani	0.00	1146.72	266.52	159.94	85.14	11.40	1669.72	0.00	0.00
Dilawarpur	0.00	55.64	218.14	182.27	137.75	0.67	594.47	**2.71**	0.00
Doderna	0.00	532.73	349.97	134.22	110.62	0.00	1127.54	0.00	0.00
Jam	0.00	1038.25	198.49	180.94	247.30	0.00	1664.98	0.00	0.00
Jewly	0.00	664.29	308.81	326.18	956.12	0.00	2255.40	0.00	0.00
Koutla	0.00	1050.98	320.21	226.38	331.41	0.01	1928.99	0.00	0.00
Kubeer	0.00	809.03	827.21	317.32	524.53	0.00	2478.09	0.00	0.00
Kuntala	0.00	928.99	501.90	357.21	411.22	0.00	2199.32	0.00	0.00
Mogli	0.00	44.33	236.47	214.32	558.44	0.00	1053.56	0.00	0.00
Narsapur	0.00	132.20	344.35	321.37	218.97	2.46	1019.35	**14.59**	0.00
Neelaipet	0.00	659.29	123.54	91.80	120.74	0.00	995.37	**-3.04**	**1.03**
Ola	0.00	1027.93	616.11	400.35	456.88	0.56	2501.83	0.00	0.00
Pyaramoor	0.00	193.08	272.42	271.77	214.58	12.98	964.83	**-2.08**	0.00
Total	**0.00**	**9400.75**	**5026.90**	**3381.88**	**4564.55**	**54.63**	**22428.71**	**6.50**	**1.03**
PEMBI Range									
Domdhari	4.08	2736.56	690.55	37.78	179.63	49.73	3698.33	0.00	0.00
Englapur	0.13	1380.27	478.93	54.09	163.68	6.22	2083.32	0.00	0.00
Itkial	1.24	1401.71	833.83	115.43	241.37	0.00	2593.58	0.00	0.00
Paspula	17.00	2681.81	313.58	75.36	299.46	0.00	3387.21	0.00	0.00
Pembi	0.72	2817.23	734.83	111.95	161.15	0.01	3825.89	0.00	0.00
R.d.nala	0.00	1169.09	749.52	34.04	66.26	0.00	2018.91	0.00	0.00
Raidhari	61.40	1495.83	291.99	127.65	308.80	0.00	2285.67	0.00	0.00
Tatiguda	11.85	1397.33	416.35	20.57	102.72	0.00	1948.82	0.00	0.00
Yapaguda	1.96	1084.19	376.38	33.73	174.21	3.13	1673.60	0.00	0.00
Total	**98.38**	**16164.02**	**4885.96**	**610.60**	**1697.28**	**59.09**	**23515.33**	**0.00**	**0.00**
Division Total	**717.52**	**65020.39**	**19966.88**	**6879.09**	**9295.10**	**637.07**	**102516.05**	**-15.67**	**8.55**

Satellite Imageries

2011



2012



Longitude	78.41615 ° E
Latitude	19.11336 ° N
Area in Ha	2.01
Change	OF TO NF
Comp No.	976
Beat	Neelaipet
Range	Nirmal
Division	Nirmal





4.7 ACHAMPET WLM DIVISION

4.7.1 Introduction:

Achampet WLM Forest Division lies in the south eastern part of MahaboobNagar District between latitudes 16^0 08' 50" N & 16^0 37' 45" N and longitudes 78^0 4' 30" E & 78^0 58' 50" E. The Geographical Area of the Division is 4405.88 Km^2, which is 23.85 % 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 as in Achampet division is given in Table 4.7.1.

Table 4.7.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	2293.29	52.05
Agriculture	804.03	18.25
Land with Scrub	286.07	6.49
Fallow Lands	155.27	3.52
Grasslands	127.72	2.90
Settlements	4.03	0.09
Not available for cultivation	645.24	14.64
Water Bodies	90.23	2.05
Total	**4405.88**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally dry with temperatures ranging from 15^0C to 41^0C. The annual rainfall is about 700 mm received mainly from Southwest monsoons.

Srisailam 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 0.49 million (2011 Census) which constitutes 12.25 % of the total population of the District. The per capita forest area is 0.49 Ha. The population density is 10 persons per Km^2. The livestock population is 4.82 million.

4.7.2 Recorded Forest Area:

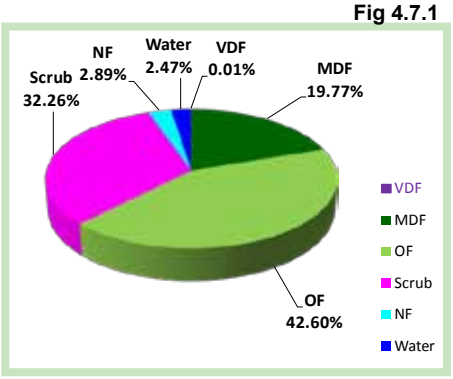
The notified forest area of the Division is **2423.36 Km^2**, which is 55.00% of the geographical area. Extents of Reserved-, Protected- and Un-classed forests are **1881.51 Km^2** (77.64%), **376.72 Km^2** (15.55%) and **165.03 Km^2** (6.81%) respectively of the total forest area.

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:

The Division is one of the 4 constituent Divisions of erstwhile Nagarjuna Sagar–Srisailam Tiger Reserve (NSTR) and now named as Amrabad Tiger Reserve. Out of 2,423.36 Km^2 of forest area an area of 1750 Km^2 is included in the ATR.

Fig 4.7.1



4.7.4 Community Forest Management:

There are 79 Vana Samrakshana Samities (VSSs) or JFPCs in the Division. 216.73 Km^2 or 8.95 % of forest area of the Division is under management of the VSSs.

4.7.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Nov 2012) is **1,511.73 Km^2** which is **34.31%** of the Geographical area. In terms of the forest canopy density classes the Division has **0.33 Km^2** of Very Dense Forests, **479.11 Km^2** of Moderately Dense Forests and **1032.29**





Km² of Open Forests. The area of the Scrub is **781.72 Km²** that of Non-Forest **69.96 Km²** and Water Bodies **59.96 Km²**. 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 the Division of 2011 and 2012 are shown in Figures 4.7.2 & 4.7.3 respectively and the changes during this period are shown on the image of 2012.

Comparison of the current forest cover with that of previous assessment year shows a positive change

Fig 4.7.2: Map showing LISS-III Imagery of Achampet WLM Division of October 2011



Fig 4.7.3: Map showing Change in Vegetation in November 2012



of 18.00 Ha and negative change of 2.73 Ha. However, including the scrub, the total positive change comes to **18.00 Ha** and negative change comes to **20.59 Ha.** The forest cover change matrix given in Table 4.7.2 reveals the changes from one class to another class.

The total positive change (including scrub) of **18.00 Ha** is on account of growth of raised plantations. Of the total negative change (including scrub) of **20.59 Ha, 16.50 Ha** is on account of harvesting of plantations, and **4.09 Ha** is on account of encroachments. Harvesting of plantations is a forest management intervention hence the same is not considered as loss of forest cover. Only the negative change due to encroachments is taken as loss of forest cover. Therefore the net loss of forest is **4.09 Ha** in the Division.

There are 70 Beats in the Division. Negative changes in forest cover are seen in 3 Beats and positive in 1 Beat only. There is no change in the remaining 66 Beats.

Details of forest cover in these 66 Beats of the division are shown in Table 4.7.3.

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

2011	2012						**Total of 2011**
	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	**1032.11**	0.03	0.00	0.00	**1032.14**
Scrub	0.00	0.00	0.18	**781.69**	0.18	0.00	**782.05**
Non-Forest	0.00	0.00	0.00	0.00	**69.78**	0.00	**69.78**
Water	0.00	0.00	0.00	0.00	0.00	**59.96**	**59.96**
Total of 2012	**0.33**	**479.11**	**1032.29**	**781.72**	**69.96**	**59.96**	**2423.37**
Net Change	**0.00**	**0.00**	**0.15**	**-0.33**	**0.18**	**0.00**	





Table 4.7.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
ACHAMPET Range									
Achampet	0.00	499.26	896.44	150.72	0.60	0.00	1547.02	0.00	0.00
Banala(n)	0.00	864.29	731.57	38.03	0.00	0.00	1633.89	0.00	0.00
Banala(s)	0.00	1566.46	500.98	34.53	0.00	62.97	2164.95	0.00	0.00
Billakal	0.00	581.13	462.82	51.44	0.00	0.32	1095.71	0.00	0.00
Bommanapally	0.00	516.19	1374.35	210.54	0.00	0.00	2101.08	0.00	0.00
Choutapally	0.00	1295.59	535.14	29.85	0.00	0.00	1860.59	0.00	0.00
Ganapur	0.00	14.57	1312.03	1602.42	15.78	1.85	2946.64	0.00	0.00
Inole	0.00	11.70	240.80	1078.75	21.86	2.94	1356.05	0.00	0.00
Kondanagul	0.00	432.26	993.72	132.67	2.20	0.00	1560.86	0.00	0.00
Mannevari pally	0.15	18.26	1352.53	2193.58	11.62	5.71	3581.85	0.00	0.00
Rangapur	0.00	1171.53	911.88	144.74	0.00	0.00	2228.15	0.00	0.00
Siddapur-(e)	0.65	231.13	1213.21	1184.82	44.04	4.40	2678.25	**-16.50**	0.00
Siddapur-(w)	0.00	8.62	533.63	1147.04	30.55	4.07	1723.91	0.00	0.00
Total	**0.80**	**7210.99**	**11059.12**	**7999.13**	**126.64**	**82.25**	**26478.93**	**-16.50**	**0.00**
AMRABAD Range									
Amrabad	0.00	724.95	3206.60	2837.12	55.30	0.62	6824.61	0.00	0.00
Domarlagundi	2.78	8.83	1033.87	4769.91	734.58	739.90	7289.87	0.00	0.00
Ippalapally	0.00	1.00	657.35	1260.09	106.07	223.04	2247.55	0.00	0.00
Kollampenta	0.00	1682.87	1424.69	492.64	0.90	0.00	3601.10	0.00	0.00
Macharam-(n)	0.00	233.46	1217.70	1298.77	6.74	3.33	2760.00	0.00	0.00
Macharam-(s)	0.00	671.46	2459.40	1677.28	28.95	0.61	4837.71	0.00	0.00
Maddimadugu	0.50	55.62	1540.14	10327.86	2768.27	161.80	14854.19	0.00	0.00
Maredugu	0.00	69.81	5339.30	9459.88	1015.85	211.38	16096.21	0.00	0.00
New road farhabad	0.00	2423.72	1723.21	395.27	0.01	0.00	4542.21	0.00	0.00
Padara	0.00	198.03	2918.24	5152.91	34.26	0.74	8304.17	0.00	0.00
Tirmalapur	0.00	522.62	6170.49	4580.18	163.94	0.48	11437.71	0.00	0.00
Ummanpenta	2.05	0.00	524.22	4451.10	1019.57	291.41	6288.35	0.00	0.00
Vatvarlapally(e)	0.39	1619.17	7702.31	2235.66	51.71	80.87	11690.11	0.00	0.00
Vatvarlapally(n)	0.00	277.37	1813.41	368.45	0.00	0.00	2459.24	0.00	0.00
Total	**5.72**	**8488.91**	**37730.94**	**49307.11**	**5986.15**	**1714.18**	**103233.01**	**0.00**	**0.00**
KOLLAPUR Range									
Amaragiri	0.00	9.49	393.45	1059.88	162.00	216.32	1841.13	0.00	0.00
Ankilpenta(n)	0.00	1884.08	212.13	12.32	0.00	0.00	2108.53	0.00	0.00
Ankilpenta(s)	0.00	1283.22	448.54	26.51	0.00	0.00	1758.27	0.00	0.00
Bollaram	0.28	653.60	1581.73	757.71	155.19	473.63	3622.14	**-2.73**	**2.73**
Chintapally_s-ii	0.00	88.81	620.98	604.98	0.00	0.00	1314.76	0.00	0.00
Chintapally-s-i	0.00	77.35	532.80	580.17	3.81	86.84	1280.97	0.00	0.00
Kollapur	0.00	66.63	548.62	423.33	79.00	40.29	1157.87	0.00	0.00
Medarvote	0.00	170.17	683.36	869.99	4.36	13.41	1741.29	0.00	0.00
Narlapur	0.73	75.79	366.90	2223.67	35.64	21.04	2723.77	0.00	0.00
Peddavote	0.00	1089.10	1336.10	253.24	4.51	0.85	2683.80	0.00	0.00
Somasila	0.77	55.19	743.58	863.71	164.31	35.50	1863.06	0.00	0.00
Sukkalagundam	0.00	905.81	764.59	103.40	10.30	143.49	1927.59	0.00	0.00
Yeddulagundam	0.00	1640.18	790.08	55.89	0.00	0.00	2486.16	0.00	0.00
Yellore	0.00	2.82	58.91	629.07	23.02	264.71	978.52	**-1.36**	**1.36**

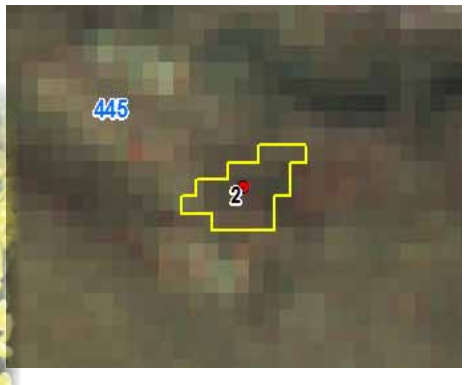




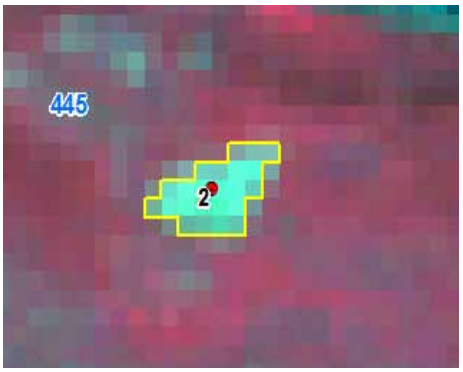
Yerragundam penta	0.00	1046.90	1492.24	267.02	1.16	192.20	2999.52	0.00	0.00
Yerrapenta	0.00	2305.44	2817.19	355.97	47.44	295.62	5821.66	0.00	0.00
Yetham	0.00	2.16	23.39	601.13	92.18	6.28	725.15	0.00	0.00
Total	**1.77**	**11356.72**	**13414.57**	**9688.00**	**782.90**	**1790.19**	**37034.17**	**-4.09**	**4.09**
LINGAL Range									
Appaipally	0.00	428.49	615.62	120.87	0.00	0.00	1164.98	0.00	0.00
Bacharam	0.00	0.00	161.41	1022.62	22.93	5.33	1212.29	**18.00**	0.00
Balmoor	0.00	229.99	479.69	47.83	0.00	0.00	757.51	0.00	0.00
Dhararam	0.00	391.06	557.56	51.14	0.00	0.00	999.76	0.00	0.00
Gorremadug s-i	0.00	20.78	568.43	379.49	0.12	0.00	968.82	0.00	0.00
Gorremadug s-ii	0.00	228.34	557.97	87.18	0.00	0.00	873.49	0.00	0.00
Lingal	0.50	135.41	1041.63	722.76	1.34	33.54	1935.18	0.00	0.00
Mareddinne	0.00	2.21	146.52	220.27	0.72	14.51	384.22	0.00	0.00
Marlapaya	0.00	1321.86	798.85	49.24	0.00	2.39	2172.34	0.00	0.00
Padmanapally	0.00	755.01	590.39	58.09	0.00	6.90	1410.39	0.00	0.00
Rayawaram	0.00	46.62	643.30	404.29	0.00	0.00	1094.21	0.00	0.00
Sathapur	1.07	20.65	306.41	1485.20	55.35	55.23	1923.92	0.00	0.00
Total	**1.58**	**3580.41**	**6467.80**	**4648.98**	**80.46**	**117.90**	**14897.12**	**18.00**	**0.00**
MANNANUR Range									
Appapur	0.00	716.37	1016.05	39.90	0.00	25.69	1798.01	0.00	0.00
Behirapur-(n)	0.00	1985.13	3927.26	244.60	0.55	413.35	6570.88	0.00	0.00
Behirapur-(s)	0.00	192.85	1263.39	409.12	0.00	261.89	2127.24	0.00	0.00
Burujugundal	0.00	1757.21	1387.69	244.55	0.00	0.00	3389.44	0.00	0.00
Eagalapenta	2.57	279.27	2471.86	712.70	9.87	437.74	3914.02	0.00	0.00
Farahabad(e)	18.09	1266.32	2534.71	710.35	2.72	0.00	4532.19	0.00	0.00
Farahabad(w)	0.00	770.48	1089.74	329.82	0.00	0.00	2190.03	0.00	0.00
Farhabad(s)	0.00	1151.01	2715.27	269.67	0.00	3.58	4139.52	0.00	0.00
Mannanur-(n)	0.00	812.10	822.61	421.68	0.40	0.00	2056.79	0.00	0.00
Mannanur-(s)	0.00	2465.02	1851.90	176.61	0.00	3.17	4496.70	0.00	0.00
Pullaipally	0.00	2267.51	3102.34	266.84	0.00	0.00	5636.70	0.00	0.00
Rampur	0.00	1511.36	1781.71	324.70	1.38	4.75	3623.89	0.00	0.00
Sangadigundal	2.47	1640.24	8766.60	2079.41	4.58	993.97	13487.28	0.00	0.00
Vatvarlapally(s)	0.00	459.09	1825.73	298.83	0.09	147.33	2731.07	0.00	0.00
Total	**23.13**	**17273.96**	**34556.85**	**6528.77**	**19.58**	**2291.47**	**60693.77**	**0.00**	**0.00**
Division Total	**33.00**	**47911.00**	**103229.27**	**78171.99**	**6995.74**	**5996.00**	**242337.00**	**-2.59**	**4.09**

Satellite Imageries

2011



2012



Longitude	78.39040 ° E
Latitude	16.10272 ° N
Area in Ha	1.36
Change	SF to NF
Comp No.	445
Beat	Yellore
Range	Kollapur
Division	Achampet





4.8 NAGARJUNA SAGAR WLM DIVISION

4.8.1 Introduction:

Nagarjuna Sagar WLM Forest Division is situated in Nalgonda district. It is located between latitudes 16^0 21' 18" N & 16^0 55' 04" N and longitudes 78^0 51' 18" E & 79^0 27' 57" E. Geographical area of the Division is 1685.67 Km^2 which is 11.84 % of the area of the District. The Division has an average altitude of 615 m above MSL. The River Krishna is Main River of the Division.

Land use pattern of the Division as in Nagarjuna Sagar Division is given in Table 4.8.1

Table 4.8.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forests Including Scrub	555.52	32.96
Agriculture	795.53	47.19
Fallow Lands	27.70	1.64
Grass Lands	14.29	0.85
Settlements	5.92	0.35
Vegetation outside Forest	80.88	4.80
Water bodies	205.83	12.21
Total	**1685.67**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is extreme hot and arid. It experiences very hot summers with temperatures soaring up to high as 40^0C especially during March or May and June. The winters are comparatively pleasant and cool. The winter temperatures fall down to 10^0C.The Nagarjuna Sagar Wildlife Sanctuary experiences heavy rainfall caused by the south west monsoons from the month of June to October.

This Division contains very rich minerals like Limestone, Quartzite, Granite, Feldspar etc. The soil types found mainly are black cotton, red and brown sandy loam.

Population of the Division is 0.40 million (2011 Census) which constitutes 11.49 % of the total populations of the District. The per capita forest area is 0.097 Ha and the population density is 240 persons per Km^2.

4.8.2 Recorded Forest Area:

The notified forest area of the Division is **386.64 Km2** which is 22.94% of the geographical area.

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

4.8.3 Protected Area:

Nagarjuna Sagar WL Division is one of the 4 constituent Divisions of erstwhile Nagarjuna Sagar – Srisailam Tiger Reserve (NSTR), now named as Amrabad Tiger Reserve. An area of 386.64 Km^2 is included in the Tiger Reserve.

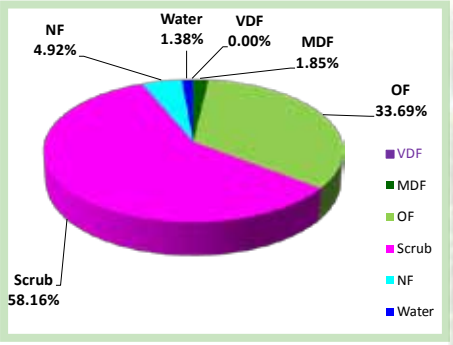
4.8.4 Community Forest Management:

There are 79 Vana Samrakshana Samities (VSSs) in the Division. An area of 176.23 Km^2 forests which is 21.19% 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 R2 LISS III 2012 data (Nov 2012) is **158.91 Km^2** which is **9.43%** of the geographical area. In terms of the forest canopy density classes the Division has **8.28 Km^2** of Moderately Dense Forest and **150.63 Km^2** of Open Forest. The area of the Scrub is **260.08 Km^2**, Non-Forest **21.98 Km^2** and Water Bodies **6.18 Km^2**.The distribution of the forest cover of the Division is shown in Fig 4.8.1

Fig 4.8.1







4.8.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 are shown in Fig (4.8.2 & 4.8.3) and the changes between this period are shown on the image of 2012.

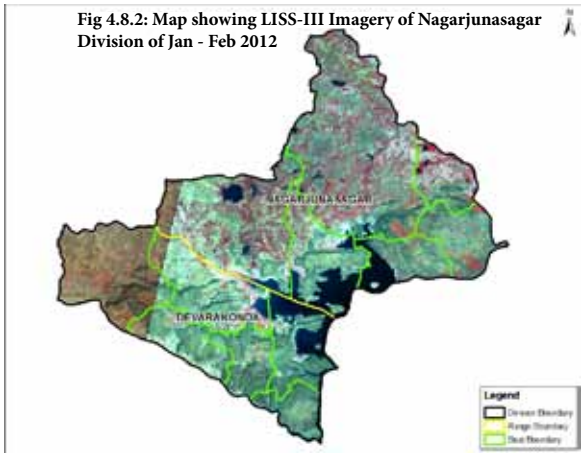


Fig 4.8.2: Map showing LISS-III Imagery of Nagarjunasagar Division of Jan - Feb 2012

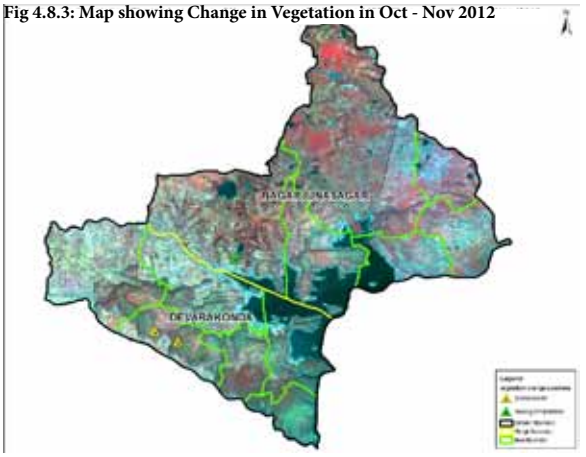


Fig 4.8.3: Map showing Change in Vegetation in Oct - Nov 2012

Comparison of the current forest cover with that of previous assessment year shows **no change** in forest cover. However including the scrub, the total positive change comes to **25.78 Ha** and the total negative change comes to **6.86 Ha.** The forest cover change matrix is given in Table 4.8.2 reveals the changes from one class to another class.

The total positive change (including scrub) is **25.78 Ha** which is on account of growth in raised plantations. The total negative change (including scrub) is **6.86 Ha** which is on account of encroachments. Therefore the net loss of forest is **6.86 Ha** only.

There are 12 Beats in the Division. Details of Forest cover changes in all the Beats of the division are shown in Table 4.8.3.

Table 4.8.2: Forest Cover change matrix (Area in Km^2)

2011	2012						Total of 2011
	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	**8.28**	0.00	0.00	0.00	0.00	**8.28**
Open Forest	0.00	0.00	**150.63**	0.00	0.00	0.00	**150.63**
Scrub	0.00	0.00	0.00	**259.82**	0.07	0.00	**259.89**
Non-Forest	0.00	0.00	0.00	0.26	**21.91**	0.00	**22.17**
Water	0.00	0.00	0.00	0.00	0.00	**6.18**	**6.18**
Total of 2012	**0.00**	**8.28**	**150.63**	**260.08**	**21.98**	**6.18**	**447.15**
Net Change	**0.00**	**0.00**	**0.00**	**0.19**	**-0.19**	**0.00**	

Satellite Imageries

2011



2012



Longitude	79.10429 ° E
Latitude	16.60447 ° N
Area in Ha	25.78
Change	NF to SF
Comp No.	86
Beat	Waddipatla
Range	Nagarjunasagar
Division	Nagarjunasagar





4.9 HYDERABAD DIVISION

4.9.1 Introduction:

Hyderabad Forest Division consists of Hyderabad & Rangareddy Districts. Hyderabad Forest Division lies between latitudes 16^0 50' 39" N & 17^0 42' 28" N and Longitudes 77^0 21' 49" E & 78^0 49' 49" E. The Geographical Area of the Division is 7,718.52 Km^2. The average altitude is 536 m above MSL. Twin cities of Hyderabad & Secunderabad fall in this Division which is the capital of the state. 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.

Landuse pattern of the Division as in Hyderabad division is given in Table 4.9.1.

The climate of this Division is generally dry with temperatures ranging from 14^0C to 45^0C 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 mainly are Black cotton, Red and Brown sandy loam.

Table 4.9.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	730.75	9.47
Agriculture	5916.47	76.65
Land with Scrub	444.08	5.75
Fallow Lands	14.15	0.18
Grasslands	0.79	0.01
Settlements	424.91	5.51
Not available for cultivation	27.36	0.35
Water Bodies	160.01	2.07
Total	**7718.52**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The population of the Division is 9.30 millions (2011 Census) .The per capita forest area is 0.01 Ha and the population density is 1207 persons per Km^2.The livestock population is 1.6 million.

4.9.2 Recorded Forest Area:

The notified forest area of the Division is **730.75 Km^2** which is 9.47% of the geographical area. Reserved, Protected and Un-classed Forests Constitute **379.96 Km^2** (52%), **244.90 Km^2** (33.49%) and **106.09 Km^2** (14.52%) of the forest area respectively.

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

Table 4.9.1: Landuse Pattern (for entire geographical area)

4.9.3 Protected Area:

There are 3 Protected Areas in the Division. These are **Chilkur National Park** (4.87 Km^2), **KBR National Park** (1.70 Km^2) and of **Mahaveer Harina Vanasthali Deer Park** (14.12 Km^2).

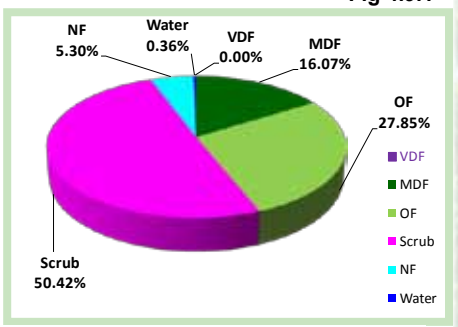
4.9.4 Joint Forest Management:

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.

4.9.5 Forest Cover:

The forest cover in the Division based on the Interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **333.33 Km^2** which is **4.32%** of the Geographical area. In terms of the forest canopy density classes the Division has **121.95 Km^2** of Moderately Dense Forest and **211.38 Km^2** of Open Forest. The area of the Scrub is **382.59 Km^2**, Non-Forest **40.20 Km^2** and Water Bodies **2.75 Km^2**. The distribution of the forest cover of the Division is shown in Fig 4.9.1.

Fig 4.9.1







4.9.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 are shown in Figs 4.9.2 & 4.9.3 respectively and the changes between this period are shown on the image of 2012.

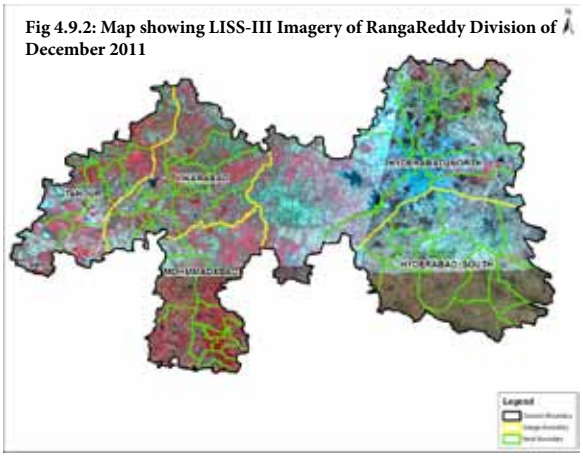


Fig 4.9.2: Map showing LISS-III Imagery of RangaReddy Division of December 2011

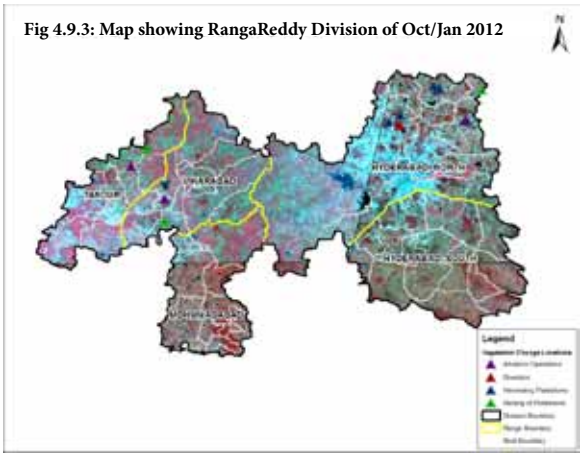


Fig 4.9.3: Map showing RangaReddy Division of Oct/Jan 2012

Comparison of the current forest cover with that of previous assessment year shows a negative change of **75.18 Ha**. However, including the scrub, the negative change comes to **435.82** Ha and positive change comes to **7.09 Ha**. The forest cover change matrix given in Table 4.9.2 reveals the changes from one class to another class.

The total positive change (including scrub) of **7.09 Ha** is on account of growth in raising plantations. Of the total negative change (including scrub) of **435.82 Ha**, **285.74 Ha** is on account of clearance of jungle growth for raising of plantations, **140.12 Ha** is on account of harvesting of plantation, and **9.96 Ha** is on account of encroachments. As clearance of jungle growth for raising of plantations, harvesting of plantations and diversion land are forest management interventions the same are not considered as loss of forest cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the net loss of forest is **9.96 Ha** in the Division.

There are 62 Beats in the Division. Negative changes in forest cover are noticed in only 11 Beats only. There are no changes in the remaining 51 Beats.

Details of forest cover all in the Beats in the Division are shown in Table 4.9.3

Table 4.9.2: Forest Cover change matrix (Area in Km^2)

2011	2012						**Total of 2011**
	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	**121.95**	0.00	0.00	0.00	0.00	**121.95**
Open Forest	0.00	0.00	**211.38**	0.00	0.75	0.00	**212.13**
Scrub	0.00	0.00	0.00	**382.52**	3.61	0.00	**386.13**
Non-Forest	0.00	0.00	0.00	0.07	**35.84**	0.00	**35.91**
Water	0.00	0.00	0.00	0.00	0.00	**2.75**	**2.75**
Total of 2012	**0.00**	**121.95**	**211.38**	**382.59**	**40.20**	**2.75**	**758.87**
Net Change	**0.00**	**0.00**	**-0.75**	**-3.54**	**4.29**	**0.00**	





Table 4.9.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
HYDERABAD_NORTH RANGE									
AMBERPET	0.00	21.57	72.42	1770.71	326.42	0.00	2191.12	0.00	0.00
GANGANPAHAD	0.00	0.00	3.97	385.81	114.63	0.00	504.41	0.00	0.00
KEESRA	0.00	49.45	117.52	1402.10	392.49	35.96	1997.52	0.00	0.00
LAXMAPUR	0.00	125.01	157.21	372.62	35.68	1.80	692.32	0.00	0.00
MEDCHAL	0.00	0.61	28.31	515.07	282.26	0.00	826.25	**-59.11**	0.00
MEDPALLY	0.00	0.56	28.43	773.66	99.27	0.00	901.92	0.00	0.00
MUDMIYAL	0.00	9.71	89.04	1192.90	140.46	0.00	1432.11	0.00	0.00
POCHAMPALLY	0.00	22.26	222.20	597.83	201.44	0.00	1043.73	0.00	0.00
SHAMIRPET	0.00	5.21	144.81	587.19	114.04	0.00	851.25	0.00	0.00
SURARAM	0.00	0.00	9.28	435.16	168.63	0.00	613.07	0.00	0.00
TURKAPALLY	0.00	309.05	322.20	925.98	327.61	0.00	1884.84	**-7.68**	0.00
Total	**0.00**	**543.43**	**1195.39**	**8959.03**	**2202.93**	**37.76**	**12938.54**	**-66.79**	**0.00**
HYDERABAD_SOUTH RANGE									
DARDUMAILARAM	0.00	34.13	240.75	1500.51	49.34	0.00	1824.93	0.00	0.00
GOLLUR	0.00	22.43	106.09	564.18	19.28	0.00	711.98	**-16.85**	0.00
GUNGAL	0.00	55.37	451.90	732.96	69.88	0.00	1310.11	0.00	0.00
IBRAHIMPATNAM	0.00	0.67	10.19	858.81	136.25	0.00	1005.92	**-12.06**	0.00
KONGRAKALAN	0.00	31.08	173.62	1333.64	68.18	0.00	1606.52	0.00	0.00
LEMOOR	0.00	1.56	80.99	988.75	9.09	0.00	1080.39	0.00	0.00
MANKHAL	0.00	0.66	46.94	584.51	21.70	0.00	653.81	0.00	0.00
NALAVELLY	0.00	21.31	74.00	702.15	6.88	0.00	804.34	0.00	0.00
PAHADISHAREEF	0.00	92.71	142.92	1363.18	287.17	14.24	1900.22	0.00	0.00
PHULMAMIDI	0.00	81.19	454.92	646.97	107.48	0.00	1290.36	**-59.35**	**9.96**
RACHNOOR	0.00	16.06	299.79	845.47	104.94	0.00	1266.26	0.00	0.00
RANGAPUR	0.00	37.06	328.43	835.65	10.18	0.00	1211.32	0.00	0.00
TATPARTHY	0.00	199.22	868.80	548.01	4.82	4.48	1625.33	0.00	0.00
YACHARAM	0.00	58.59	467.60	718.97	0.00	0.00	1208.60	0.00	0.00
Total	**0.00**	**652.04**	**3746.74**	**12223.76**	**858.63**	**18.72**	**17499.89**	**-88.26**	**9.96**
MOHMMADABAD RANGE									
ANANTHASAGAR	0.00	446.21	569.88	325.36	23.92	0.00	1365.37	0.00	0.00
GADISINGAPUR	0.00	164.10	1042.24	332.34	25.24	2.34	1566.26	0.00	0.00
GADRIYAL	0.00	433.70	581.01	149.04	0.51	3.20	1167.46	0.00	0.00
IBRAHIMPUR	0.00	52.94	694.46	498.05	90.55	0.00	1336.00	**-64.87**	0.00
KALMAN KALVA	0.00	658.14	299.14	84.11	1.18	0.00	1042.57	0.00	0.00
KOMREDDYPALLY	0.00	43.80	472.46	1279.85	25.14	0.00	1821.25	**-16.91**	0.00
KOTHAPALLY	0.00	832.62	250.28	55.90	0.00	0.00	1138.80	0.00	0.00
KULKACHERLA	0.00	399.11	783.35	309.11	2.46	1.34	1495.37	0.00	0.00
MOHAMMABAD	0.00	1172.24	608.89	160.20	1.82	1.39	1944.54	0.00	0.00
MUJAHIDPUR	0.00	321.37	220.56	22.67	0.00	0.00	564.60	0.00	0.00
PARGI	0.00	329.34	407.48	918.90	15.84	0.00	1671.56	0.00	0.00
RANGAMMAGUDA	0.00	387.16	138.39	75.15	0.00	0.00	600.70	0.00	0.00
VENKATAPUR	0.00	44.39	632.55	261.51	0.67	0.00	939.12	0.00	0.00
Total	**0.00**	**5285.12**	**6700.69**	**4472.19**	**187.33**	**8.27**	**16653.60**	**-81.78**	**0.00**

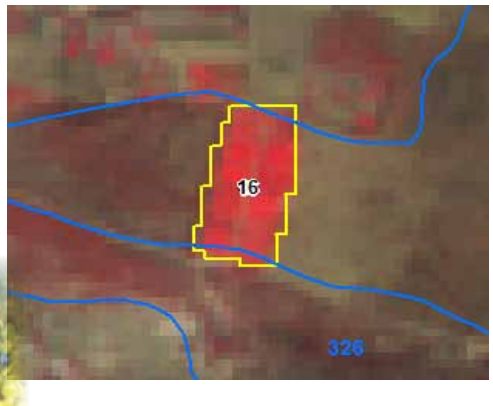




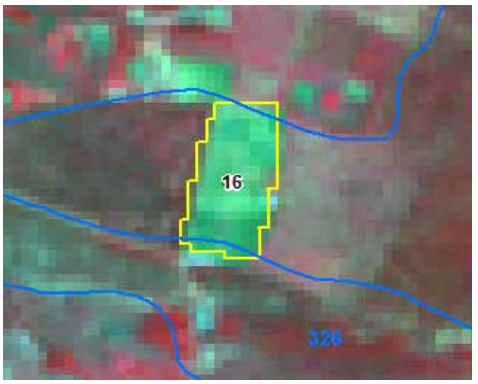
TANDUR RANGE									
ADIKICHERLA	0.00	250.41	260.01	370.68	6.68	0.00	887.78	0.00	0.00
GINGURTHY	0.00	652.27	139.54	133.13	0.36	4.91	930.21	0.00	0.00
INDUR	0.00	1280.34	459.74	445.16	106.43	0.00	2291.67	**-38.95**	0.00
JUNTPALLY	0.00	88.55	655.72	289.79	17.75	0.00	1051.81	0.00	0.00
KALKHODA	0.00	196.37	384.95	702.58	84.69	0.00	1368.39	**-61.39**	0.00
MAILWAR	0.00	35.91	666.89	1140.99	18.66	0.00	1862.45	0.00	0.00
NAGULPALLY	0.00	484.26	484.99	694.30	24.37	9.16	1697.08	0.00	0.00
RAMPALLY	0.00	112.17	291.22	668.25	37.37	1.65	1110.66	0.00	0.00
TANDUR	0.00	0.00	0.00	239.58	0.96	0.00	240.54	0.00	0.00
TATTEPALLY	0.00	129.49	146.25	115.52	2.33	0.00	393.59	0.00	0.00
Total	**0.00**	**3229.77**	**3489.11**	**4799.98**	**299.60**	**15.72**	**11834.18**	**-100.34**	**0.00**
VIKARABAD RANGE									
ADHALPUR	0.00	743.40	1662.79	620.48	1.98	1.63	3030.28	0.00	0.00
DHARPUR	0.00	77.66	736.14	568.65	4.87	0.63	1387.95	0.00	0.00
DORNAL	0.00	72.53	344.38	505.53	18.09	0.00	940.53	0.00	0.00
EKAMAMIDI	0.00	94.90	443.82	912.65	70.59	0.00	1521.76	**-20.29**	0.00
KOTHREPALLY	0.00	248.85	581.18	687.73	77.08	0.00	1594.84	**-71.27**	0.00
MADANPALLY	0.00	142.38	328.39	915.73	64.45	3.85	1454.80	0.00	0.00
MANSANPALLY	0.00	59.68	355.26	536.23	3.91	2.41	957.49	0.00	0.00
MOTHUKPALLY	0.00	243.78	394.62	1005.33	118.40	0.00	1763.14	0.00	0.00
MUNNOR-SOMARAM	0.00	122.10	165.12	708.70	79.39	16.26	1091.57	0.00	0.00
RASNAM	0.00	45.07	181.18	89.53	0.00	0.00	315.78	0.00	0.00
RUDRARAM	0.00	85.11	530.27	554.00	9.25	170.00	1348.63	0.00	0.00
VIKARABAD	0.00	550.00	282.69	699.48	23.35	0.00	1555.52	0.00	0.00
Total	**0.00**	**2485.26**	**6005.84**	**7804.04**	**471.36**	**194.98**	**16962.29**	**-91.56**	**0.00**
Division Total	**0.00**	**12195.62**	**21137.77**	**38259.00**	**4019.85**	**275.25**	**75888.50**	**-428.73**	**9.96**

Satellite Imageries

2011



2012



Longitude	78.38438° E
Latitude	17.07498° N
Area in Ha	9.96
Change	SF to NF
Comp No.	329
Beat	Phulmamidi
Range	Hyderabad-South
Division	Hyderabad





4.10 Mahaboobnagar Division

4.10.1 Introduction:

MahaboobNagar Forest Division lies in the western part of MahaboobNagar District between latitudes 15^0 50' 12" N & 17^0 14' 13" N and longitudes 77^0 14' 55" E & 78^0 48' 07" E. Geographical area of the Division is **14068.25 Km²** which is 76.15 % of the area of the District. The Division has an average altitude of 498 m above MSL. The district can be physiographically divided into more or less 2 distinct regions; the plains with low lying scattered hills and the extensive Amarabad-Farhabad plateau- a continuous range of hills of an average elevation of about 800 m above MSL 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.

Land use pattern of the Division as in MahaboobNagar is given in Table 4.10.1

Table 4.10.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km²	Percentage
Forest including Scrub	616.85	4.38
Agriculture	11853.49	84.26
Land with Scrub	436.22	3.10
Fallow Lands	412.62	2.93
Settlements	36.58	0.26
Not available for cultivation	250.11	1.78
Water Bodies	462.38	3.29
Total	**14068.25**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally dry with temperatures ranging from 16.9^0 C to 45^0C and the annual rainfall is about 754 mm received mainly from south-west monsoons. The soils found in the Division are red sandy, black cotton and loamy.

Population of the Division is 3.54 million (2011 Census) which constitutes about 77.75 % of the population of the district, per capita forest area is 0.02 Ha and the population density is 257 persons per Km². The livestock population is 4.82 million.

4.10.2 Recorded Forest Area:

The notified forest area of the Division is **573.18 Km²** which 4.07% of the 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 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.

4.10.3 Protected Area:

There is no Protected Area in the Division.

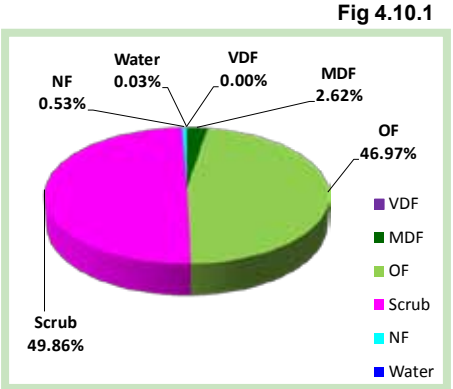
4.10.4 Community Forest Management:

There are 207 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.

4.10.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 (Data of Oct 2011 to Nov 2012) is **307.14 km²** which is **2.18%** of the geographical area. In terms of the forest canopy density classes the Division has **16.20 km²** of

Fig 4.10.1







Moderately Dense Forest and **290.94 km²** Open Forest. The area of the Scrub is **308.89 km²**, Non-Forest **3.29 km²** and Water Bodies **0.16 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 2011 and 2012 are shown in Figs 4.10.2 & 4.10.3 respectively and the changes

Fig 4.10.2: Map showing LISS-III Imagery of Mahabubnagar Division of Oct-2011 to Jan-2012

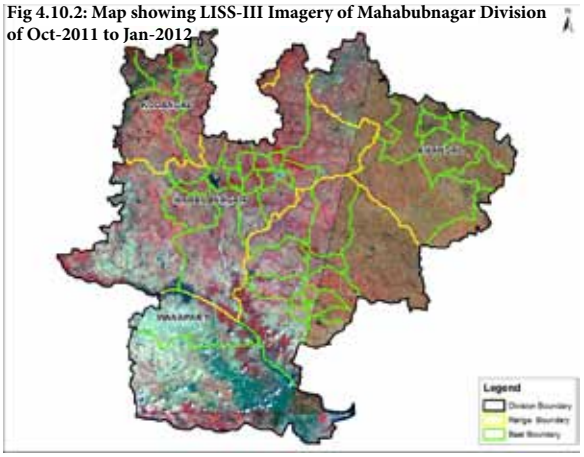
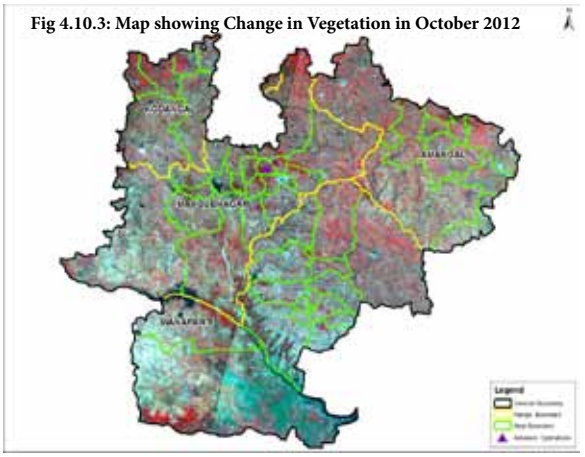


Fig 4.10.3: Map showing Change in Vegetation in October 2012



during this period on the image of 2012.

Comparison of the current forest cover with that of previous assessment year shows no change in the forest cover. However, including the scrub, the total negative change of comes to **31.68 Ha**. The forest cover change matrix given in Table 4.10.2 reveals the changes from one class to another class. The total negative change (including scrub) of **31.68 Ha**, is on account of clearance of jungle growth for raising of plantations. As clearance of jungle growth for raising of plantation is a management intervention the same is not considered as loss of forest cover. Only the negative change due to encroachments is taken as loss of forest cover. Therefore there is no **net loss of forest in the Division.** There are 51 Beats in the Division. Negative changes in forest cover are seen in 2 Beats and there are no changes in remaining 49 Beats.

Details of forest cover in all the Beats of the Division are shown in Table 4.10.3

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

2011	2012						Total of 2011
	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	**290.94**	0.00	0.32	0.00	291.26
Scrub	0.00	0.00	0.00	**308.89**	0.00	0.00	308.89
Non-Forest	0.00	0.00	0.00	0.00	**2.97**	0.00	2.97
Water	0.00	0.00	0.00	0.00	0.00	**0.16**	0.16
Total of 2012	**0.00**	**16.20**	**290.94**	**308.89**	**3.29**	**0.16**	**619.48**
Net Change	**0.00**	**0.00**	**-0.32**	**0.00**	**0.32**	**0.00**	**0.00**





Table 4.10.3: Beat wise forest cover **(area in ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
Amanagal range									
Amangal	0.00	0.00	183.97	447.75	12.62	0.00	644.34	0.00	0.00
Chandrayanpally	0.00	0.00	52.94	1,201.32	46.53	0.67	1,301.46	0.00	0.00
Charakonda	0.00	3.26	332.91	1,359.67	41.13	0.00	1,736.97	0.00	0.00
Cherikonda	0.00	3.39	858.30	969.19	3.57	1.09	1,835.54	0.00	0.00
Cherkur	0.00	3.45	36.95	594.17	5.59	1.83	641.98	0.00	0.00
Chhepununthala	0.00	0.00	245.92	571.27	11.06	0.00	828.25	0.00	0.00
Gokaram	0.00	3.67	641.67	874.59	4.86	0.00	1,524.78	0.00	0.00
Kadthal	0.00	4.04	1,094.16	466.44	1.72	0.00	1,566.36	0.00	0.00
Kamadhan	0.00	2.16	343.92	55.26	0.00	0.00	401.34	0.00	0.00
Karkalpahad	0.00	1.06	687.45	610.33	0.00	0.00	1,298.84	0.00	0.00
Mudwin	0.00	1.56	925.09	510.37	0.00	0.83	1,437.85	0.00	0.00
Total	**0.00**	**22.56**	**5,403.27**	**7,660.37**	**127.08**	**4.42**	**13,217.71**	**0.00**	**0.00**
Kodangal range									
Bomraspet	0.00	85.19	473.28	462.64	21.04	0.00	1,042.15	0.00	0.00
Dudyal	0.00	0.50	176.51	201.88	0.00	2.00	380.89	0.00	0.00
Gokafaslabad	0.00	0.00	135.73	429.51	0.00	0.00	565.25	0.00	0.00
Kodangal	0.00	15.88	490.47	267.63	1.54	0.00	775.52	0.00	0.00
Kothur	0.00	86.95	1,289.87	498.10	8.64	0.00	1,883.56	0.00	0.00
Tekulkote	0.00	12.01	440.51	558.97	15.47	0.00	1,026.95	0.00	0.00
Total	**0.00**	**200.52**	**3,006.36**	**2,418.74**	**46.69**	**2.00**	**5,674.32**	**0.00**	**0.00**
Mahabubnagar range									
Acharyapur	0.00	12.85	921.82	846.61	0.00	0.00	1,781.29	0.00	0.00
Appaipalli	0.00	58.50	898.46	694.51	0.00	0.00	1,651.47	0.00	0.00
Appannapally	0.00	238.91	1,130.51	58.83	12.37	0.00	1,440.62	0.00	0.00
Boyapally	0.00	168.81	838.71	162.08	16.12	0.00	1,185.73	**-16.12**	0.00
Chandraspally	0.00	0.00	158.42	899.63	1.71	0.00	1,059.76	0.00	0.00
Darpally	0.00	5.63	912.06	487.76	17.11	0.00	1,422.56	**-15.56**	0.00
Dhanwada	0.00	16.66	1,149.71	678.56	1.83	0.00	1,846.76	0.00	0.00
Gaddiguda	0.00	1.43	279.63	452.21	0.00	1.09	734.36	0.00	0.00
Gajulpet	0.00	3.34	947.37	519.29	2.44	0.00	1,472.44	0.00	0.00
Garlapad	0.00	21.15	961.33	770.24	0.95	0.00	1,753.67	0.00	0.00
Gundiyal	0.00	8.65	666.92	657.45	1.50	0.00	1,334.52	0.00	0.00
Jatram	0.00	0.00	637.95	1,290.18	0.00	3.39	1,931.53	0.00	0.00
Kistapur	0.00	25.13	1,086.78	1,050.45	2.02	0.00	2,164.39	0.00	0.00
Kotakonda	0.00	12.94	738.60	1,844.35	0.61	2.11	2,598.62	0.00	0.00
Mahaboobnagar	0.00	1.28	722.82	428.99	0.84	0.00	1,153.93	0.00	0.00
Malkapur-g	0.00	236.55	654.31	61.51	0.00	0.00	952.37	0.00	0.00
Malkapur-k	0.00	73.79	995.78	344.89	0.00	0.00	1,414.46	0.00	0.00
Manikonda	0.00	128.79	1,271.45	348.56	0.00	0.00	1,748.80	0.00	0.00
Teegalpally	0.00	136.45	814.50	18.09	0.00	0.00	969.05	0.00	0.00
Total	**0.00**	**1,150.87**	**15,787.16**	**11,614.20**	**57.50**	**6.59**	**28,616.31**	**-31.68**	**0.00**

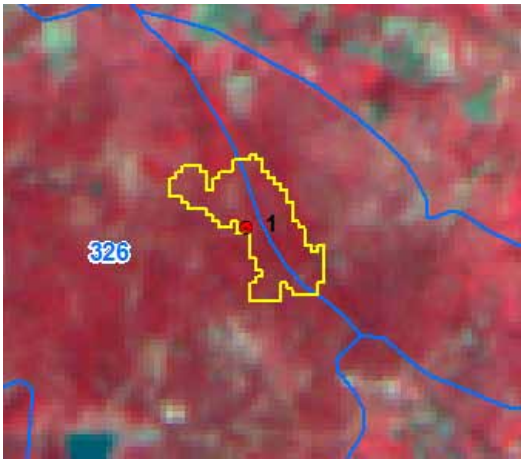




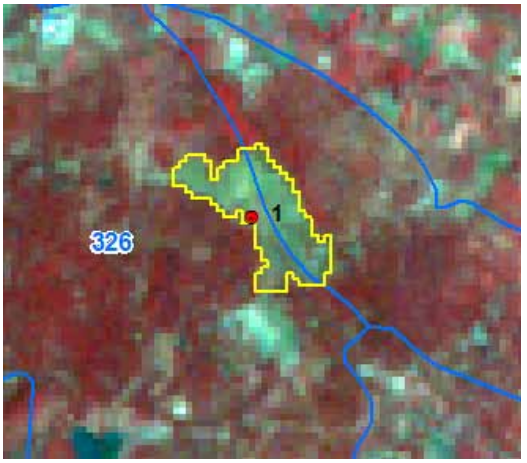
Wanaparthy range									
Agrahar	0.00	3.21	461.41	1,149.73	0.66	1.84	1,616.84	0.00	0.00
Dattaipally	0.00	1.09	65.35	429.17	0.00	0.00	495.60	0.00	0.00
Gangaram	0.00	86.13	817.14	172.98	0.00	0.00	1,076.26	0.00	0.00
Gattu	0.00	0.00	20.13	623.62	31.71	0.00	675.46	0.00	0.00
Ghanpur	0.00	1.57	601.34	980.74	0.00	0.00	1,583.65	0.00	0.00
Gopalpet	0.00	7.69	108.66	245.70	0.65	0.00	362.70	0.00	0.00
Gudipally	0.00	0.00	3.35	172.59	4.79	0.80	181.53	0.00	0.00
Jangamaiahpally	0.00	104.34	1,003.92	401.71	0.00	0.00	1,509.97	0.00	0.00
Kashimnagar	0.00	6.05	263.64	671.07	1.78	0.00	942.54	0.00	0.00
Madhavaraopally	0.00	0.00	81.52	511.50	6.31	0.00	599.33	0.00	0.00
Pangal	0.00	6.68	81.84	476.75	19.65	0.00	584.92	0.00	0.00
Peedagudem	0.00	0.04	143.88	654.67	1.00	0.00	799.59	0.00	0.00
Remaddula	0.00	28.76	66.64	1,129.00	28.89	0.00	1,253.30	0.00	0.00
Veeraipally	0.00	0.00	772.49	974.45	2.68	0.35	1,749.97	0.00	0.00
Wanaparthy	0.00	0.61	406.71	601.38	0.00	0.00	1,008.71	0.00	0.00
Total	**0.00**	**246.18**	**4,898.01**	**9,195.06**	**98.12**	**2.99**	**14,440.36**	**0.00**	**0.00**
Division total	**0.00**	**1,620.13**	**29,094.81**	**30,888.37**	**329.39**	**16.00**	**61,948.70**	**-31.68**	**0.00**

Satellite Imageries

2011



2012



Longitude	77.94766 ° E
Latitude	16.78171 ° N
Area in Ha	16.12
Change	DF to NF
Comp No.	326
Beat	Darpally
Range	Mahaboobnagar
Division	**Mahaboobnagar**





4.11 NALGONDA DIVISION

4.11.1 Introduction:

Nalgonda Forest Division and District lies in the southern part of Telangana State between latitudes 16^0 21' 19" N & 17^0 48' 42" N and longitudes 78^0 36' 43" E & 80^0 04' 27" E. Geographical area of the Division is **12550.35 Km²** which is 88.16% of the area of the District The Division has an average altitude of 421 m above MSL. Major streams falling in Division are Musi, Dindi, Pegga vadu, Kangal, Alair and Halia; which are tributaries of Krishna river.

Landuse pattern of the Division as in Nalgonda Division is given in Table 4.11.1

Table 4.11.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km²	Percentage
Forest including Scrub	281.41	2.24
Agriculture	10714.96	85.38
Land with Scrub	833.94	6.64
Fallow Lands	171.14	1.36
Settlements	104.70	0.83
Not available for cultivation	30.79	0.25
Water Bodies	413.41	3.29
Total	**12550.35**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally dry with temperatures ranging from 17^0C to 40^0C 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 soils derived from the decomposition of the granitic base rock. Riverine tracts have alluvial soils where paddy is grown. Due to the semi-arid climate, poor soils and lack of adequate irrigation, dry land farming is widely prevalent. Horticulture is also practiced; there are a number of Citrus and Mango plantations.

Population of the Division is 3.48 million (2011 Census), per capita forest area is 0.03 Ha and the population density is 244 persons per Km². The livestock population is 1.35 million.

4.11.2 Recorded Forest Area:

The notified forest area of the Division is **450.29 Km²** which is 3.59% of the geographical area.

As per Champion and Seth's classification the forests of Division fall under Tropical Dry Deciduous Forest type.

4.11.3 Protected Area:

There is no Protected Area in the Division.

4.11.4 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.

4.11.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Nov-2011 to Feb-2012) is **39.82 Km²** which is **0.32**% of the geographical area. In terms of the forest canopy density classes the Division has **1.57 Km²** of Moderately Dense Forest and **38.25 Km²** of Open Forest. The area of the Scrub is **241.15 Km²,** Non-Forest **158.67 Km²** and Water Bodies **2.36 Km²**.The distributions of the forest cover of the Division is shown in Fig 4.11.1

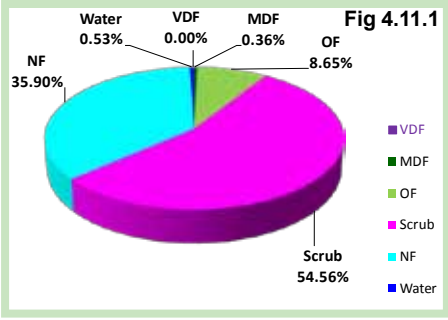


Fig 4.11.1

4.11.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 are shown in Figs 4.11.2 & 4.11.3 respectively and the changes during this period are shown on the image of 2012.





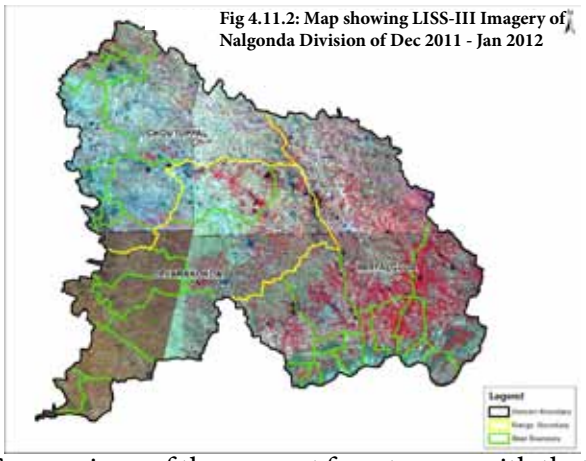


Fig 4.11.2: Map showing LISS-III Imagery of Nalgonda Division of Dec 2011 - Jan 2012

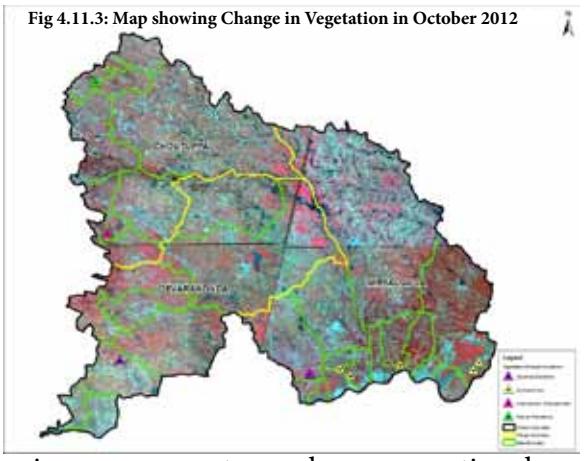


Fig 4.11.3: Map showing Change in Vegetation in October 2012

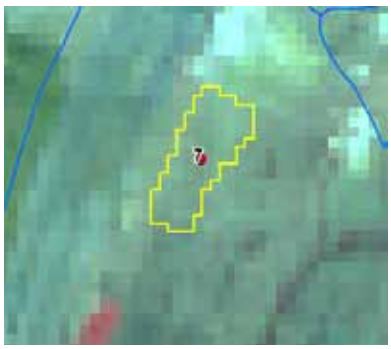
Comparison of the current forest cover with that of previous assessment year shows a negative change of **10.55 Ha**. However, including the scrub, the total negative change comes to **54.69 Ha** and positive change comes to **18.21 Ha**. The forest cover change matrix given in Table 4.11.2 reveals the changes from one class to another class.

Of the total positive change (including scrub) **18.21 Ha** is on account of growth in raised of plantations. Of the total negative change (including scrub) of **54.69 Ha, 41.85 Ha** is on account of clearance of jungle growth for raising of plantations and **12.84 Ha** is on account of encroachments. As clearance of jungle growth for raising of plantations is a forest management intervention the same is not considered as loss of forest cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the **net loss of forest is 12.84 Ha,** in the Division.

There are 36 Beats in the Division. Negative changes in forest cover are noticed in 8 Beats and Positive changes in forest cover are noticed in only 2 Beats. There are no changes in remaining 26 Beats. Details of forest cover in all the Beats of the Division are shown in Table 4.11.3

Table 4.11.2: Forest Cover change matrix (Area in Km^2)

2011	2012						Total of 2011
	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**
Open Forest	0.00	0.00	**38.25**	0.09	0.01	0.00	**38.35**
Scrub	0.00	0.00	0.00	**240.88**	0.44	0.00	**241.32**
Non-Forest	0.00	0.00	0.00	0.18	**158.22**	0.00	**158.40**
Water	0.00	0.00	0.00	0.00	0.00	**2.36**	**2.36**
Total of 2012	**0.00**	**1.57**	**38.25**	**241.15**	**158.67**	**2.36**	**442.00**
Net Change	**0.00**	**0.00**	**-0.10**	**-0.17**	**0.27**	**0.00**	**0.00**





Longitude	80.01904 ° E
Latitude	16.75953° N
Area in Ha	6.24
Change	SF to NF
Comp No.	4
Beat	Mallareddigudem
Range	Miryalaguda
Division	Nalgonda





4.12 BHADRACHALAM NORTH DIVISION

4.12.1 Introduction:

Bhadrachalam North Forest Division lies in the northern part of Khammam District between latitudes 17^0 38' 13" N & 18^0 37' 46" N and longitudes 80^0 22' 22" E & 81^0 06' 0" E. Geographical area of the Division is 2048.92 Km^2 which is 15.55 % of the area of District. The important rivers which flow through this Division are the Godavari and the Taliperu.

Land use pattern of the Division is given in Table 4.12.1

The temperature ranges from 17^0 C to 37^0 C. The average rainfall in this Division is 1361.22 mm. The soil types found mainly are black 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 population of the Division is 0.197 million (2011 Census), per capita forest area 0.64 Ha and the population density 96 persons per Km^2.

Table 4.12.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	1128.10	55.06
Agriculture	506.08	24.70
Land with Scrub	164.28	8.02
Fallow Lands	151.07	7.37
Grasslands	9.34	0.46
Settlements	6.86	0.33
Vegetation outside Forest	35.36	1.73
Water Bodies	47.83	2.33
Total	**2048.92**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

4.12.2 Recorded Forest Area:

The notified forest area of the Division is **1255.49 Km^2** which is **61.28**% of the 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.

4.12.3 Protected Area:

There is no protected area in the Division.

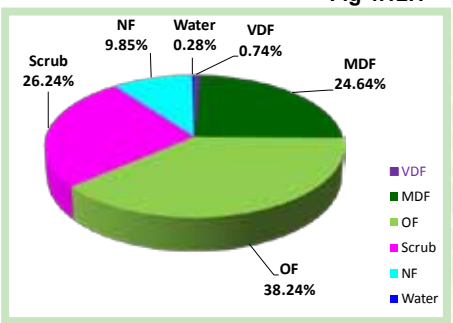
4.12.4 Community Forest Management:

There are 54 Vana Samrakshana Samities (VSSs) or Joint Forest Protection Committees (JFPCs) in the Division. An area of 92.74 Km^2, which is 7.38 % of the forest area, is under the management of VSSs.

4.12.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct / Nov 2012) is **798.75 Km^2** which is **38.98%** of the geographical area. In terms of the forest canopy density classes the Division has **9.25 Km^2** of Very Dense Forests, **309.41 Km^2** of Moderately Dense Forests and **480.09 Km^2** of Open Forests. The area of the Scrub is **329.49 Km^2**, Non-Forest **123.69 Km^2** and Water Bodies **3.56 Km^2**. The distribution of the forest cover of the Division is shown in Fig 4.12.1

Fig 4.12.1



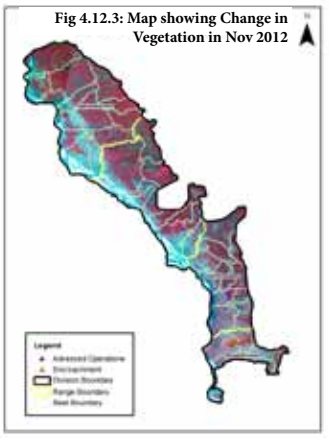
4.12.6 Change in Forest Cover:

The satellite images of 2011 and 2012 are shown in Fig 4.12.2 & 4.12.3 respectively and the changes between this period on the image of 2012.






Fig 4.12.2: Map showing LISS-III Imagery of Badrachalam North Division of Nov 2011/Feb 2012


Fig 4.12.3: Map showing Change in Vegetation in Nov 2012

Comparison of the current forest cover with that of previous assessment year shows a **negative change of 128.80 Ha**. However, including the scrub, **the total negative change** comes to **154.43 Ha**. The forest cover change matrix given in Table 4.12.2 reveals the changes from one class to another class.

Of the total **negative change** including scrub of **154.43 Ha, 80.98 Ha** is on account of carrying advance operations for raising of plantation, and **73.45 Ha** is on account of encroachments. As advance operations etc. are forest management interventions; the same are not considered as loss of forest cover. Hence the negative change on account of encroachments alone is taken as loss of forest cover. Therefore the **net loss of forest is 73.45 Ha** only.

There are 46 Beats in the Division. Negative changes are noticed in 8 Beats. There is no change in the remaining 3 Beats.

Details of forest cover in all Beats is shown in Table 4.12.3

Table 4.12.2: Forest Cover change matrix (Area in Km^2)

2011	2012						**Total of 2011**
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	**9.25**	0.00	0.00	0.00	0.00	0.00	**9.25**
Moderately Dense Forest	0.00	**309.41**	0.00	0.18	0.81	0.00	**310.40**
Open Forest	0.00	0.00	**480.09**	0.00	0.30	0.00	**480.39**
Scrub	0.00	0.00	0.00	**329.31**	0.26	0.00	**329.57**
Non-Forest	0.00	0.00	0.00	0.00	**122.32**	0.00	**122.32**
Waterbodies	0.00	0.00	0.00	0.00	0.00	**3.56**	**3.56**
Total of 2012	**9.25**	**309.41**	**480.09**	**329.49**	**123.69**	**3.56**	**1255.49**
Net Change	**0.00**	**-0.99**	**-0.30**	**-0.08**	**1.37**	**0.00**	





Table 4.12.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
BHADRACHALAM Range									
Arlagudem	0.00	422.04	548.23	222.28	229.31	1.78	1,423.64	**-17.71**	**17.71**
Cherupalli	0.00	114.80	172.72	203.68	85.48	9.82	586.50	0.00	0.00
Jaggaram	0.00	303.90	35.75	53.67	11.92	0.00	405.23	0.00	0.00
Kallerukunta	0.00	458.76	75.80	280.04	74.10	0.00	888.70	**-6.01**	**6.01**
Madhavaraopet	0.00	3.69	87.65	35.68	2.45	0.00	129.47	0.00	0.00
Nimmalagudem	0.00	181.63	318.90	124.99	100.48	0.00	726.01	**-24.28**	0.00
Palamadugu	0.00	0.00	3.03	15.95	1.28	0.00	20.26	0.00	0.00
Singaram	0.00	428.53	273.66	399.76	506.22	0.00	1,608.17	**-16.30**	**16.30**
Tunikicheruvu	0.00	6.82	0.00	41.71	86.06	0.00	134.59	0.00	0.00
Total	**0.00**	**1,920.18**	**1,515.74**	**1,377.75**	**1,097.30**	**11.60**	**5,922.57**	**-64.3**	**40.02**
CHERLA Range									
Alubaka	0.00	63.95	713.43	506.87	197.08	0.00	1481.33	0.00	0.00
Chalamala	292.75	1,744.16	1,787.74	1274.52	465.14	1.50	5565.81	0.00	0.00
Cherla	0.00	149.55	327.50	422.29	236.61	111.91	1247.85	0.00	0.00
Doli	52.27	1,335.54	1,835.56	2060.02	942.08	0.00	6225.47	0.00	0.00
Edira	2.89	579.71	1,141.17	342.17	64.84	0.00	2130.78	0.00	0.00
Gannavaram Colony	72.16	1,022.38	985.98	328.71	8.05	0.00	2417.28	0.00	0.00
Oddipeta	5.53	697.12	920.43	656.91	194.74	31.76	2506.49	0.00	0.00
Pusuguppa	0.00	1,090.26	673.35	177.52	31.54	10.61	1983.28	0.00	0.00
Ramachandrapuram	153.90	2,988.73	4,774.79	3439.21	1,328.45	14.82	12699.90	0.00	0.00
Subbampeta	26.77	1,265.56	754.24	303.84	89.96	0.41	2440.78	**-26.00**	0.00
Suraveedu	0.00	170.02	774.47	793.54	375.52	23.06	2136.61	0.00	0.00
Total	**606.27**	**11106.99**	**14688.65**	**10305.60**	**3934.00**	**194.08**	**40835.58**	**-26.00**	**0.00**
DUMMUGUDEM Range									
Anjubaka	0.00	230.06	67.96	104.46	96.52	0.00	499.00	0.00	0.00
Bodanelly	10.58	1353.00	868.73	376.37	36.56	0.00	2645.24	0.00	0.00
Devarapally	0.00	271.02	1,197.53	704.04	190.01	0.00	2362.60	0.00	0.00
Kothuru	0.00	726.40	585.90	712.24	242.55	1.12	2268.21	0.00	0.00
Kurnapalli	10.17	633.36	643.58	427.97	48.73	0.00	1763.81	0.00	0.00
Mulakanapalli	0.00	286.25	390.10	187.13	24.55	0.00	888.03	0.00	0.00
Parnasala	0.00	191.05	437.31	103.54	25.39	1.74	759.03	**-6.44**	0.00
Pedamidisileru	1.55	1153.85	1,338.35	557.36	52.33	0.00	3103.44	0.00	0.00
R.Kothagudem	0.00	212.57	894.29	444.16	79.33	0.67	1631.02	0.00	0.00
Tyagada	0.00	584.18	596.34	680.85	343.16	1.72	2206.25	0.00	0.00
Uyyalamadugu	31.80	2189.52	2,176.86	1,719.78	173.28	70.10	6361.34	0.00	0.00
Total	**54.10**	**7831.26**	**9196.94**	**6017.92**	**1312.41**	**75.34**	**24487.97**	**-6.44**	**0.00**

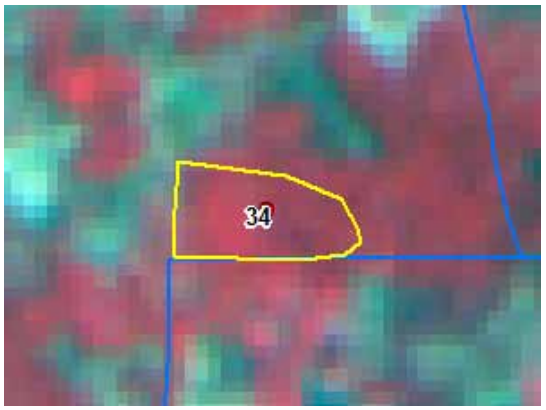




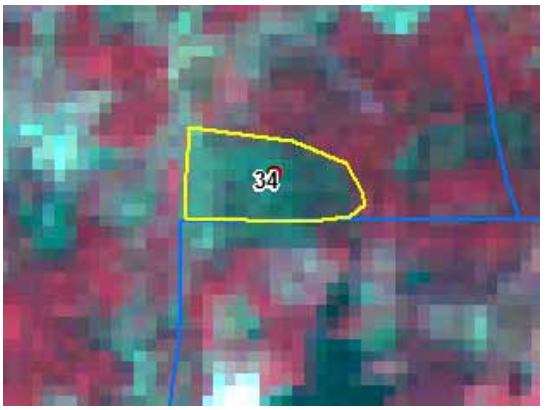
VENKATAPURAM Range									
Arunachalapuram	4.21	1,481.06	3,268.98	1,753.80	736.02	10.69	7,254.76	0.00	0.00
Bhuvanapalli	0.00	67.18	552.83	361.72	106.34	0.54	1,088.60	0.00	0.00
Cherukuru	0.00	0.07	24.58	83.45	42.31	0.00	150.41	0.00	0.00
Dulapuram	0.00	221.44	1,145.30	689.42	464.38	8.13	2,528.66	0.00	0.00
Kadaikal	0.57	1,335.48	5,254.88	2,927.87	831.52	8.79	10,359.09	0.00	0.00
Nuguru	0.00	42.41	239.88	328.58	251.33	16.73	878.92	0.00	0.00
Pavanoor N	7.40	1,087.73	2,034.58	842.71	109.50	0.00	4,081.92	0.00	0.00
Pavanoor S	68.20	1,034.88	1,740.62	1,646.27	643.13	23.00	5,156.09	0.00	0.00
Penugolu N	101.82	1,638.37	2,397.53	1,763.42	855.18	0.00	6,756.31	0.00	0.00
Penugolu S	49.72	887.10	1,662.16	945.16	168.51	0.00	3,712.64	0.00	0.00
Pragallapally	0.00	332.14	837.13	176.21	65.90	0.00	1,411.38	0.00	0.00
Pusuru	0.00	116.68	604.74	442.62	246.81	0.00	1,410.85	**-39.85**	**15.59**
Tekulagudem	31.86	1,599.98	2,434.12	3,133.06	1,410.30	7.33	8,616.66	0.00	0.00
Venkatapuram	1.16	239.04	409.68	153.49	94.61	0.00	897.98	**-17.84**	**17.84**
Total	**264.93**	**10083.54**	**22607.00**	**15247.77**	**6,025.83**	**75.21**	**54,304.28**	**-57.69**	**33.43**
Division Total	**925.30**	**30,941.97**	**48,008.33**	**32,949.03**	**12,369.55**	**356.22**	**125,550.39**	**-154.43**	**73.45**

Satellite Imageries

2011



2012



Longitude	81.07083 ° E
Latitude	17.77799 ° N
Area in Ha	6.01
Change	DF TO NF
Comp No.	12
Beat	Kallerukunta
Range	Badrachalam North
Division	**Badrachalam North**





4.13 KHAMMAM DIVISION

4.13.1 Introduction:

Khammam Forest Division lies in the southern part of Khammam district between latitudes 16^0 46' 2" N & 17^0 33' 35" N and longitudes 79^0 48' 10" E & 81^0 16' 37" E. Geographical area of the Division is 6004.05 Km^2 which is 45.55% of the area of the district. The rivers in this Division are Munneru, Paleru, Akheru and Wyra.

Land use pattern of the Division is given in Table 4.13.1

Table 4.13.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	1242.49	20.69
Agriculture	4143.12	69.01
Land with Scrub	126.96	2.11
Fallow Lands	18.75	0.31
Grasslands	0.00	0.00
Settlements	78.02	1.30
Vegetation outside Forest	303.10	5.05
Water Bodies	91.61	1.53
Total	**6004.05**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The average highest temperature in the summer is 47^0 C and the minimum average temperature in December is 14^0 C 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, red loamy and skeletal. The rock formations found in this Division are Archaens, Puranas and Gondwanas. The Mineral resources in this Division are coal, Iron ore, lime stone, marble, barytes, graphite, chromite, mica, garnet, kyanite and building stones.

Population of the Division is 1.60 million (2011 Census), per capita forest area is 0.82 Ha and the population density is 266 persons per Km^2.

4.13.2 Recorded Forest Area:

The notified forest area of the Division is **1246.19 Km^2** which is 20.76% of the geographical area. Reserved, Protected and un-classed forests constitute 1131.25 Km^2 (90.78 %), 112.74 Km^2 (9.04%) and 2.2 Km^2 (0.18%) of the 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.

Table 4.13.1: Land use Pattern (for entire Geographical area)

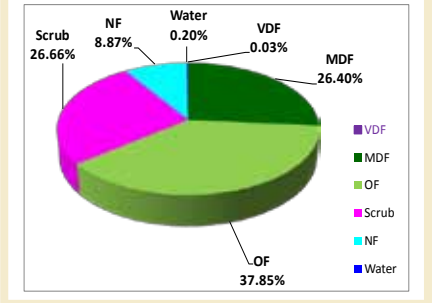
4.13.3 Protected Area:

There is no Protected Area in the Division.

4.13.4 Community Forest Management:

There are 110 Vana Samrakshana Samithies (VSSs) in the Division. 238.76 Km^2 forest area, which constitutes 18.06 % of the forest area, is under the management of VSSs.

Fig 4.13.1



4.13.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct / Nov 2012) is **849.95 Km^2** which is **14.16**% of the geographical area. In terms of the forest canopy density classes the Division has **0.41 Km^2** Very Dense Forests, **349.08 Km^2** Moderately Dense Forests and **500.46 Km^2** Open Forest. The area of the Scrub is **352.54 Km^2**, Non-Forest **117.27 Km^2** and Water Bodies **2.58 Km^2**. The distribu-





tion 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 2011and 2012 are shown in Figs. 4.13.2 & 4.13.3 respectively and the changes

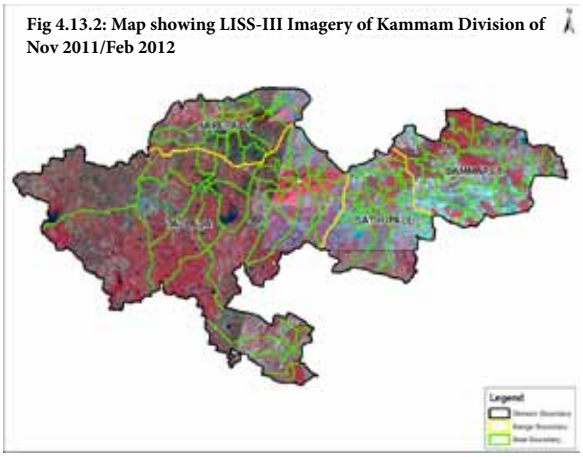


Fig 4.13.2: Map showing LISS-III Imagery of Kammam Division of Nov 2011/Feb 2012

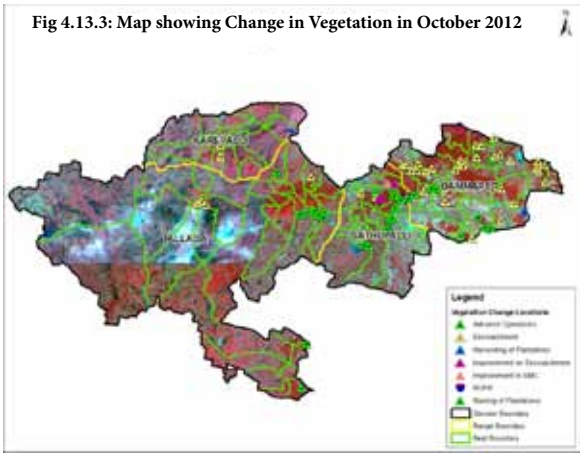


Fig 4.13.3: Map showing Change in Vegetation in October 2012

during this period are shown on the image of 2012.

Comparison of the current forest cover with that of previous assessment year shows a positive change **5.64 Ha** and negative change of **711.22 Ha**. However, including the scrub, the total positive change comes to **401.90 Ha** and the total negative change comes to **917.59 Ha**. The forest cover change matrix given in Table 4.13.2 reveals reveals the changes from one class to another class.

Of the total positive change (including scrub) of **401.90 Ha, 376.58 Ha** is on account of raising of plantations and **25.32 Ha** is improvement of forest due to protection and management interventions.

Of the total negative change (including scrub) of **917.59 Ha, 562.49 Ha** is on account of clearance of jungle growth for raising of plantations, **41.28 Ha** is on account of harvesting of plantation, and **313.82 Ha** is on account of encroachments. As clearance of jungle growth for raising of plantations, and harvesting of plantations are forest management interventions the same are not considered as loss of forest cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the net loss of forest is **313.82 Ha** in the Division.

There are 82 Beats in the Division. Negative changes are noticed in 32 Beats and positive change in 7 Beats only. There are no changes in the remaining 43 Beats.

Details of forest cover in all the Beats of the division are shown in Table 4.13.3.

Table 4.13.2: Forest Cover change matrix (Area in Km^2)

2011	2012						**Total of 2011**
	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	**349.08**	0.00	0.16	0.61	0.00	**349.85**
Open Forest	0.00	0.00	**500.40**	0.06	6.28	0.00	**506.74**
Scrub	0.00	0.00	0.00	**348.36**	2.06	0.00	**350.42**
Non-Forest	0.00	0.00	0.06	3.96	**108.32**	0.00	**112.34**
Water	0.00	0.00	0.00	0.00	0.00	**2.58**	**2.58**
Total of 2012	**0.41**	**349.08**	**500.46**	**352.54**	**117.27**	**2.58**	**1322.34**
Net Change	**0.00**	**-0.77**	**-6.28**	**2.12**	**4.93**	**0.00**	





Table 4.13.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
DAMMAPET Range									
Achutapuram	1.87	250.81	771.88	550.09	213.13	0.56	1788.34	**-15.68**	**0.00**
Anantharam	1.85	853.58	880.76	392.36	209.48	12.95	2350.98	**-6.69**	**6.69**
Ankampalem	0.00	1368.58	1054.56	287.49	24.65	1.01	2736.29	**-3.75**	**3.75**
Aswaraopet	0.00	266.35	1050.50	594.92	348.83	1.01	2261.61	**-44.13**	**2.86**
Dammapet	0.00	308.24	527.44	418.97	152.47	0.72	1407.84	**-2.19**	**2.19**
Durdapadu	0.00	537.54	1853.65	999.08	57.83	0.00	3448.10	**37.47**	**14.73**
Gandugulapalli	0.00	274.42	679.35	270.35	662.01	1.34	1887.47	**-92.99**	**38.53**
Gopannagudem	0.00	636.40	592.73	537.49	131.74	0.73	1899.09	**-1.74**	**1.74**
Katkur	0.00	2121.33	618.52	24.74	3.87	2.86	2771.32	0.00	0.00
Maddulamada	0.00	1392.60	1188.25	194.39	7.16	0.35	2782.75	**-0.80**	**0.80**
Mandalpalli	1.12	241.95	356.74	84.03	42.53	0.00	726.37	**-9.90**	**1.70**
Mustibanda	11.15	471.55	349.91	142.32	71.59	0.90	1047.42	0.00	0.00
Nagupalli	0.00	881.91	1287.40	88.65	47.68	1.63	2307.27	**76.66**	**0.00**
Nallamudi	3.08	687.64	1774.43	510.51	210.01	0.00	3185.67	**-71.99**	**71.99**
Narayanapuram	0.00	597.00	1442.77	594.12	186.86	13.94	2834.69	**-50.24**	**50.24**
Patwarigudem	0.00	659.30	491.56	140.25	33.64	0.00	1324.75	**-0.82**	**0.82**
Pusakunta	0.00	2718.64	656.85	33.28	29.65	0.00	3438.42	**-7.71**	**7.71**
Tirumalkunta	0.00	3098.12	1280.06	150.39	45.62	0.00	4574.19	**-8.55**	**8.55**
Vinayakapuram	0.00	879.89	1615.50	567.30	312.40	0.00	3375.09	**-5.63**	**5.63**
Total	**19.07**	**18245.85**	**18472.86**	**6580.73**	**2791.15**	**38.00**	**46147.66**	**-208.69**	**217.93**
KAREPALLI Range									
Burdaraghavapuram	0.00	288.95	1146.93	401.75	49.13	0.00	1886.76	0.00	0.00
Cheemalapadu	0.04	6.42	422.40	407.16	40.30	0.00	876.32	0.00	0.00
Gadepadu	1.57	19.36	85.55	596.71	144.65	0.00	847.84	0.00	0.00
Kesupalli	0.00	74.02	758.31	941.63	179.15	0.00	1953.11	0.00	0.00
Madampalli	0.78	3.95	43.32	449.24	144.19	0.00	641.48	0.00	0.00
Maddulapalli	0.00	231.85	504.91	727.31	88.73	4.76	1557.56	0.00	0.00
Muthyalampadu	0.00	6.10	143.66	1779.79	413.38	0.00	2342.93	0.00	0.00
N.S. Kothur	0.00	1.72	37.80	1107.61	314.87	0.72	1462.72	0.00	0.00
Ootokur	0.00	501.20	533.89	790.84	117.36	0.00	1943.29	**-6.52**	**6.52**
Papkol	0.00	201.95	1549.17	824.83	77.67	0.00	2653.62	0.00	0.00
Rajaraopet	0.00	152.61	1077.21	470.71	25.47	0.00	1726.00	0.00	0.00
Ramannapalem	0.00	0.13	399.69	1297.99	178.80	0.00	1876.61	0.00	0.00
Regaboinagudem	0.00	20.33	285.20	1368.28	304.54	1.46	1979.81	0.00	0.00
Relakayalapalli	0.00	18.12	693.11	747.10	28.34	0.00	1486.67	0.00	0.00
Singareni/Karepalli	0.00	2.30	60.01	122.03	7.08	0.00	191.42	0.00	0.00
Tadkalpudi	0.00	8.54	65.54	384.73	34.74	0.00	493.55	0.00	0.00
Timmaraopeta	0.00	366.98	454.25	417.67	82.00	0.00	1320.90	**-6.06**	**6.06**
Total	**2.39**	**1904.53**	**8260.95**	**12835.38**	**2230.40**	**6.94**	**25240.59**	**-12.58**	**12.58**
SATHUPALLI Range									
Annapureddipalli	0.00	514.88	457.94	52.82	52.74	0.00	1078.38	0.00	0.00
Bhavanapalem	0.00	72.92	296.76	303.64	126.17	0.69	800.18	**-3.00**	**3.00**
Buggapadu	0.00	126.90	591.66	385.08	300.33	11.21	1415.18	**-24.95**	**24.74**
Chandraipalem	0.00	503.98	345.38	27.47	37.82	0.00	914.65	**-8.00**	0.00
Cherukupalli	0.00	416.27	627.64	371.51	253.64	9.08	1678.14	0.00	0.00
Chowdaram	0.00	15.32	239.74	337.23	160.71	0.00	753.00	0.00	0.00
Gollagudem	0.00	2.75	71.92	279.61	287.81	62.56	704.65	**16.78**	0.00
Kakarlapalli	0.00	104.84	582.69	735.63	373.23	1.06	1797.45	**-55.36**	0.00
Kistaram	0.00	20.85	217.67	142.36	63.32	0.00	444.20	0.00	0.00
Kompalli	0.00	43.10	649.84	382.04	62.94	15.71	1153.63	**-9.22**	0.00

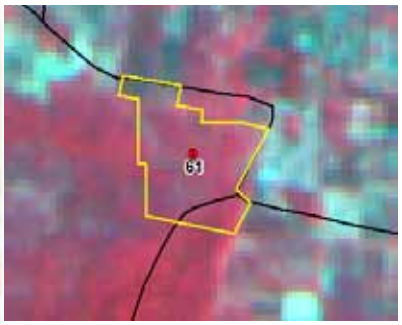




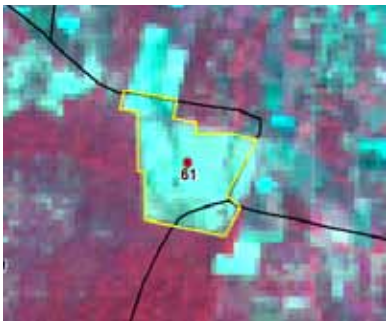
Lankapalli	0.00	0.60	151.61	386.35	286.18	0.08	824.82	0.00	0.00
Pentalam	0.00	517.31	810.11	357.77	476.44	0.00	2161.63	**7.13**	0.00
R.C. Puram	0.00	198.62	459.61	218.91	143.64	58.68	1079.46	0.00	0.00
Rajapuram (Namaram)	0.00	99.18	1148.22	634.51	257.68	0.00	2139.59	**-21.61**	0.00
Rudrakshapalli	1.79	519.22	1047.79	133.76	280.63	4.73	1987.92	**-88.71**	0.00
Sathupalli	0.00	18.99	437.69	322.54	441.48	1.45	1222.15	**44.60**	0.00
Yatalkunta	0.00	673.15	426.02	169.41	288.24	0.00	1556.82	**-29.90**	**29.90**
Total	**1.79**	**3848.88**	**8565.29**	**5240.64**	**3890.00**	**165.25**	**21711.85**	**-172.24**	**57.64**
TALLADA Range									
Arkalpadu	0.00	192.37	250.48	695.37	109.10	2.66	1249.98	0.00	0.00
Bhimaram	0.00	184.71	827.45	410.03	57.55	4.97	1484.71	0.00	0.00
Buchireddipalem	0.00	0.00	139.89	306.77	44.04	0.00	490.70	0.00	0.00
Burugugudem	0.00	761.01	772.76	355.03	46.74	0.00	1935.54	0.00	0.00
Chintagurthi	0.00	80.63	200.31	748.55	229.96	21.82	1281.27	0.00	0.00
Erlapudi	6.01	277.97	329.43	810.52	206.55	1.89	1632.37	0.00	0.00
Gopalpet	0.00	992.15	477.13	116.92	41.43	0.00	1627.63	0.00	0.00
Gowraram	0.00	227.21	1248.92	483.70	62.04	0.00	2021.87	**-10.11**	0.00
Gubbagurthi	0.00	298.00	642.20	427.80	56.04	0.73	1424.77	**58.53**	0.00
Gudur	1.52	810.93	419.64	305.08	134.02	0.00	1671.19	0.00	0.00
Gundepudi	0.00	62.13	368.91	691.86	214.19	0.69	1337.78	0.00	0.00
Guntipalligoparam	0.00	37.38	528.24	207.50	35.85	0.00	808.97	**-12.21**	0.00
Kacharam	0.00	20.85	470.44	589.10	90.32	0.00	1170.71	0.00	0.00
Kallur	0.00	1017.38	708.42	346.78	223.99	2.63	2299.20	**-62.10**	0.00
Lingagudem	0.00	174.97	278.92	219.45	230.08	0.00	903.42	**-75.32**	0.00
Lokaram	7.41	1504.57	469.69	103.16	13.15	0.00	2097.98	0.00	0.00
Maddukur	0.00	602.41	1654.37	336.08	52.60	0.00	2645.46	0.00	0.00
Mekalkunta	1.55	139.28	463.07	862.14	177.61	0.82	1644.47	**-9.60**	9.60
Nacharam	0.00	504.27	678.19	396.27	93.89	0.00	1672.62	0.00	0.00
Nallabandabodu	0.00	1062.29	977.21	319.10	91.54	0.00	2450.14	0.00	0.00
Pangidi	1.19	15.97	46.43	98.67	5.85	0.00	168.11	0.00	0.00
Ravikampad	0.00	213.71	975.31	459.04	140.17	0.00	1788.23	**-4.23**	**4.23**
Remidicherla	0.00	84.73	412.98	189.25	19.89	0.00	706.85	0.00	0.00
Tallapenta	0.00	1130.47	616.50	211.12	206.31	5.89	2170.29	**4.70**	0.00
Tummalapalli	0.00	93.77	335.30	578.69	175.40	4.72	1187.88	**-11.84**	**11.84**
Venkatagiri	0.00	417.59	307.90	163.59	32.83	0.84	922.75	0.00	0.00
Venkatapuram	0.00	2.38	147.32	165.53	23.84	0.00	339.07	0.00	0.00
Total	**17.68**	**10909.13**	**14747.41**	**10597.10**	**2814.98**	**47.66**	**39133.96**	**-122.18**	**25.67**
Division Total	**40.93**	**34908.39**	**50046.51**	**35253.85**	**11726.53**	**257.85**	**132234.06**	**-515.69**	**313.82**

Satellite Imageries

2011



2012



Longitude	80.77865 ° E
Latitude	17.32127 ° N
Area in Ha	21.61
Change	OF TO NF
Comp No.	149
Beat	Rajapuram (Namara)
Range	Sathupalli
Division	**Khammam**





4.14 KOTHAGUDEM DIVISION

4.14.1 Introduction:

Kothagudem Forest Division lies in the western part of Khammam district between latitudes 17^0 19' 55" N & 18^0 4' 49" N and longitudes 80^0 02' 46" E & 80^0 50' 44" E. Geographical area of the Division is 2500.35 Km^2 which is 18.97 % of the geographical area of the district. Pancha Pandavulu is the highest peak of this Division with an altitude of 729.38 m above MSL. The area is undulating and interrupted with hills and hillocks of igneous rocks with elevation ranging from 12 to 500 m. Kalakandavagu stream forms major source of water for Bayyaram cheruvu. Morredu river and Kinnerasani river are the perennial sources of water in this Division.

Land use pattern of the Division is given in Table 4.14.1

Table 4.14.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	1412.13	56.48
Agriculture	879.50	35.18
Land with Scrub	70.21	2.81
Fallow Lands	22.30	0.89
Grasslands	0.49	0.02
Settlements	20.80	0.83
Vegetation outside Forest	75.75	3.03
Water Body	19.17	0.77
Total	2500.35	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally dry with temperatures ranging from 18^0 C to 50^0C and the annual rainfall is about 934.69 mm, received mainly from south-west monsoons.

The most important mineral deposit in the Division is coal. The other minerals are iron ore, barytes, graphite and copper ore. The rocks found in the Division are lime stone, marble and granite. The soil types found mainly are sandy soils, black cotton, red alluvial loam and skeletal.

Population of the Division is 0.472 million (2011 Census), per capita forest area is 0.36 Ha the population density is 188 persons per Km^2.

4.14.2 Recorded Forest Area:

The notified forest area of the Division is 1432.54 Km^2 which is 57.29% of the geographical area. Reserved and Protected forests constitute 1321.03 Km^2 (85.89%) and 217.01 Km^2 (14.11%) of the forest area respectively. **103.50 Km^2** of notified forest area of the Division is transferred to **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.

4.14.3 Protected Area:

There is no PA in this Division. Out of old Kothagudem Division an area of 103.50 Km^2 is transferred to Paloncha WLM Division.

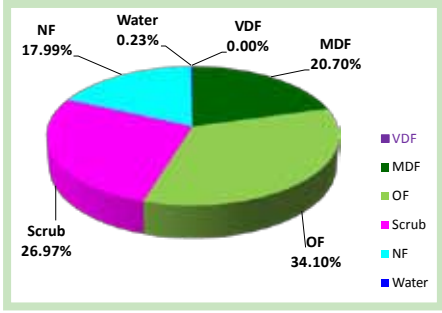
4.14.4 Community Forest Management:

There are 106 Vana Samrakshana Samithies (VSSs) in the Division. 238.62 Km^2 forest area, which constitutes 14.17 % of forest area, is under the management of VSSs.

4.14.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct / Nov 2012) is **922.78 Km^2** which is **36.91**% of the geographical area. In terms of the forest canopy density classes the Division has **0.04 Km^2** of Very Dense Forests,

Fig 4.14.1







348.58 Km² Moderately Dense Forests and **574.16 Km²** Open Forest. The area of the Scrub is **454.20 Km²**, Non-Forest **303.39 Km²** and Water Bodies **3.51 Km²**. The distribution of the forest cover of the Division is shown in Fig 4.14.1

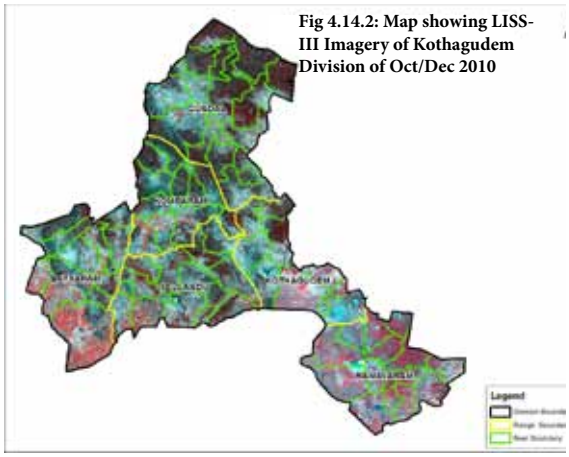


Fig 4.14.2: Map showing LISS-III Imagery of Kothagudem Division of Oct/Dec 2010

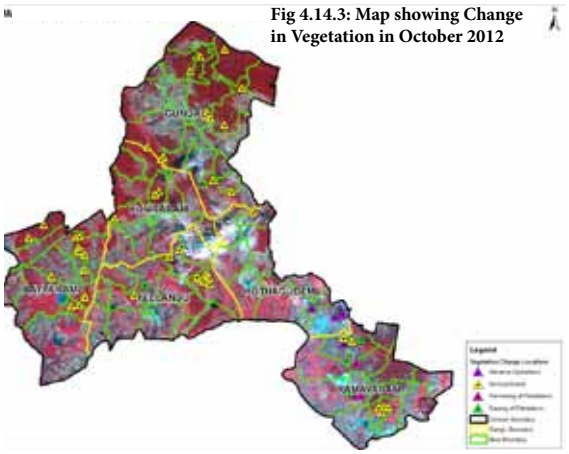


Fig 4.14.3: Map showing Change in Vegetation in October 2012

4.14.6 Change in Forest Cover:-

The Satellite image of 2011 and 2012 are shown in Figs 4.14.2 & 4.14.3 respectively and the changes during this period are shown on the image of 2012.

Comparison of the current forest cover with that of previous assessment year shows a negative change of **508.27 Ha**. However, including the scrub, the total positive change comes to **253.05 Ha** and the total negative change comes to **621.42 Ha.** The forest cover change matrix given in Table 4.14.2 reveals the changes from one class to another class.

The total positive change is (including scrub) **253.05 Ha** on account of growth in raised plantations. Of the total negative change (including scrub) of **621.42 Ha, 125.35 Ha** is on account of clearance of jungle growth for raising of plantations, 71.14 Ha is on account of harvesting of plantation, and **424.93 Ha** is on account of encroachments. As clearance of jungle growth for raising of plantations, and harvesting of plantations are forest management interventions the same are not considered as loss of forest cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the **net loss** of forest is **424.93 Ha** in the Division.

There are 76 Beats in the Division. Negative changes in forest cover are noticed in 28 Beats and positive change in 2 Beat. There are no changes in the remaining 46 Beats.

Details of forest cover in all the Beats are shown in Table 4.14.3.

Table 4.14.2: Forest Cover change matrix (Area in Km²)

2011	2012						**Total of 2011**
	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	**348.58**	0.00	0.11	0.63	0.00	**349.32**
Open Forest	0.00	0.00	**574.16**	0.51	3.84	0.00	**578.51**
Scrub	0.00	0.00	0.00	**451.05**	1.13	0.00	**452.18**
Non-Forest	0.00	0.00	0.00	2.53	**297.79**	0.00	**300.32**
Waterbodies	0.00.	0.00	0.00	0.00	0.00	**3.51**	**3.51**
Total of 2012	**0.04**	**348.58**	**574.16**	**454.20**	**303.39**	**3.51**	**1683.88**
Net Change	**0.00**	**-0.74**	**-4.35**	**2.02**	**3.07**	**0.00**	





Table 4.14.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
BAYYARAM Range									
Bayyaram	0.00	252.76	1151.26	705.79	324.38	1.51	2435.70	0.00	0.00
Gowararam	0.00	26.32	77.33	282.21	425.54	3.68	815.08	0.00	0.00
Kachanpalli	0.00	597.23	427.76	208.15	135.52	0.61	1369.27	**-3.97**	**3.97**
Karukonda	0.00	216.04	691.73	1123.44	745.34	3.00	2779.55	**-9.89**	**9.89**
Laxmipuram	0.00	456.10	773.02	551.31	179.20	1.30	1960.93	**-6.95**	**6.95**
Miryalapenta	0.00	471.15	625.95	478.59	292.18	1.78	1869.65	**-13.19**	**13.19**
Motlatimmapuram - N	0.00	1239.21	1382.39	860.26	345.55	39.29	3866.70	**-15.21**	**15.21**
Motlatimapuram (S)	0.00	689.00	896.91	656.80	233.71	35.17	2511.59	0.00	0.00
Nagaram	0.00	371.63	967.06	956.70	472.09	8.76	2776.24	0.00	0.00
Namalapadu	0.00	469.80	386.85	209.24	163.74	9.19	1238.82	**-11.10**	**11.10**
Pandipampula	0.00	537.14	738.76	569.32	331.69	0.60	2177.51	**-65.63**	**65.63**
Total	**0.00**	**5326.38**	**8119.02**	**6601.81**	**3648.94**	**104.89**	**23801.04**	**-125.94**	**125.94**
GUNDAL Range									
Adiviramavaram	0.00	2857.51	1145.96	153.70	7.88	0.00	4165.05	**-2.79**	**2.79**
Damaratogu East	0.00	824.22	855.64	153.45	35.41	5.61	1874.33	**-6.69**	**6.69**
Damaratogu North	0.00	1373.47	1031.57	189.91	66.53	0.00	2661.48	0.00	0.00
Damaratogu West	0.00	1364.77	1143.72	387.01	61.46	0.00	2956.96	0.00	0.00
Dongatogu	0.00	3299.75	1464.90	525.78	239.88	10.76	5541.07	**-17.48**	**17.48**
Gundala	0.00	303.71	2884.86	1341.82	1029.44	13.52	5573.35	**-11.30**	**11.30**
Jinnelagudem	0.00	72.17	624.02	387.56	148.58	0.00	1232.33	**-6.42**	**6.42**
Kachanpalli	0.00	599.32	1396.06	1190.86	819.78	5.76	4011.78	**-16.38**	**16.38**
Karnigudem	0.00	2488.59	935.03	754.13	666.89	1.77	4846.41	**-3.77**	**3.77**
Kodavatancha	0.00	309.78	1229.48	1207.71	1013.50	12.09	3772.56	0.00	0.00
Mamakannu	0.00	161.86	933.73	600.91	442.51	1.95	2140.96	0.00	0.00
Narsapuram	0.00	74.40	1330.02	1004.63	304.60	0.00	2713.65	0.00	0.00
Ravigudem	0.00	76.08	676.69	252.46	86.70	0.00	1091.93	0.00	0.00
Sayanpalli	0.00	127.87	422.56	1096.61	1289.95	21.38	2958.37	0.00	0.00
Suddarevu	0.00	2807.24	420.70	243.17	49.07	0.00	3520.18	0.00	0.00
Valasala	0.00	181.79	594.48	1117.63	1014.61	10.37	2918.88	0.00	0.00
Total	**0.00**	**16922.53**	**17089.42**	**10607.34**	**7276.79**	**83.21**	**51979.29**	**-64.83**	**64.83**
KOMARARAM Range									
Anantharam	0.00	728.22	798.98	347.42	572.80	2.72	2450.14	0.00	0.00
Chinaregulagudem	0.00	692.38	808.62	269.80	99.69	0.00	1870.49	**-9.43**	**9.43**
Komraram	0.00	28.99	219.14	387.02	535.43	1.12	1171.70	0.00	0.00
Manikyaram	0.00	840.67	798.64	392.01	495.13	0.00	2526.45	**-2.46**	**2.46**
Mittapalli	0.00	96.76	672.68	1374.07	1046.60	18.10	3208.21	0.00	0.00
Polaram	0.00	307.90	1305.07	1084.39	980.64	0.00	3678.00	0.00	0.00
Shammunigudem	0.00	1108.71	645.34	190.01	46.55	1.43	1992.04	0.00	0.00
Shatpalli	0.00	1304.92	1083.47	344.05	108.26	0.00	2840.70	0.00	0.00
Vennelbail	0.00	591.06	1363.94	261.49	136.29	0.55	2353.33	0.00	0.00
Yedapalagudem	0.00	378.79	575.41	363.41	227.42	0.00	1545.03	0.00	0.00
Yellapuram	0.00	553.64	1156.17	527.71	204.54	0.00	2442.06	0.00	0.00
Total	**0.00**	**6632.04**	**9427.46**	**5541.38**	**4453.35**	**23.92**	**26078.15**	**-11.89**	**11.89**
KOTHAGUDEM Range									
Ansetpalli	0.00	108.06	485.28	1106.88	528.40	0.00	2228.62	0.00	0.00
Bodu	0.00	72.89	332.60	994.59	940.50	0.00	2340.58	0.00	0.00
Chatakonda	0.00	0.00	65.59	1071.10	693.22	2.79	1832.70	**-1.87**	0.00
Hemachandrapuram	0.00	0.83	0.00	177.87	264.52	0.00	318.68	**-34.61**	0.00

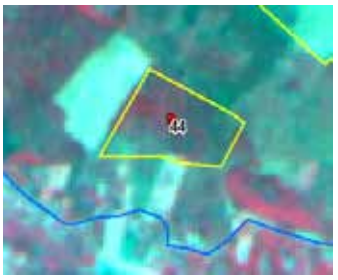




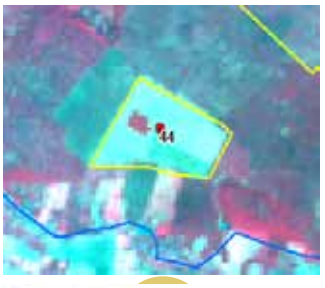
Kistaram	0.00	1017.38	782.51	287.32	205.78	5.42	2298.41	0.00	0.00
Koppurai	0.00	398.05	660.30	942.74	495.29	11.68	2508.06	0.00	0.00
Koyagudem	0.00	12.40	193.71	474.86	1160.19	1.06	1842.22	0.00	0.00
Medlamadugu	0.00	83.16	837.54	742.59	299.19	0.00	1962.48	**154.00**	0.00
Murlipad	0.00	315.89	1024.56	483.72	197.12	3.63	2024.92	**-1.21**	**1.21**
Total	**0.00**	**2008.66**	**4257.55**	**6281.67**	**4784.21**	**24.58**	**17356.67**	**116.31**	**1.21**
RAMAVARAM Range									
Abbugudem	0.00	12.74	237.47	303.90	339.19	0.00	893.30	**-113.02**	**113.02**
Annaram	0.00	35.51	1266.02	471.89	72.02	3.34	1848.78	0.00	0.00
Chaparalapally_East	0.00	54.70	981.90	487.01	62.73	0.00	1586.34	0.00	0.00
Chaparalapally_West	0.00	24.33	535.62	225.89	179.82	0.00	965.66	0.00	0.00
Damarachrla	0.00	2.12	310.57	477.76	254.72	49.55	1094.72	0.00	0.00
Gareebpet	0.00	0.00	415.35	734.58	419.28	0.00	1569.21	0.00	0.00
Kamalapuram	3.85	60.25	884.44	945.84	130.32	4.97	2029.67	0.00	0.00
Marrigudem	0.00	19.11	672.01	478.06	327.89	0.00	1497.07	**-28.37**	**28.37**
Musalivarre	0.00	172.44	1148.47	384.97	162.26	0.00	1868.14	**-34.37**	**0.00**
Penagadapa	0.00	2.28	141.52	140.74	812.00	0.00	1096.54	**-17.05**	**0.00**
Penuballi	0.00	123.00	1253.14	977.91	323.70	0.00	2677.75	**22.94**	**11.67**
Ramavaram	0.00	0.00	2.70	575.77	754.61	4.41	1337.49	**-57.08**	**17.49**
Sandrukunta	0.00	36.27	738.61	315.27	89.47	0.00	1179.62	0.00	0.00
Satyampet	0.00	468.47	1783.95	282.15	106.48	0.00	2641.05	0.00	0.00
Thippanpalli	0.00	0.00	220.20	795.36	801.80	0.00	1817.36	**-10.06**	0.00
Total	**3.85**	**1011.22**	**10591.97**	**7597.10**	**4836.29**	**62.27**	**24102.70**	**-237.01**	**170.55**
YELLANDU Range									
Daniyalapadu	0.00	5.35	55.85	390.27	127.77	0.00	579.24	0.00	0.00
Dharmapur	0.00	529.41	1326.49	543.07	315.44	1.72	2716.13	**-11.49**	**11.49**
Jodbouli	0.00	248.16	646.61	748.88	630.83	7.07	2281.55	0.00	0.00
Kollapur	0.00	323.21	660.60	577.96	181.77	0.89	1744.43	0.00	0.00
Kommugudem	0.00	287.70	697.94	882.88	637.23	3.46	2509.21	**-4.06**	**9.56**
Kunterla	0.00	219.62	603.24	613.17	209.91	19.24	1665.18	0.00	0.00
Madharam	0.00	12.70	56.96	596.39	358.37	2.06	1026.48	0.00	0.00
Patharalagadda	0.00	212.12	1024.66	796.47	659.14	1.99	2694.38	0.00	0.00
Perepalli	0.00	7.35	129.17	509.80	331.87	0.42	978.61	0.00	0.00
Pubally	0.00	167.69	592.61	790.35	401.28	6.41	1958.34	0.00	0.00
Pusapalli	0.00	459.50	648.07	772.09	494.23	3.79	2377.68	0.00	0.00
Thummalachelka	0.00	414.95	1253.06	801.38	582.42	5.48	3057.29	**-29.46**	**29.46**
Todtalagudem	0.00	69.28	191.29	497.65	243.52	0.00	1001.74	0.00	0.00
Urugutta	0.00	0.58	44.35	270.12	160.68	3.84	479.57	0.00	0.00
Total	**0.00**	**2957.62**	**7930.90**	**8790.48**	**5334.46**	**56.37**	**25069.83**	**-45.01**	**50.51**
Division Total	**3.85**	**34858.45**	**57416.32**	**45419.78**	**30334.04**	**355.24**	**168387.68**	**-368.37**	**424.93**

Satellite Imageries

2011



2012



Longitude	80.64134 ° E
Latitude	17.56447 ° N
Area in Ha	31.63
Change	SF TO NF
Comp No.	1
Beat	Chatakonda
Range	Kothagudem
Division	**Kothagudem**





4.15 PALONCHA DIVISION

4.15.1 Introduction:

Paloncha Forest Division lies in the central part of Khammam district between latitudes 17^0 19' 4" and 18^0 09' 10" N and longitudes 80^0 25' 56" and 81^0 19' 36" E. Geographical Area of the Division is 1802.61 Km^2 which is 13.68 % of the geographical area of the District. The elevation varies from 12 to 600 m above MSL in this Division. Godavari River forms the north-eastern boundary of the Division. Other rivers in the Division are Kinnerasani, Pamleru and Morredu which almost dry up in summer. Besides these rivers few big tanks like Tummalachervu, Parentalacheruvu also exist in this Division.

Land use pattern of the Division is given in Table 4.15.1

Table 4.15.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	913.82	50.69
Agriculture	622.23	34.52
Land with Scrub	129.82	7.20
Fallow Lands	36.14	2.00
Grasslands	1.19	0.07
Settlements	29.80	1.65
Vegetation outside Forest	27.68	1.54
Water Body	41.93	2.33
Total	**1802.61**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally cool, fresh and pleasant with the maximum temperature of 48^0C and the minimum of 12^0C. The annual rainfall is ranging from 934.96 to 1334 mm, received mainly from south-west monsoons.

The soil types found in this Division mainly are red sandy loam, red loam, black-cotton, alluvial 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. The other minerals are Barytes, Graphite, Hematite and soapstone.

Population of the Division is 0.29 million (2011 Census), per capita forest area is 0.36 Ha and the population density is 275 persons per Km^2.

4.15.2 Recorded Forest Area:

The notified forest area of the Division is **1047.17 Km^2** which is **58.09%** of the 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.

4.15.3 Protected Area:

No Protected Area in this Division.

4.15.4 Joint Forest Management:

There are 85 Vana Samrakshana Samithies (VSSs) in the Division. An area of 184.73 Km^2 of forests, which is 17.64 % of notified forests, is under the management of VSSs.

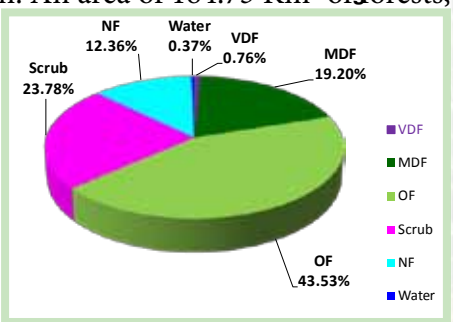


Fig 4.15.1

4.15.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Nov 2012) is **664.83 Km^2** which is **36.88%** of the geographical area. In terms of the forest canopy density classes the Division has **7.96 Km^2** of Very Dense Forests, **201.05 Km^2** of Moderately Dense Forests and **455.82 Km^2**





of Open Forests. The area of the Scrub is **248.98 Km²**, Non-Forest **129.49 Km²** and Water Bodies **3.87 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 2011 and 2012 are shown in Figs 4.15.2 & 4.15.3 respectively and the changes during this period are shown on the image of 2012.

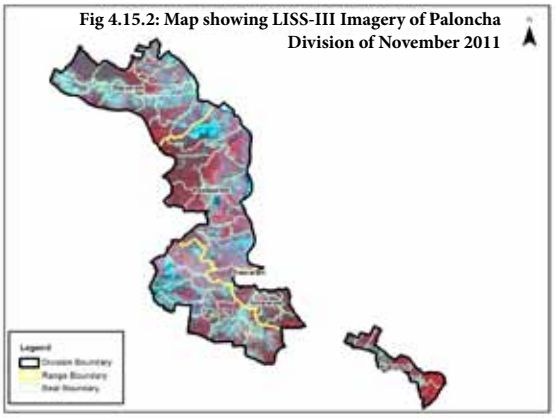


Fig 4.15.2: Map showing LISS-III Imagery of Paloncha Division of November 2011

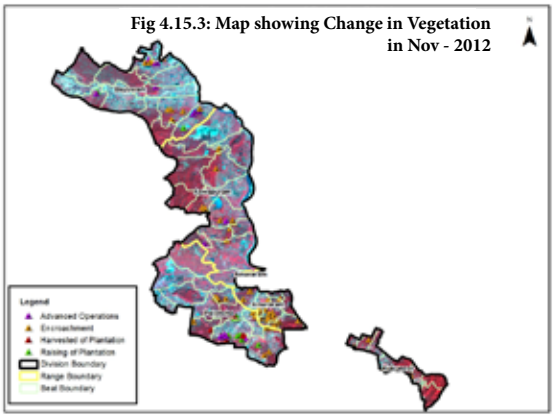


Fig 4.15.3: Map showing Change in Vegetation in Nov - 2012

Comparison of the current forest cover with that of previous assessment year shows a **positive change of 38.67 Ha** and **negative change of 512.72 Ha**. However, including the scrub, the total **positive change** is **259.66 Ha** and the total **negative change** is **690.89 Ha.** The forest cover change matrix given in Table 4.15.2 reveals the changes from one class to another class.

The total **positive change** (including scrub) is **259.66 Ha** on account of growth in raised plantations. Of the total **negative change** (including scrub) of **690.89, 237.04 Ha** is on account of clearance of jungle growth for rising of plantations, **89.62 Ha** is on account of harvesting of plantation, and **364.23 Ha** is on account of encroachments. As clearance of jungle growth for rising of plantations, and harvesting of plantations are forest management interventions the same are not considered as loss of forest cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the **net loss of forest** is **364.23 Ha** in the Division.

There are 54 Beats in the Division. Negative changes in forest Cover are noticed in 22 and Positive changes in 4 Beats. There are no changes in the remaining 18 Beats.

Details of forest cover in all the Beats of the divisions are shown in Table 4.15.3.

Table 4.15.2: Forest Cover change matrix (Area in Km²)

2011	2012						Total of 2011
	VDF	MDF	OF	Scrub	NF	Water	
Very Dense Forest	**7.96**	0.00	0.00	0.00	0.00	0.00	**7.96**
Moderately Dense Forest	0.00	**201.05**	0.00	0.55	0.84	0.00	**202.44**
Open Forest	0.00	0.00	**455.43**	0.95	2.78	0.00	**459.16**
Scrub	0.00	0.00	0.39	**245.27**	1.78	0.00	**247.44**
Non-Forest	0.00	0.00	0.00	2.21	**124.09**	0.00	**126.30**
Water	0.00	0.00	0.00	0.00	0.00	**3.87**	**3.87**
Total of 2012	**7.96**	**201.05**	**455.82**	**248.98**	**129.49**	**3.87**	**1047.17**
Net Change	**0.00**	**-1.39**	**-3.34**	**1.54**	**3.19**	**0.00**	





Table 4.15.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
AMARARAM RANGE									
Amararam	0.01	42.86	28.58	0.50	0.00	0.00	71.95	0.00	0.00
Gundalapadu	4.69	865.44	1143.61	211.39	17.75	0.00	2242.87	**-24.53**	**24.53**
Kothur	0.00	448.77	863.60	110.35	22.22	0.00	1444.94	0.00	0.00
Raigudem	0.00	59.94	376.52	95.89	11.83	0.00	544.18	**-6.77**	**6.77**
Sridhara	0.00	11.20	800.31	145.37	151.89	0.00	1108.77	**-15.44**	**15.44**
Timmampet	4.91	96.89	1394.20	795.17	231.87	0.00	2523.05	**-44.63**	**44.63**
Timmampet Baroon	2.23	111.00	493.90	182.36	91.11	0.00	880.60	**-19.25**	**19.25**
Total	11.83	1636.11	5100.71	1541.03	526.67	0.00	8816.35	-110.62	110.62
ASWAPURAM Range									
Aswapuram	6.70	738.21	1344.38	542.88	156.02	2.42	2790.62	**-5.80**	**5.80**
Chintriyala	0.00	3.22	87.86	441.38	242.03	0.00	774.49	0.00	0.00
Eravendi	0.00	247.42	363.71	215.34	25.61	0.00	852.08	0.00	0.00
Gondigudem	3.35	901.06	939.91	439.06	186.48	1.61	2471.48	**-16.63**	**16.63**
Kistasagar	0.00	444.66	1045.99	463.10	166.63	0.00	2120.38	**-14.06**	**14.06**
Kunavaram	0.00	478.67	2228.10	757.09	175.14	40.41	3679.41	**-13.57**	**13.57**
Manubothulapadu	0.00	1099.88	4002.10	852.76	73.71	0.00	6028.44	0.00	0.00
Manuguru South	0.00	821.84	915.20	1033.66	917.24	22.29	3710.23	0.00	0.00
Manuguru West	0.00	54.15	1113.44	1516.41	2207.49	19.70	4911.18	0.00	0.00
Musalimadugu	0.00	232.39	1047.81	326.54	54.12	0.00	1660.85	**-19.22**	0.00
Nellipaka	0.00	276.96	910.25	813.56	433.42	1.13	2435.33	**-53.31**	**39.97**
Sarapaka	0.00	190.32	535.30	1070.69	572.71	0.00	2369.01	**-3.23**	**3.23**
Sompalli	0.00	0.00	17.12	147.65	109.29	0.00	274.06	0.00	0.00
Ulavanoor Kothur	0.00	926.65	1782.45	252.92	41.50	0.00	3003.52	0.00	0.00
Total	**10.05**	**6415.42**	**16333.63**	**8873.03**	**5361.39**	**87.56**	**37081.08**	**-125.82**	**93.26**
BAYYARAM Range									
Anantharam	1.07	52.96	389.13	576.64	444.30	4.76	1468.86	0.00	0.00
Chirumalla	0.00	958.41	2783.90	1204.78	96.83	10.91	5054.83	0.00	0.00
Dugnepally	0.00	92.28	97.98	254.68	116.35	0.00	561.29	0.00	0.00
Gopalraopet	4.75	502.95	851.27	247.73	130.13	0.00	1736.84	0.00	0.00
Janampet	0.00	555.69	641.13	593.75	512.17	14.46	2317.19	**-74.85**	**50.02**
Kalvalnagaram	1.73	227.30	838.99	1038.71	320.96	9.87	2437.56	0.00	0.00
Karakagudem	5.72	754.60	758.59	413.40	261.08	0.00	2193.38	0.07	0.00
Kondaigudem	0.00	101.02	1341.06	570.45	353.21	34.79	2400.53	**-72.79**	**9.27**
Pagaderu	16.01	1429.14	959.20	108.95	5.19	0.00	2518.50	0.00	0.00
Pathareddipalem	0.00	172.36	494.79	219.33	73.25	2.61	962.34	0.00	0.00
Potlapally	3.62	285.64	402.88	138.63	13.55	0.00	844.32	**-9.82**	0.00
Raghunathapalem	0.00	270.52	2367.90	1374.47	257.83	12.83	4283.56	0.00	0.00
Seethampet	0.00	940.72	1088.84	340.05	358.48	4.77	2732.85	**-10.72**	**10.72**
Total	**32.91**	**6343.60**	**13015.64**	**7081.58**	**2943.32**	**95.00**	**29512.04**	**-168.11**	**70.01**
KUKUNOOR Range									
Gummadapally	10.86	1161.17	593.70	327.45	98.55	6.45	2198.18	**-1.15**	**1.15**
Gundambore	0.00	70.23	375.72	147.16	14.22	0.00	607.32	0.00	0.00
Kantlam	356.22	1347.59	261.93	91.68	9.38	0.00	2066.81	0.00	0.00

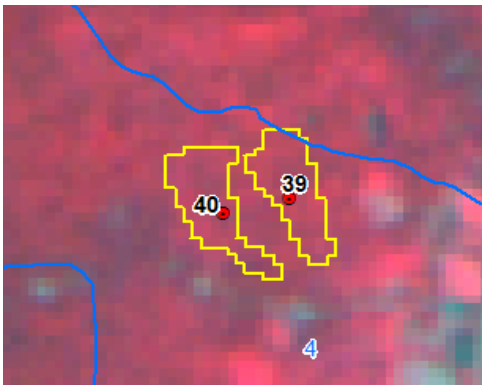




Kavadigundla East	368.55	940.50	138.04	26.18	4.63	0.00	1477.89	0.00	0.00
Kavadigundla North	6.06	472.94	155.87	163.50	28.64	0.69	827.70	**-2.27**	**2.27**
Kukunoor	0.00	246.37	468.73	122.63	45.39	0.00	883.12	**-11.32**	**11.32**
Lankalapally	0.00	0.00	1.07	5.69	0.20	0.00	6.96	0.00	0.00
Nandipadu	0.00	118.79	275.90	91.31	18.15	0.00	504.14	0.00	0.00
Total	**741.69**	**4357.58**	**2270.96**	**975.59**	**219.16**	**7.14**	**8572.12**	**-14.74**	**14.74**
PALONCHA Range									
Bangarujal	0.00	0.00	23.85	194.90	187.06	3.29	409.10	0.00	0.00
Dantalaboru	0.00	0.00	517.36	328.21	324.85	0.00	1170.42	**-35.06**	**35.06**
Lingareddipalli	0.00	105.03	1281.61	348.41	430.95	0.00	2166.00	**14.43**	0.00
Madharam	0.00	127.78	2061.75	354.80	310.18	0.00	2854.51	**-51.52**	**9.06**
Mulakalapally	0.00	35.37	954.14	835.09	595.06	1.17	2420.84	**41.00**	0.00
Muthyalampadu	0.00	940.31	1456.67	808.39	210.79	15.44	3431.60	**29.07**	**21.62**
Nagaram	0.00	0.00	6.96	200.75	67.63	0.00	275.34	0.00	0.00
Paloncha East	0.00	85.09	1055.09	835.21	172.87	4.71	2152.97	0.00	0.00
Pogadlapally	0.00	0.00	280.52	311.97	167.03	1.73	761.24	**-9.86**	**9.86**
Suraram	0.00	0.00	42.56	262.33	484.45	156.86	946.20	0.00	0.00
Uppusaka	0.00	48.61	637.94	1299.46	728.04	12.71	2726.76	0.00	0.00
Vaddu Ramavaram	0.00	9.56	542.57	647.22	220.57	1.28	1421.20	0.00	0.00
Total	**0.00**	**1351.75**	**8861.02**	**6426.74**	**3899.48**	**197.19**	**20736.18**	**-11.94**	**75.60**
Division Total	**796.48**	**20104.46**	**45581.96**	**24897.97**	**12950.02**	**386.89**	**104717.77**	**-431.23**	**364.23**

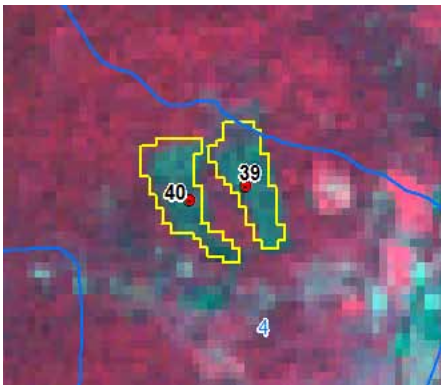
Satellite Imageries

2011



Longitude	80.88128 ° E
Latitude	17.58606 ° N
Area in Ha	4.91
Change	OF TO NF
Comp No.	4
Beat	Sridhara
Range	Amararam
Division	Paloncha

2012



Longitude	80.87960 ° E
Latitude	17.58565 ° N
Area in Ha	5.24
Change	OF TO NF
Comp No.	4
Beat	Sridhara
Range	Amararam
Division	Paloncha





4.16 PALONCHA WLM DIVISION

4.16.1 Introduction:

Paloncha WLM Forest Division lies in the central part of Khammam district between latitudes 17^0 35' 11" N & 17^0 59' 54" N and longitudes 80^0 27' 14" E & 80^0 47' 20" E. Geographical Area of the Division is 824.24 Km^2 which is 6.25 % of the geographical area of district. The elevation varies from 12 to 600 m above Mean Sea Level in this Division. Kinnerasani, Pamleru and Morredu are the important rivers of the district.

Land use pattern of the Division is given in Table 4.16.1

The climate of this Division is generally cool, fresh and pleasant ranging from 100 C to 49^{0}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 4.16.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	622.00	75.46
Agriculture	137.65	16.70
Land with Scrub	19.31	2.34
Fallow Lands	4.29	0.52
Grasslands	0.12	0.01
Settlements	0.38	0.05
Vegetation outside Forest	17.29	2.10
Water Bodies	23.20	2.81
Total	**824.24**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

4.16.2 Recorded Forest Area:

The notified forest area of the Division is **686.38 Km^2**, which is 83.27% of the 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.

4.16.3 Protected Area:

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

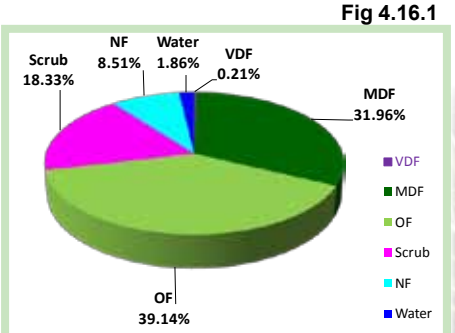
4.16.4 Community Forest Management:

There are 50 Vana Samrakshana Samities (VSSs) in the Division. 199.33 Km^2 of notified forests, which constitutes 29.04 % of forest area, is under the management of VSSs.

4.16.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Nov 2012) is **489.45 Km^2** which is **59.38%** of the geographical area. In terms of the forest canopy density classes the Division has **1.43 Km^2** of Very Dense Forests, **219.38 Km^2** of Moderately Dense Forests and **268.64 Km^2** of Open Forest. The area of the Scrub is **125.79 Km^2**, Non-Forest **58.39 Km^2** and Water Bodies **12.75 Km^2**. 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 2011 and 2012 are shown in Figs 4.16.2 & 4.16.3 respectively and the changes during this period are shown on the image of 2012.





Fig 4.16.2: Map showing LISS-III Imagery of Wild Life Paloncha Division of November 2011

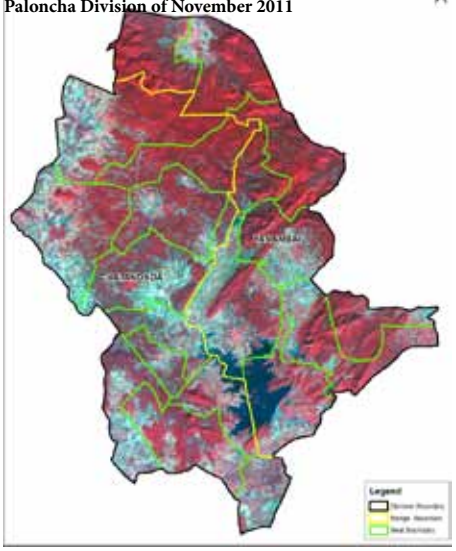
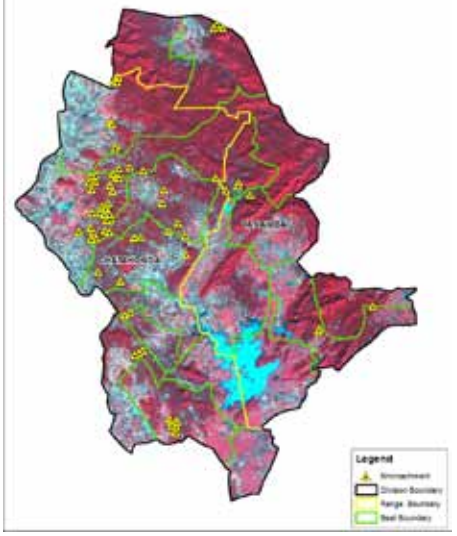


Fig 4.16.3: Map showing Change in Vegetation in November 2012



Comparison of the current forest cover with that of previous assessment year shows no change in the forest cover. However, including the scrub, the total negative change comes to **268.52 Ha**. The forest cover change matrix, given in Table 4.16.2 reveals the changes from one class to another class.
The total negative change (including scrub) is **268.52 Ha** is on account of encroachments. Therefore the net loss of forest is **268.52 Ha**.
There are 20 Beats in the Division. Negative change in forest cover are noticed in 12 Beats. There are no changes in the remaining only 8 Beat.

Details of forest cover in all the Beats of the division are shown in Table 4.16.3.

Table 4.16.2: Forest Cover change matrix (Area in Km^2)

2011	2012						**Total of 2011**
	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	**219.38**	0.00	0.00	1.04	0.00	**220.42**
Open Forest	0.00	0.00	**268.64**	0.00	1.64	0.00	**270.28**
Scrub	0.00	0.00	0.00	**125.79**	0.00	0.00	**125.79**
Non-Forest	0.00	0.00	0.00	0.00	**55.71**	0.00	**55.71**
Water	0.00	0.00	0.00	0.00	0.00	**12.75**	**12.75**
Total of 2012	**1.43**	**219.38**	**268.64**	**125.79**	**58.39**	**12.75**	**686.38**
Net Change	**0.00**	**-1.04**	**-1.64**	**0.00**	**2.68**	**0.00**	



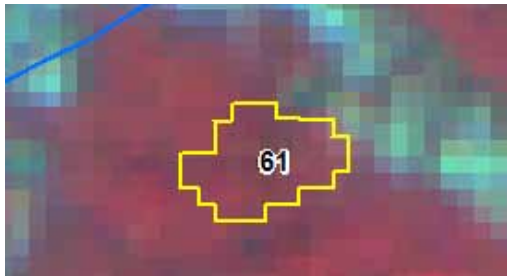


Table 4.16.3: Beat wise Forest Cover **(Area in Ha)**

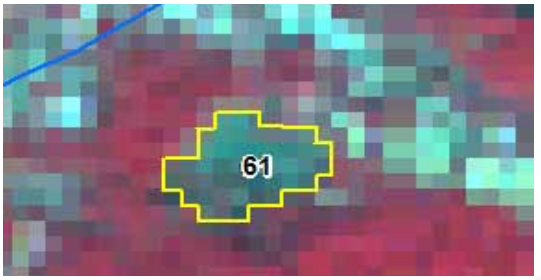
Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
CHATAKONDA Range									
Allapally	0.00	940.38	1439.20	1428.26	1042.03	11.62	4861.49	**-122.39**	**122.39**
Chinthakunta	0.00	487.25	2518.05	1325.34	718.66	10.68	5059.98	**-22.19**	**22.19**
Gangaram	0.67	463.84	821.41	340.16	302.79	0.00	1928.87	**-9.61**	**9.61**
Gattumalla	3.00	1080.05	1918.51	940.81	245.27	0.02	4187.66	**-32.70**	**32.70**
Gollagudem	0.00	196.81	843.70	772.71	452.95	80.95	2347.12	0.00	0.00
Kothasingaram	2.46	2275.54	1346.73	190.33	36.11	0.00	3851.17	**-12.38**	**12.38**
Mailaram	0.00	177.60	874.77	821.02	388.33	370.04	2631.76	0.00	0.00
Markode	16.16	3072.94	1449.45	686.06	298.89	1.13	5524.63	**-17.61**	**17.61**
Punukula Chelaka	0.00	127.07	708.12	396.64	191.05	0.00	1422.88	**-5.65**	**5.65**
Regalla	0.00	1.28	133.44	928.83	514.27	3.01	1580.83	0.00	0.00
Venkatapuram	0.00	1202.77	2175.39	684.49	248.04	0.61	4311.30	**-9.51**	**9.51**
Total	22.29	10025.53	14228.77	8514.65	4438.39	478.06	37707.69	-232.04	232.04
YANAMBAIL Range									
Bangaru Chelaka	0.00	409.01	2205.90	1069.92	476.56	254.58	4415.97	0.00	0.00
Karegattu	3.13	1420.81	1752.72	626.15	128.37	15.17	3946.35	**-8.49**	**8.49**
Mallaram	1.06	794.40	1621.02	644.83	301.78	1.67	3364.76	**-1.72**	**1.72**
Mamillavai	2.18	1320.27	988.14	257.34	68.54	0.00	2636.67	0.00	0.00
Pagidapur	20.43	2513.32	1032.70	116.86	31.11	0.00	3714.42	**-14.23**	**14.23**
Regalla	33.77	1963.33	1489.68	255.46	18.81	0.00	3761.05	0.00	0.00
Regulagudem	8.60	940.69	860.32	121.59	15.99	0.00	1947.19	**-12.04**	**12.04**
Ulvachelaka	51.08	2176.10	1782.63	141.58	2.02	0.00	4153.41	0.00	0.00
Yanambail	0.00	374.60	902.13	830.42	357.85	525.49	2990.49	0.00	0.00
Total	**120.25**	**11912.53**	**12635.24**	**4064.15**	**1401.03**	**796.91**	**30930.31**	**-36.48**	**36.48**
Division Total	**142.54**	**21938.06**	**26864.01**	**12578.80**	**5839.42**	**1274.97**	**68638.00**	**-268.52**	**268.52**

Satellite Imageries

2011



2012



Longitude	80.54981 ° E
Latitude	17.74436 ° N
Area in Ha	2.68
Change	OF TO NF
Comp No.	10
Beat	Punukula cheraka
Range	Chatakonda
Division	**WLM Paloncha**





4.17 KAMAREDDY DIVISION

4.17.1 Introduction:

Kamareddy Forest Division lies in the south-eastern part of Nizamabad district between latitudes 18^0 3' 34" N & 18^0 42' 11" N and longitudes 77^0 53' 45" E & 78^0 34' 17" E. Geographical area of the Division is 3216.52 Km^2 which is 40.37% of the geographical area of district. This Division lies on the Deccan plateau. Manjira River flowing from Medak District enters Kamareddy Division at Nizam sagar reservoir and flows in northern direction to join river Godavari at the north-western corner of the district. Kappalavagu and Peddavagu are other two important streams of the Division. The rivers and streams of the district form part of Godavari basin. The altitude varies from 335 to 490 m above MSL. The highest peak is 635 m above MSL situated in Gandhari block.

Land use pattern of the Division is given in Table 4.17.1

Table 4.17.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	903.57	28.09
Agriculture	1662.58	51.69
Land with Scrub	284.61	8.85
Fallow Lands	72.45	2.25
Grasslands	50.00	1.55
Settlements	53.00	1.65
Vegetation outside Forest	82.42	2.56
Water Bodies	107.89	3.35
Total	**3216.52**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally dry with temperatures ranging from 13^0C to 47^0C. The north and north-western regions of the Division receive above 1000 mm of rainfall while north-eastern, south-eastern and southern regions receive less than 900 mm of rainfall from south-west monsoons. The soil types found mainly are black cotton and sandy loams. The economic minerals known from this Division are the building material-clay, iron-ore, manganese ore, mica, semi-precious stones, talc and soap-stones.

Population of the Division is 1.01 million (2011 Census), per capita forest area is 0.1Ha and the population density is 371 persons per Km^2.

4.17.2 Recorded Forest Area:

The notified forest area of the Division is **940 Km^2** which is 29.22% of the geographical area. Reserved, Protected and un-classed forests constitute 598.56 Km^2 (63.71%), 252 Km^2 (26.84%) and 88.84 Km^2 (9.45%) of the forest area respectively.

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

4.17.3 Protected Area:

One PA, viz., Pocharam WLS is situated in this Division. An area of 86.76 Km^2 is included in the PA.

4.17.4 Community Forest Management:

There are 112 Vana Samrakshana Samities (VSSs) in the Division. An area of 325.66 Km^2, which is 33.19% of the notified forest area, is under the management of the VSSs.

4.17.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **815.71 Km^2** which is **25.36%** of the geographical area. In terms of the forest canopy

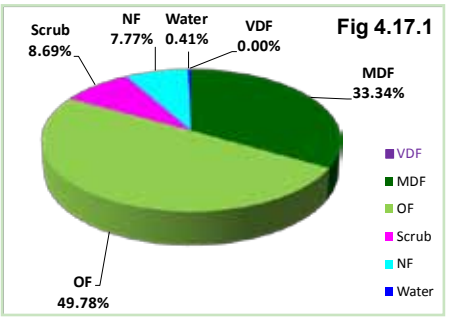


Fig 4.17.1





density classes the Division has **327.19 Km²** of Moderately Dense Forests and **488.52 Km²** of Open Forests. The area of the Scrub is **85.31 Km²**, Non-Forest **76.28 Km²** and Water Bodies **4.00 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 2011 and 2012 are shown in Figs 4.17.2 & Fig 4.17.3 respectively and the changes between this period are shown on the image of 2012.

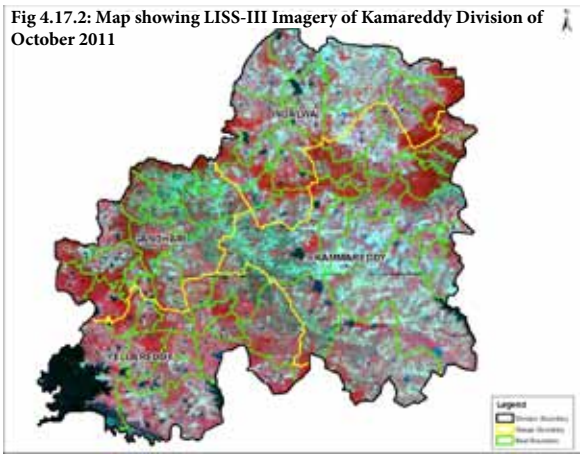


Fig 4.17.2: Map showing LISS-III Imagery of Kamareddy Division of October 2011

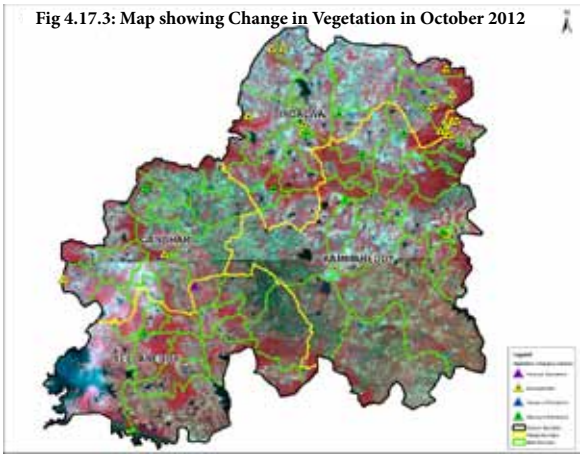


Fig 4.17.3: Map showing Change in Vegetation in October 2012

Comparison of the current forest cover with that of previous assessment year shows a **positive change** of **42.79 Ha** and **negative change of 95.88 Ha.** However, including the scrub, the total **positive change is 96.32 Ha** and the total **negative change is 98.57 Ha**. The forest cover change matrix given in Table 4.17.2 reveals the changes from one class to another class.

The total **positive change** (including scrub) is **96.32 Ha** on account of growth in raised plantations. Of the total **negative change** (including scrub) of **98.57 Ha, 12.62 Ha** is on account of advance operation for raising of plantation, **4.29 Ha** is on account of harvesting of plantation and **81.66 Ha** is on account of encroachments. As advance operation, for raising of plantation and Harvesting of plantations are Forest management interventions and hence not considered as loss of forest Cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the net loss of forest is **81.66 Ha** only.

There are 66 Beats in the Division. Negative changes in forest cover are noticed in 13 Beats and Positive in 10 Beats. There are no changes in the remaining 43 Beats.

Details of forest cover in all the Beats of the division are shown in Table 4.17.3

Table 4.17.2: Forest Cover change matrix (Area in Km²)

2011	2012						Total of 2011
	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	**327.19**	0.00	0.13	0.08	0.00	**327.40**
Open Forest	0.00	0.00	**488.09**	0.16	0.59	0.00	**488.84**
Scrub	0.00	0.00	0.43	**84.48**	0.03	0.00	**84.94**
Non-Forest	0.00	0.00	0.00	0.54	**75.58**	0.00	**76.12**
Water	0.00	0.00	0.00	0.00	0.00	**4.00**	**4.00**
Total of 2012	**0.00**	**327.19**	**488.52**	**85.31**	**76.28**	**4.00**	**981.29**
Net Change	**0.00**	**-0.21**	**-0.32**	**0.37**	**+0.16**	**0.00**	





Table 4.17.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
GANDHARI Range									
Bhanapur	0.00	111.96	968.71	125.85	36.26	0.00	1242.78	0.00	0.00
Chedmal	0.00	399.36	1114.42	310.61	551.17	0.00	2375.56	0.00	0.00
Gandhari	0.00	74.43	387.86	157.63	339.48	8.98	968.38	0.00	0.00
Gandivate	0.00	743.87	1547.47	162.36	172.02	22.76	2648.48	0.00	0.00
Gowraram(G)	0.00	914.91	595.84	45.21	52.63	0.99	1609.58	0.00	0.00
Gurjal	0.00	14.37	689.84	167.24	122.30	3.33	997.08	0.00	0.00
Kondapur	0.00	49.52	393.04	64.16	48.78	1.36	556.86	0.00	0.00
Mombajipet	0.00	276.03	601.89	137.08	137.73	39.06	1191.79	0.00	0.00
Mudhelly	0.00	857.65	661.96	30.22	37.33	2.29	1589.45	0.00	0.00
Nagloor	0.00	439.32	833.34	164.86	140.33	0.00	1577.85	**26.88**	0.00
Pothangal	0.00	725.10	1048.67	153.65	81.53	1.72	2010.67	**-11.85**	**8.96**
Singitham	0.00	961.18	944.20	46.82	27.73	38.10	2018.03	**-4.84**	**4.84**
Uthnoor	0.00	55.26	260.17	134.65	199.96	0.66	650.70	0.00	0.00
Vellutla	0.00	1253.88	975.98	60.51	22.05	7.59	2320.01	0.00	0.00
Yacharam	0.00	383.44	677.76	201.26	265.85	4.62	1532.93	0.00	0.00
Total	**0.00**	**7260.28**	**11701.15**	**1962.11**	**2235.15**	**131.46**	**23290.15**	**10.19**	**13.80**
INDALWAI Range									
Amsanpally	0.00	390.58	1165.38	201.29	157.37	5.71	1920.33	**-1.13**	**1.13**
Dharpally	0.00	193.72	505.40	94.03	33.30	0.00	826.45	**9.60**	0.00
Dubbak	0.00	276.29	1124.13	306.66	313.93	4.76	2025.77	0.00	0.00
Gannaram	0.00	476.27	823.02	84.15	20.39	8.06	1411.89	0.00	0.00
Gowraram	0.00	433.97	995.16	101.21	129.13	2.33	1661.80	**12.51**	**1.30**
Indalwai	0.00	871.08	998.70	114.74	40.79	3.89	2029.20	**-1.20**	**1.20**
Kalwaral	0.00	653.72	334.38	10.30	6.98	1.62	1007.00	**15.91**	**0.00**
Koratpally	0.00	116.71	981.94	197.95	178.24	16.14	1490.98	**-1.56**	**1.56**
Navanandi	0.00	796.87	306.29	24.83	31.95	0.00	1159.94	**-15.71**	**15.71**
Pipri	0.00	617.09	116.18	37.61	34.16	0.01	805.05	**-1.14**	**1.14**
Ravutla	0.00	1320.46	333.45	28.45	35.51	0.00	1717.87	**-2.23**	**2.23**
Sadasivnagar	0.00	545.54	387.46	24.70	12.77	0.00	970.47	0.00	0.00
Sirikonda	0.00	1059.83	261.97	31.80	32.99	14.42	1401.01	**-20.87**	**16.58**
Sirnapally	0.00	722.64	525.52	61.70	79.60	22.59	1412.05	0.00	0.00
Triyambakpet	0.00	469.69	528.14	13.55	8.08	0.00	1019.46	0.00	0.00
Yanampally	0.00	298.99	773.86	61.38	32.08	0.00	1166.31	**-2.92**	**2.92**
Total	**0.00**	**9243.45**	**10160.98**	**1394.35**	**1147.27**	**79.53**	**22025.58**	**-8.74**	**43.77**
KAMAREDDY Range									
Akkapuram	0.00	82.72	448.91	112.63	77.56	3.11	724.93	**-6.62**	**6.62**
Annaram	0.00	763.06	1308.63	553.20	696.73	12.38	3334.00	**4.68**	0.00
Bhiknoor	0.00	554.66	772.62	141.37	99.88	0.00	1568.53	0.00	0.00
Donkal	0.00	1551.31	732.53	10.15	9.34	12.64	2315.97	0.00	0.00
Esaipet	0.00	60.46	938.66	439.15	384.01	5.81	1828.09	0.00	0.00
Gadkole	0.00	477.14	953.84	68.25	100.58	12.10	1611.91	**6.19**	0.00
Ghanpur	0.00	332.09	939.24	299.33	260.14	0.10	1830.90	0.00	0.00





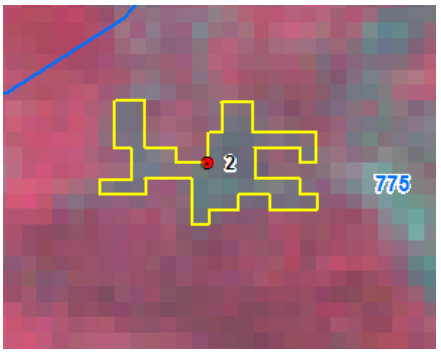
Ghanpur Beroon	0.00	31.19	670.96	530.10	375.02	17.41	1624.68	0.00	0.00
Gidda	0.00	902.43	692.56	48.21	0.00	5.02	1618.20	0.00	0.00
Honnajipet	0.00	538.77	685.11	56.12	39.04	0.00	1319.04	**13.04**	0.00
Kotalpally	0.00	521.49	695.79	45.90	72.60	13.55	1349.33	0.00	0.00
Machareddy	0.00	60.40	371.15	56.88	35.32	0.00	523.75	0.00	0.00
Maddikunta	0.00	483.25	913.88	189.47	92.79	0.00	1679.39	0.00	0.00
Pakhal (North)	0.00	1166.15	910.75	190.67	201.52	0.00	2469.09	**2.59**	0.00
Pakhal South	0.00	577.41	519.14	261.22	190.33	1.20	1549.30	0.00	0.00
Pandimadugu	0.00	417.61	252.85	17.73	26.34	0.00	714.53	**-17.47**	**17.47**
Peddaipally	0.00	272.46	491.17	83.87	199.41	0.00	1046.91	0.00	0.00
Posanipet Beroon	0.00	1.87	83.18	36.86	24.74	0.00	146.65	0.00	0.00
Reddypet	0.00	591.41	852.95	78.77	24.07	0.00	1547.20	0.00	0.00
Toompally	0.00	2183.14	943.58	159.70	152.47	4.48	3443.37	0.00	0.00
Total	**0.00**	**11569.02**	**14177.50**	**3379.58**	**3031.87**	**87.80**	**32245.77**	**2.41**	**24.09**
YELLAREDDY Range									
Bhavanipet	0.00	725.65	658.03	40.87	72.59	35.47	1532.61	0.00	0.00
Bollaram	0.00	103.24	1100.45	259.09	183.69	5.57	1652.04	0.00	0.00
Gundaram	0.00	357.28	1135.38	184.65	269.02	1.22	1947.55	0.00	0.00
Hasanpally	0.00	107.64	537.47	84.67	33.34	5.94	769.06	0.00	0.00
Jaldepally	0.00	232.16	550.20	13.03	14.08	4.92	814.39	**3.62**	0.00
Komatpally	0.00	138.62	765.61	114.29	31.56	0.00	1050.08	0.00	0.00
Kondapur	0.00	419.65	2119.07	297.91	147.93	0.00	2984.56	0.00	0.00
Laxmapur	0.00	994.25	820.55	52.52	25.61	11.55	1904.08	0.00	0.00
Mengaram	0.00	387.60	641.70	25.70	37.06	0.89	1092.95	0.00	0.00
Mothe	0.00	103.07	1082.32	151.75	72.10	29.05	1438.29	**-9.73**	0.00
Mustapur	0.00	441.85	476.22	62.31	55.37	2.96	1038.71	0.00	0.00
Nagireddypet	0.00	142.77	1127.08	253.30	158.80	1.82	1683.77	0.00	0.00
Potaipally	0.00	154.36	850.30	158.27	35.34	0.00	1198.27	0.00	0.00
Shetpally	0.00	235.00	674.81	88.20	28.66	0.82	1027.49	0.00	0.00
Yerrapahad	0.00	102.66	272.17	40.47	16.76	1.35	433.41	0.00	0.00
Total	**0.00**	**4645.80**	**12810.96**	**1827.03**	**1181.91**	**101.56**	**20567.26**	**-6.11**	**0.00**
Division Total	**0.00**	**32718.55**	**48850.59**	**8563.07**	**7596.20**	**400.35**	**98128.76**	**-2.25**	**81.66**

Satellite Imageries

2011



2012



Longitude	78.07578 ° E
Latitude	18.35336 ° N
Area in Ha	2.89
Change	OF to NF
Comp No.	775
Beat	Pothangal
Range	Gandhari
Division	**Kamareddy**





4.18 MEDAK DIVISION

4.18.1 Introduction:

Medak is located in the north-western part of Andhra Pradesh State between latitudes 17^0 25' 36" N & 18^0 17' 7" N and longitudes 77^0 26' 43" E & 79^0 7' 37" E. Geographical area of the Division (& District) is 9,619.75 Km^2 which is 99.06 % of the geographical area of the District. 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 gen tle slope. The elevation of ground varies from 500 to 600 m above MSL with occasional hills up to 638M above MSL. Medak falls under semi-arid region of peninsular India.

Land use of the Division is given in Table 4.18.1.

Table 4.18.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	**923.13**	9.60
Agriculture	7591.99	78.92
Land with Scrub	482.63	5.02
Fallow Lands	11.42	0.12
Settlements	50.71	0.53
Vegetation outside forest	293.88	3.05
Water body	265.99	2.77
Total	**9619.75**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally dry with temperatures ranging from 6^0C to 46^0C and the annual rainfall is about 700 mm, received mainly from Southwest monsoons.

Red earths comprising loamy sands, sandy loams and sandy clay loams; regar 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- a tributary of Manjeera and Kudlair- a tributary of Manair River, are also water sources in the district and all these remains dry in the summer.

Population of the Division is 3.03 million (2011 Census), per capita forest area is 0.03Ha and the population density is 312 persons per Km^2.

4.18.2 Recorded Forest Area:

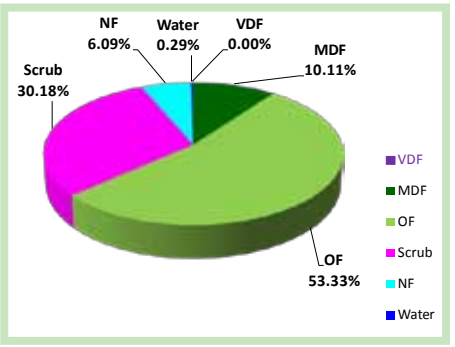
The notified forest area of the Division is **905.94 Km^2** which is 9.42% of the geographical area. Reserved, Protected and un-classed forests constitute 634.22 Km^2 (70%), 255.63 Km^2 (28.2%) and 16.09 Km^2 (0.018%) of the forest area respectively.

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

4.18.3 Protected Area:

A part of Pocharam WLS falls in this Division. An area of 55.47 Km^2 is included in Pocharam WLS.

Fig 4.18.1



4.18.4 Community Forest Management:

There are 251 Vana Samrakshana Samities (VSSs) in the Division. An area of 678.04 Km^2 of forests, which is 75% of notified forest area, is under the management of VSSs.

4.18.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct/Nov-2011) is **581.42 Km^2** which





is **6.04%** of the geographical area. In terms of the forest canopy density classes the Division has **92.64 Km²** of Moderately Dense Forests and **488.78 Km²** of Open Forests. The area of the Scrub is **276.63 Km²**, Non-Forests **55.85 Km²** and Water Bodies **2.68 Km²**. The distribution of the forest cover of the division is shown in Fig 4.18.1

4.18.6 Change in Forest Cover:

The Satellite image of 2011 and 2012 are shown in Figs 4.18.2 & 4.18.3 respectively and the changes

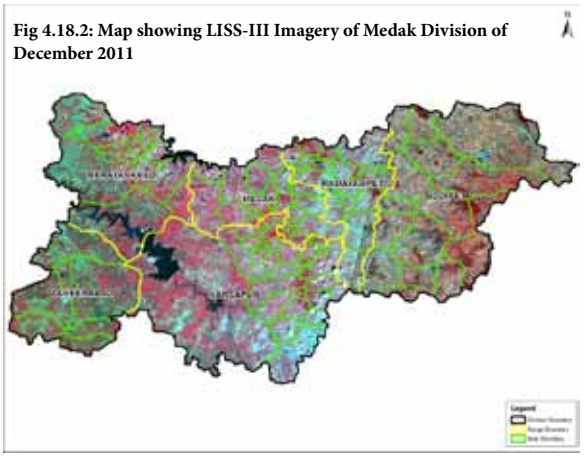


Fig 4.18.2: Map showing LISS-III Imagery of Medak Division of December 2011

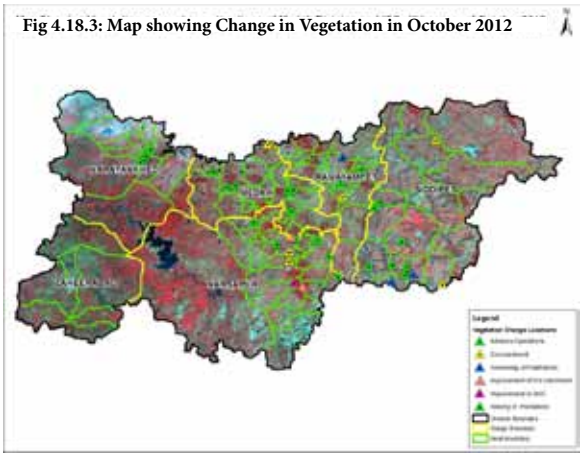


Fig 4.18.3: Map showing Change in Vegetation in October 2012

between this period are shown on the image of 2012.

Comparison of the current forest cover with that of previous assessment year shows a **negative change** of **217.76 Ha**. However, including the scrub, the **positive change** is **165.27 Ha** and the total negative change is **428 Ha** The forest cover change matrix given in Table 4.18.2 reveals the changes from one class to another class

Of the **positive change** (including scrub) of **165.27 Ha, 157.66 Ha** on account of growth in raised plantations, and **7.61 Ha** is improvement of forest due to protection and management interventions. Of the total **negative change** (including scrub) of **428 Ha, 343.08 Ha** is on account of clearance of jungle growth for raising of plantations, **56.17 Ha** is on account of harvesting of plantation, and **28.75 Ha** is on account of encroachments. As clearance of jungle growth for raising of plantations and harvesting of plantations are forest management interventions the same are not considered as loss of forest cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the **net loss** of forest is **28.75 Ha** in the Division.

There are 92 Beats in the Division. Negative changes in forest cover are noticed in 22 Beats and positive changes in 8 Beat. There are no changes in remaining 62 Beats.

Details of forest cover in all the Beats of the divisions are shown in Table 4.18.3

Table 4.18.2: Forest Cover change matrix (Area in Km²)

2011	2012						Total of 2011
	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	**92.64**	0.00	0.00	0.01	0.00	**92.65**
Open Forest	0.00	0.00	**488.78**	0.00	2.17	0.00	**490.95**
Scrub	0.00	0.00	0.00	**274.98**	2.10	0.00	**277.08**
Non-Forest	0.00	0.00	0.00	1.65	**51.57**	0.00	**53.22**
Water	0.00	0.00	0.00	0.00	0.00	**2.68**	**2.68**
Total of 2012	**0.00**	**92.64**	**488.78**	**276.63**	**55.85**	**2.68**	**916.58**
Net Change	**0.00**	**-0.01**	**-2.17**	**-0.45**	**2.63**	**0.00**	

Table 4.18.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
MEDAK Range									
Amsanpally	0.00	458.15	945.28	173.86	39.91	0.00	1617.20	0.00	0.00
Andugulapally	0.00	20.25	491.00	76.85	2.46	0.00	590.56	0.00	0.00
Annaram	0.00	118.36	803.13	206.10	91.95	2.00	1221.54	**-11.58**	0.00
Arkela	0.00	1.22	240.98	444.78	50.59	0.00	737.57	**-4.99**	0.00
Bhootpur	0.00	242.34	862.78	208.92	19.95	8.01	1342.00	**-4.11**	**4.11**
Bujrampet	0.00	140.12	365.51	308.24	28.68	0.00	842.55	0.00	0.00
Damarancha	0.00	17.93	549.84	361.54	67.82	0.00	997.13	**-35.31**	0.00
Kulcharam	0.00	282.52	533.90	187.51	29.86	0.00	1033.79	0.00	0.00
Manepally	0.00	250.18	803.35	49.57	4.07	0.00	1107.17	0.00	0.00
Mangalparthy	0.00	178.95	967.58	265.99	83.37	0.00	1495.89	**-0.38**	0.00
Nagsanpally	0.00	88.49	721.58	335.19	34.63	1.30	1181.19	0.00	0.00
Rampur	0.00	111.75	906.26	342.93	31.77	0.00	1392.71	0.00	0.00
S.Kondapur	0.00	135.04	885.08	235.42	16.30	1.62	1280.06	**-6.60**	0.00
Shetpally	0.00	141.93	1230.08	510.09	209.44	16.06	2101.00	**-11.80**	0.00
Tekmal	0.00	9.23	656.57	194.05	28.46	0.00	888.31	0.00	0.00
Wariguntham	0.00	81.78	329.93	84.61	18.86	0.00	515.18	0.00	0.00
Yeldurthy	0.00	317.30	1403.44	315.28	53.36	1.90	2091.28	0.00	0.00
Total	**0.00**	**2595.54**	**12696.29**	**4300.93**	**811.48**	**30.89**	**20435.13**	**-74.77**	**4.11**
NARAYANKHED Range									
Alladurgu	0.00	23.92	263.54	26.73	2.41	0.00	316.60	0.00	0.00
Bachepally	0.00	0.00	22.62	223.82	108.53	0.00	354.97	0.00	0.00
Bibipet	0.00	0.46	90.80	439.64	113.27	0.67	644.84	0.00	0.00
Kadpal	0.00	69.69	379.40	56.26	3.77	0.00	509.12	0.00	0.00
Madhwar	0.00	0.67	432.93	625.80	3.44	0.00	1062.84	**22.64**	0.00
Nagadhar	0.00	50.04	767.40	319.59	33.19	0.00	1170.22	0.00	0.00
Narayanakhed	0.00	0.61	218.32	166.96	6.42	0.00	392.31	0.00	0.00
Nizampet	0.00	0.00	210.16	388.77	100.68	5.63	705.24	**-27.14**	0.00
Raikode	0.00	17.14	346.75	335.67	24.53	0.00	724.09	0.00	0.00
Raparthy	0.00	0.00	69.91	195.78	12.86	0.00	278.55	0.00	0.00
Sanjeevanraopet	0.00	16.63	333.43	100.29	6.70	0.00	457.05	0.00	0.00
Shankarampet_A	0.00	14.13	314.34	135.00	14.31	0.00	477.78	0.00	0.00
Tedkal	0.00	0.00	4.51	29.76	113.84	1.38	149.49	0.00	0.00
Total	**0.00**	**193.29**	**3454.11**	**3044.07**	**543.95**	**7.68**	**7243.10**	**-4.50**	**0.00**
NARSAPUR Range									
Brahmanpally	0.00	46.86	367.51	51.86	2.59	0.00	468.82	0.00	0.00
Chippelthurthy	0.00	0.00	267.23	262.38	20.29	0.00	549.90	0.00	0.00
Choutkoor	0.00	3.02	759.40	544.80	10.14	0.00	1317.36	0.00	0.00
Gummadidalla	0.00	26.84	863.42	181.27	27.73	1.34	1100.60	0.00	0.00
Ibrahimbad	0.00	67.49	514.54	293.88	5.88	0.00	881.79	0.00	0.00
Kanukunta	0.00	39.21	232.35	57.89	0.00	0.00	323.28	**20.15**	0.00
Khazipally	0.00	0.00	76.99	437.24	147.95	7.77	669.95	0.00	0.00
Kowdipally	0.00	59.31	725.54	245.66	34.04	0.00	1064.55	0.00	0.00
Mangapet	0.00	82.61	753.93	252.39	14.06	0.00	1102.99	0.00	0.00
Mohammadanagar	0.00	583.30	516.17	41.05	53.02	0.00	1193.54	0.00	0.00
Nagsanpally	0.00	54.13	508.98	58.11	1.08	0.00	622.30	0.00	0.00





Nallavally	0.00	6.54	696.07	258.18	129.92	0.78	1091.49	0.00	0.00
Narayanapoor	0.00	3.10	222.53	244.43	107.90	0.00	577.96	**-4.38**	**4.38**
Narsapur	0.00	31.62	929.52	244.55	29.46	0.00	1235.15	0.00	0.00
Nathinaipally	0.00	10.64	321.57	383.00	89.33	0.00	804.54	**7.61**	0.00
Pilluta	0.00	28.34	374.45	135.46	0.00	0.00	533.60	**9.41**	0.00
Ratnapur	0.00	135.17	1081.09	171.42	17.80	5.56	1411.04	**8.16**	0.00
Salabathpoor	0.00	148.26	231.50	25.03	1.10	0.00	405.89	0.00	0.00
Shivampet	0.00	198.13	1146.18	240.43	109.57	8.27	1702.58	**-20.38**	0.00
Sirpura	0.00	11.35	137.74	40.12	2.94	0.00	192.15	0.00	0.00
Somakapet	0.00	9.68	303.72	255.15	81.06	0.94	650.55	**-39.39**	0.00
Tirumalpur	0.00	0.50	321.15	405.85	82.63	0.00	810.13	**-4.01**	**32.15**
Wailal	0.00	74.25	484.25	274.30	130.18	0.00	962.98	0.00	0.00
Total	**0.00**	**1620.35**	**11835.83**	**5098.28**	**1094.02**	**24.66**	**19673.14**	**-29.00**	**4.38**
RAMAYAMPET Range									
Akkannapet	0.00	408.99	310.50	61.24	4.16	0.00	784.89	0.00	0.00
Baithole	0.00	84.90	270.22	130.02	23.54	0.00	508.68	0.00	0.00
Datharpally	0.00	0.56	545.85	815.38	26.06	0.00	1387.85	0.00	0.00
Dongal Dharmaram	0.00	286.00	192.46	9.95	0.00	0.00	488.41	0.00	0.00
Gangapoor	0.00	954.82	640.91	111.13	26.20	0.00	1733.06	0.00	0.00
Ibrahimpur	0.00	251.29	739.70	94.85	11.37	0.00	1097.21	**33.25**	0.00
Jansilingapur	0.00	482.25	695.51	69.84	22.24	7.30	1277.14	0.00	0.00
Manoharabad	0.00	72.10	619.79	450.81	43.48	3.16	1189.34	0.00	0.00
Narsingi	0.00	341.77	860.47	276.24	41.36	2.97	1522.81	0.00	0.00
Pathur	0.00	166.66	289.37	113.51	8.42	0.00	577.96	0.00	0.00
Ramayampet	0.00	48.69	305.28	109.41	21.17	3.81	488.36	**-9.93**	0.00
Rampur	0.00	71.87	549.91	827.04	89.17	0.00	1537.99	0.00	0.00
Shankarampet	0.00	45.35	571.65	74.09	6.80	0.00	697.89	0.00	0.00
T. Mohamadapur	0.00	383.16	922.47	226.43	17.65	1.02	1550.73	0.00	0.00
Valllure	0.00	140.69	485.27	116.68	2.50	0.00	745.14	**22.22**	0.00
Waddiaram	0.00	17.66	348.72	172.34	71.65	9.74	620.11	**-20.54**	0.00
Total	**0.00**	**3756.76**	**8348.08**	**3658.96**	**415.77**	**28.00**	**16207.57**	**25.00**	**0.00**
SIDDIPET Range									
Chilasagar	0.00	9.40	315.08	473.90	37.20	11.90	847.48	**-22.87**	0.00
Damarkunta	0.00	0.55	94.23	777.77	196.12	5.96	1074.63	**-11.21**	**11.21**
Dommat	0.00	0.00	92.83	356.21	17.10	0.00	466.14	0.00	0.00
Dubbak	0.00	5.48	577.29	359.86	23.19	3.17	968.99	0.00	0.00
Gajwel	0.00	1.79	701.65	649.41	117.85	9.40	1480.10	**-21.60**	0.00
Gambhirpoor	0.00	0.55	232.89	278.17	6.14	0.71	518.46	0.00	0.00
Godgupally	0.00	0.00	187.04	298.98	39.42	0.00	525.44	**-15.44**	0.00
Induperial	0.00	1.79	785.49	1158.66	102.73	13.58	2062.25	**-15.07**	0.00
Jagdevpur	0.00	0.00	777.07	360.71	13.19	1.00	1151.97	0.00	0.00
Kondapak	0.00	0.56	871.47	388.69	42.64	4.95	1308.31	0.00	0.00
Marpadga	0.00	4.50	921.28	890.56	56.97	26.79	1900.10	0.00	0.00
Meenajipet	0.00	1.79	752.34	988.34	248.50	0.36	1991.33	**-31.35**	0.00
Mirdoddi	0.00	6.92	397.83	132.30	23.84	0.00	560.89	**-9.05**	**9.05**
Mulug	0.00	24.54	706.49	529.12	283.84	4.70	1548.69	**-52.87**	0.00
Siddipet	0.00	10.90	353.87	993.71	117.68	8.56	1484.72	0.00	0.00
Vemulghat	0.00	0.00	1395.10	725.13	16.99	15.68	2152.90	0.00	0.00
Total	**0.00**	**68.77**	**9161.95**	**9361.52**	**1343.40**	**106.76**	**20042.40**	**-179.46**	**20.26**

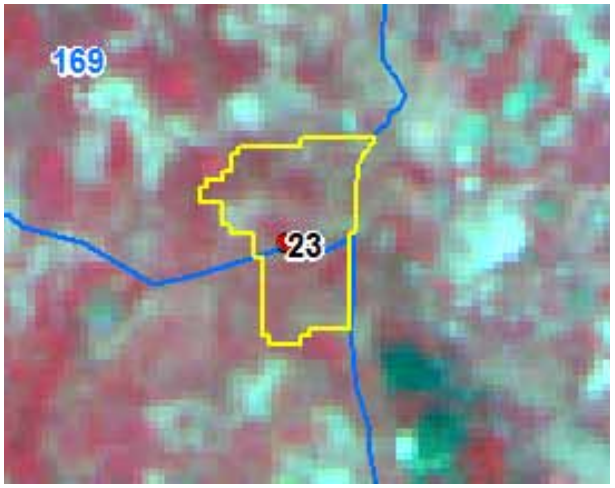




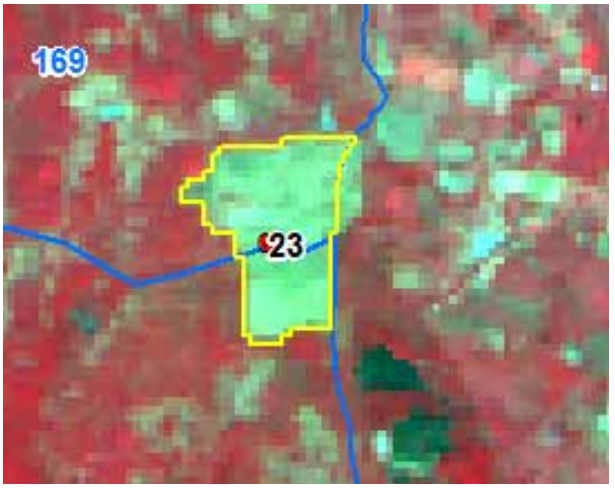
ZAHEERABAD Range									
Siddipet	0.00	2.96	18.68	127.25	211.07	0.00	359.96	0.00	0.00
Gudgarpally	0.00	398.05	636.13	194.75	156.61	24.32	1409.86	0.00	0.00
Gudupally	0.00	460.92	949.73	231.83	130.54	3.79	1776.81	0.00	0.00
Husselli	0.00	15.32	286.19	328.73	313.27	0.00	943.51	0.00	0.00
Pichargad	0.00	59.81	590.44	615.76	361.06	13.86	1640.93	0.00	0.00
Sajjapur	0.00	23.36	547.45	403.10	116.62	1.33	1091.86	0.00	0.00
Zaheerabad	0.00	69.38	352.48	297.55	87.55	26.96	833.92	0.00	0.00
Total	**0.00**	**1029.80**	**3381.10**	**2198.97**	**1376.72**	**70.26**	**8056.85**	**0.00**	**0.00**
Division Total	**0.00**	**9264.51**	**48877.36**	**27662.73**	**5585.34**	**268.25**	**91658.19**	**-262.73**	**28.75**

Satellite Imageries

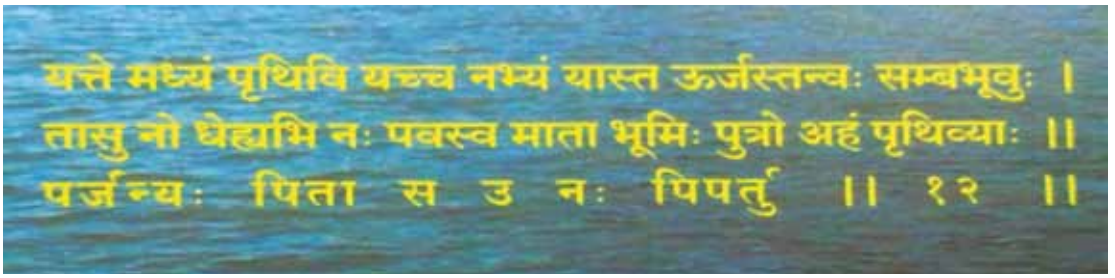
2011



2012



Longitude	78.44963 ° E
Latitude	17.96082 ° N
Area in Ha	20.54
Change	OF to NF
Comp No.	169
Beat	Waddiaram
Range	Ramayampet
Division	**Medak**







4.19 MEDAK WLM DIVISION

4.19.1 Introduction:

WLM Division Medak is located in the north-western part of Andhra Pradesh State between latitudes 18^0 6' 59" N & 18^0 12' 55" N and longitudes 78^0 10' 10" E & 78^0 22' 4" E. Geographical Area of the Division is 90.81 Km^2. The ground is mostly flat and undulating with gentle slope. The elevation of ground varies from 500M to 600M with occasional hills up to 638 M above MSL. Medak falls under semi-arid region of peninsular India.

Land use pattern of the Division is given in Table 4.19.1

Table 4.19.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forests including Scrub	45.82	50.46
Agriculture	26.68	29.38
Land with Scrub	6.01	6.62
Settlements	0.29	0.32
Not available for cultivation	11.77	12.96
Water bodies	0.24	0.26
Total	**90.81**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally dry with temperatures ranging from 6^0 C to 46^0C and the annual rainfall is about 700 mm, received mainly from south-west monsoons.

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

4.19.2 Recorded Forest Area:

The notified forest area of the Division is **46.71 Km^2** which is 51.44% of the geographical area. Reserved and protected forests constitute 4.605 Km^2 (9.86%) and 42.107 Km^2 (90.15%) of the forest area respectively.

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

4.19.3 Protected Area:

Out of 46.71 Km^2 of notified forests an area of 42.11 Km^2 is included in Pocharam WLS, which constitutes 90.15% of notified forests.

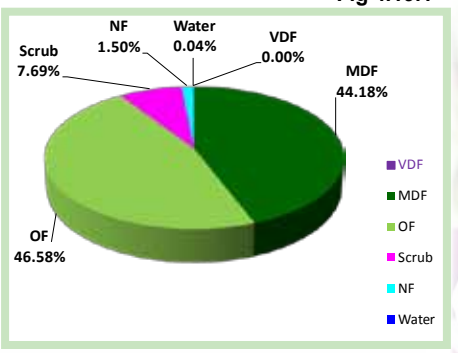
4.19.4 Joint Forest Management:

There are 11 Vana Samrakshana Samities (VSSs) in the Division. An area of 21.50 Km^2 forests, which is 46.02% of notified 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 R2 LISS III 2012 data (Oct 2012) is **42.24 Km^2** which is **46.51%** of the geographical area. In terms of the forest canopy density classes the Division has **20.56 Km^2** of Moderately Dense Forests and **21.68 Km^2** of Open Forests. The area of the Scrub is **3.58 Km^2**, Non-Forests **0.70 Km^2** and Water Bodies **0.02 Km^2**. The distribution of the forest cover of the Division is shown in Fig 4.19.1

Fig 4.19.1



4.19.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 are shown in Figs 4.19.2 & 4.19.3 respectively.





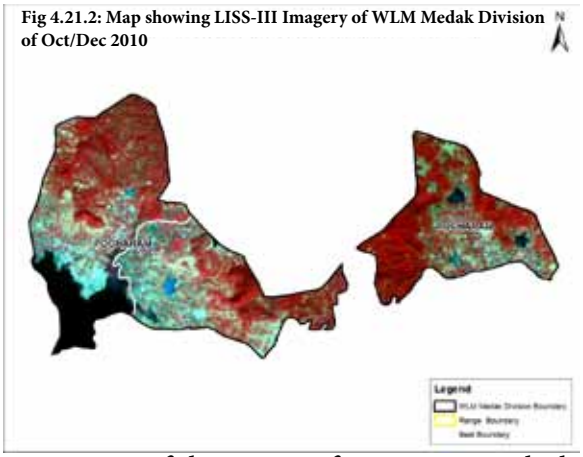


Fig 4.21.2: Map showing LISS-III Imagery of WLM Medak Division of Oct/Dec 2010

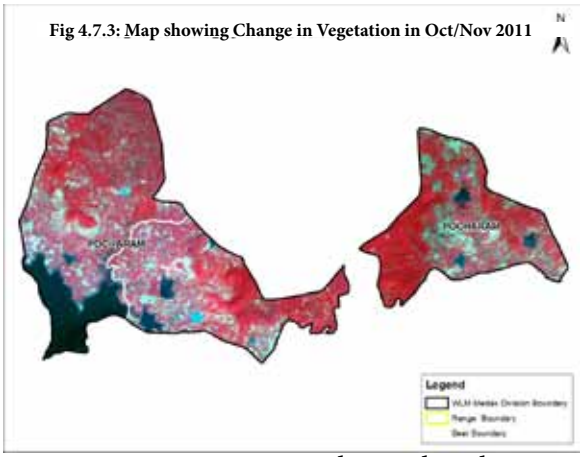


Fig 4.7.3: Map showing Change in Vegetation in Oct/Nov 2011

Comparison of the current forest cover with that of previous assessment year shows that there is **no change** in the forest cover during this period. The forest cover change matrix is given in Table 4.19.2. There are 3 Beats in the Division.There are no changes in forest cover in any of the 3 Beats. The details of forest cover in all the beats of the division are shown in Table 4.19.3

Table 4.19.2: Forest Cover change matrix (Area in Km^2)

2011	2012						**Total of 2011**
	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 2012	**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 4.19.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
PocharamRange									
Burugupally	0.00	551.39	578.39	74.17	15.02	1.67	1,220.64	0.00	0.00
Parvathapoor	0.00	956.47	370.58	168.6	46.57	0.00	1,542.21	0.00	0.00
Rajpet	0.00	548.14	1218.77	115.05	8.41	0.00	1,890.36	0.00	0.00
Total	**0.00**	**2056.00**	**2167.74**	**357.82**	**70.00**	**1.67**	**4653.21**	**0.00**	**0.00**
Division Total	**0.00**	**2056.00**	**2167.74**	**357.82**	**70.00**	**1.67**	**4653.21**	**0.00**	**0.00**





4.20 NIZAMABAD DIVISION

4.20.1 Introduction:

Nizamabad Forest Division lies in the north-western part of Nizamabad district between latitudes 18^0 10' 10" N & 19^0 00' 55" N and longitudes 77^0 31' 17" E & 78^0 40' 17" E. Geographical Area of the Division is 4751.83 Km^2 which is 59.63 % of the area of district. This region lies on deccan plateau. Godavari River enters Telangana at Kandhakurthi in Nizamabad Division. Manjira River, which flows in north-west direction through thick forests of Nizamabad and Kamareddy Divisions, joins Godavari at Kandhakurthi.

Land use pattern of the Division is given in Table 4.20.1

Table 4.20.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	705.71	14.85
Agriculture	3342.23	70.34
Land with Scrub	192.54	4.05
Fallow Lands	31.84	0.67
Settlements	31.74	0.67
Vegetation outside Forest	45.00	0.95
Water Bodies	402.77	8.48
Total	**4751.83**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally dry with temperatures ranging from 13^0C to 47^0C and the annual rainfall is about 1033.7mm, received mainly from south-west monsoons.

Red soils are extensive followed by black soils in Nizamabad Division. Alluvial and lateritic soils are found occasionally and in small 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. Variety of colored granites and the deccan trap rocks and economically valuable minerals are available in this Division.

Population of the Division is 1.54 million (2011 Census), per capita forest area is 0.05 Ha and the population density is 294 persons per Km^2.

4.20.2 Recorded Forest Area:

The notified forest area of the Division is **872 Km^2** which is 18.35% of the geographical area. Reserved, Protected and un-classed forests constitute 530.36 Km^2 (60.84%), 319 Km^2 (36.61%) and 22.26 Km^2 (2.5%) of the forest area respectively.

As per Champion and Seth's classification the forests of Division fall under Tropical Dry Deciduous type.

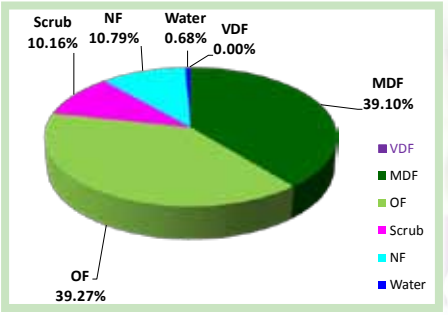
4.20.3 Protected Area:

There is no Protected Area in the Division.

4.20.4 Joint Forest Management:

There are 148 Vana Samrakshana Samities (VSSs) in the Division. An area of 423.48 Km^2 forests, which is 48.56% of forest area, is under the management of the VSSs.

Fig 4.20.1



4.20.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2011 data (Oct 2012) is **616.87 Km^2** which is **12.98%** of the geographical area. In terms of the forest canopy density classes the Division has **307.76 Km^2** of Moderately Dense Forests and **309.11 Km^2** of Open Forests. The area of the





Scrub is **79.98 km²**, Non-forests **84.96 km²** and Water Bodies **5.32 km²**. The distribution of the forest cover of the Division is shown in Fig 4.20.1.

4.20.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 are shown in Figs. 4.20.2 & Fig 4.20.3 respectively and the changes between this period are shown on the image of 2012.

Fig 4.20.2: Map showing LISS-III Imagery of Nizamabad Division of October 2011

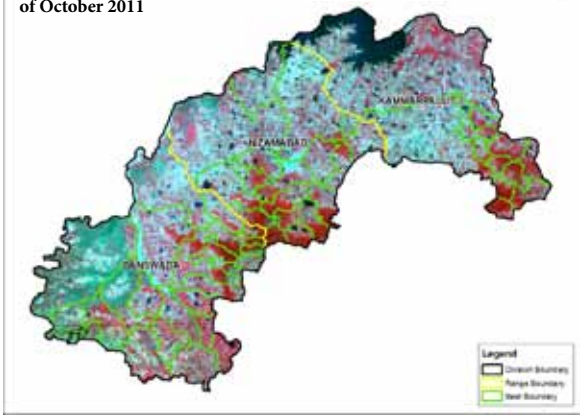
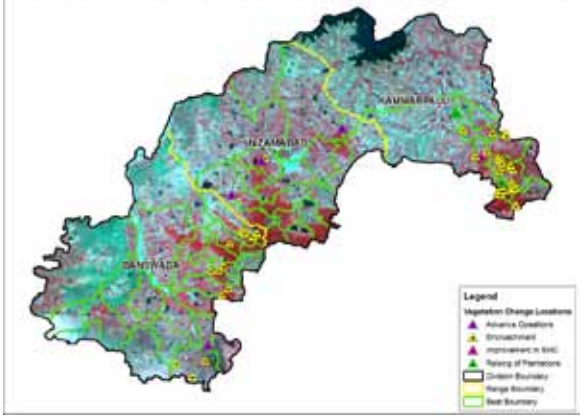


Fig 4.20.3: Map showing Change in Vegetation in October 2012



Comparison of the current forest cover with that of previous assessment year shows a Positive change in forest cover of **9.21 Ha** and negative change in forest cover of **206.34 Ha**. However, including the scrub, the total positive change is **45.51 Ha** and the total negative change is **305.32 Ha**. The forest cover change matrix given in Table 4.20.2 reveals the changes from one class to another class.

Of the total positive change (including scrub) of **45.51 Ha, 31.69 Ha** on account of growth in raised plantations and **13.82 Ha** is improvement of forest due to protection and management interventions. Of the total negative change (including scrub) of **305.32 Ha, 63.85 Ha** is on account of clearance of jungle growth for raising of plantations, **241.47 Ha** is on account of encroachments. As clearance of jungle growth for raising of plantations are forest management interventions the same are not considered as loss of forest cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the net loss of forest is **241.47 Ha** in the Division.

There are 55 Beats in the Division. Negative changes in Forest Cover are noticed in 18 Beats and Positive changes in forest cover are noticed in 2 Beats. There are no changes in the remaining 35 Beats.

Details of forest cover in all the Beats of the divisions are shown in Table 4.20.3

Table 4.20.2: Forest Cover change matrix (Area in Km²)

2011	2012						**Total of 2011**
	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	**307.76**	0.00	0.59	0.85	0.00	**309.20**
Open Forest	0.00	0.00	**309.02**	0.00	0.62	0.00	**309.64**
Scrub	0.00	0.00	0.00	**79.04**	0.99	0.00	**80.03**
Non-Forest	0.00	0.00	0.09	0.36	**82.50**	0.00	**82.95**
Water	0.00	0.00	0.00	0.00	0.00	**5.32**	**5.32**
Total of 2012	**0.00**	**307.76**	**309.11**	**79.99**	**84.96**	**5.32**	**787.13**
Net Change	**0.00**	**-1.44**	**-0.53**	**-0.04**	**2.01**	**0.00**	





Table 4.20.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
BANSWADA Range									
Akbarnagar	0.00	59.22	77.01	8.78	6.02	0.00	151.03	0.00	0.00
Banswada	0.00	182.76	381.58	83.88	33.09	5.26	686.57	0.00	0.00
Bommandevpally	0.00	1155.10	636.58	80.79	51.01	37.66	1961.14	0.00	0.00
Chandur	0.00	280.76	478.27	103.90	166.62	0.01	1029.56	**-13.48**	**13.48**
Chillargi	0.00	20.99	1001.84	500.55	557.51	25.62	2106.51	0.00	0.00
Dhadgi	0.00	0.00	484.59	498.16	427.64	10.89	1421.28	0.00	0.00
Hajipur	0.00	441.43	174.39	27.25	56.72	12.62	712.41	**-1.81**	**1.81**
Ibrahimpet	0.00	793.14	369.46	20.75	51.27	0.00	1234.62	**-10.53**	**10.53**
Jalalpur(w)	0.00	878.77	396.50	36.67	28.00	8.72	1348.66	**-1.54**	**1.54**
Jallapur(e)	0.00	397.78	522.40	78.82	132.88	13.50	1145.38	0.00	0.00
Jallapur(s)	0.00	48.13	399.66	128.91	404.20	15.61	996.51	0.00	0.00
Jukkal	0.00	0.85	51.50	130.76	276.17	0.01	459.29	0.00	0.00
Kodapgal kalan	0.00	2.38	74.54	238.44	331.14	0.71	647.21	0.00	0.00
Kowlas	0.00	26.84	1540.18	396.22	367.75	1.68	2332.67	0.00	0.00
Lingampally	0.00	2.45	185.49	93.75	429.42	4.90	716.01	0.00	0.00
Mainoor	0.00	0.00	87.75	234.06	573.87	8.22	903.90	0.00	0.00
Maqdumpur	0.00	71.94	275.77	76.70	57.42	8.68	490.51	**-16.19**	0.00
Medpally(n)	0.00	542.24	223.63	54.90	73.76	0.70	895.23	**-17.78**	**17.78**
Medpally(s)	0.00	438.58	351.75	15.24	31.56	0.01	837.14	**-4.53**	**4.53**
Mohammednagar	0.00	182.13	958.00	168.62	84.29	20.06	1413.10	0.00	0.00
Nasrullabad	0.00	935.57	403.40	55.05	126.18	0.00	1520.20	0.00	0.00
Nizamsagar	0.00	3.15	991.21	784.77	631.46	44.47	2455.06	**-33.87**	**33.87**
Rampur	0.00	938.68	413.81	55.39	84.23	1.47	1493.58	**-10.87**	**10.87**
Rampur kalan	0.00	2.78	463.32	414.73	454.28	51.04	1386.15	0.00	0.00
Shantapur	0.00	91.63	789.32	263.09	209.91	32.83	1386.78	0.00	0.00
Taglepally	0.00	787.41	496.72	90.76	113.17	0.00	1488.06	0.00	0.00
Total	**0.00**	**8284.71**	**12228.67**	**4640.94**	**5759.57**	**304.67**	**31218.56**	**-110.60**	**94.41**
KAMMARPALLI Range									
Basheerabad	0.00	380.95	151.10	20.19	1.30	0.00	553.54	0.00	0.00
Bheemgal	0.00	956.77	862.68	337.03	237.66	13.67	2407.81	**8.63**	**7.15**
Bheemnagar	0.00	1352.55	475.27	105.06	228.14	20.92	2181.94	**-12.90**	**12.90**
Kammarpally	0.00	146.16	343.76	56.02	43.71	0.01	589.65	0.00	0.00
Karepally	0.00	951.22	369.00	145.06	129.80	7.62	1602.70	**-40.21**	**40.21**
Konapur (n)	0.00	1447.65	1324.60	75.40	54.24	34.07	2935.96	**-11.61**	**11.61**
Konapur (s)	0.00	1202.23	1031.82	83.49	109.34	9.39	2436.27	0.00	0.00
Konasamundar	0.00	504.31	609.42	191.64	123.48	56.46	1485.31	**-6.26**	**6.26**
Manal	0.00	925.41	595.24	155.84	167.79	6.90	1851.18	**-14.50**	**14.50**
Mendora	0.00	417.36	227.49	63.69	103.99	0.01	812.53	**12.19**	**1.63**
Tadlapally	0.00	1283.23	417.64	113.04	214.47	0.01	2028.38	**-39.69**	**48.90**
Tatpally	0.00	1455.64	632.93	106.01	33.89	0.00	2228.47	0.00	0.00
Total	**0.00**	**11023.48**	**7040.95**	**1452.47**	**1447.81**	**149.06**	**21113.74**	**-104.35**	**143.16**

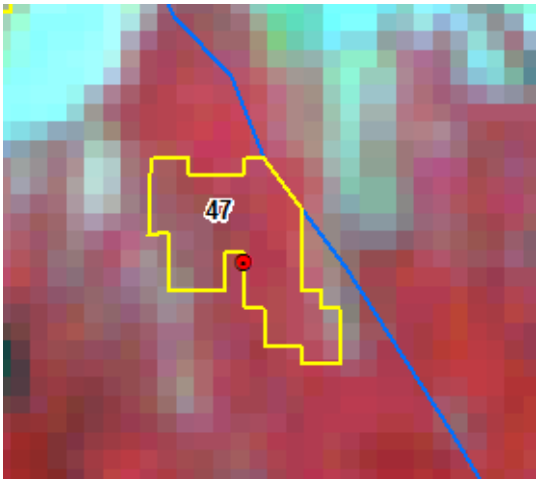




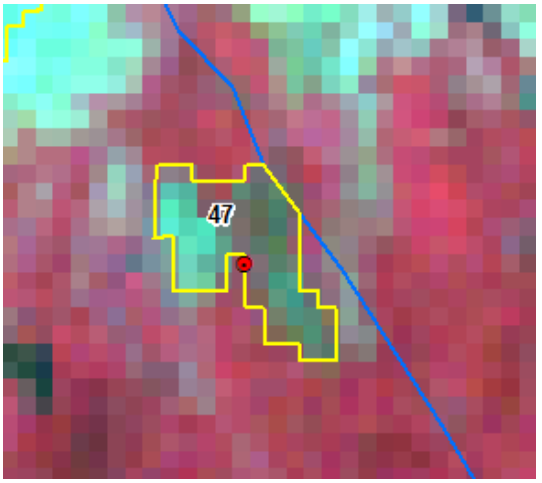
NIZAMABAD Range									
Abbapur	0.00	32.68	361.22	160.79	79.56	0.70	634.95	0.00	0.00
Amrad	0.00	466.88	318.51	11.76	6.08	0.00	803.23	0.00	0.00
Badsi	0.00	1268.75	420.95	54.85	11.06	0.01	1755.62	0.00	0.00
Kalpole	0.00	1054.67	711.61	37.70	111.03	0.01	1915.02	0.00	0.00
Kulaspur	0.00	1033.13	558.10	99.60	32.25	0.63	1723.71	0.00	0.00
Mallaram	0.00	357.69	1101.73	30.58	24.69	0.00	1514.69	0.00	0.00
Mamidipally	0.00	499.17	995.68	310.29	211.61	10.25	2027.00	0.00	0.00
Manchippa	0.00	836.16	787.79	84.60	56.39	0.00	1764.94	0.00	0.00
Mosra	0.00	691.12	712.06	99.53	135.84	3.69	1642.24	**-17.47**	0.00
Mudakpally	0.00	780.54	487.16	34.77	48.32	0.00	1350.79	0.00	0.00
Munipally	0.00	904.43	835.33	133.11	54.18	16.52	1943.57	**-3.50**	0.00
Muthukunta	0.00	619.79	928.79	20.31	9.78	0.59	1579.26	0.00	0.00
Secundrapur	0.00	65.37	522.87	75.73	19.02	0.01	682.99	0.00	0.00
Sirpur	0.00	1468.98	589.89	44.43	34.53	0.01	2137.83	0.00	0.00
Thanakalan	0.00	316.35	1170.64	326.47	162.87	30.04	2006.37	**-23.89**	**3.90**
Timmapur	0.00	1071.84	946.60	108.17	157.15	10.54	2294.30	0.00	0.00
Yamcha	0.00	0.00	192.03	272.48	134.34	5.81	604.66	0.00	0.00
Total	**0.00**	**11467.55**	**11640.96**	**1905.17**	**1288.70**	**78.81**	**26381.17**	**-44.86**	**3.90**
Division Total	**0.00**	**30775.74**	**30910.58**	**7998.58**	**8496.08**	**532.54**	**78713.47**	**-259.81**	**241.47**

Satellite Imageries

2011



2012



Longitude	78.57332° E
Latitude	18.73398 ° N
Area in Ha	3.58
Change	DF TO SF
Comp No.	10
Beat	Konapur(N)
Range	Kammarpalli
Division	**Nizamabad**





4.21 KARIM NAGAR EAST DIVISION

4.21.1 Introduction:

Karim Nagar East Forest Division lies in the eastern part of Karim Nagar district between latitudes 18^0 20' 53" N & 18^0 52' 14" N and longitudes 79^0 10' 48" E & 80^0 20' 44" E. Geographical area of the Division is 3,819.39 Km^2 which is 32.22% of the geographical area of district. This Division lies on deccan plateau. The River Godavari forms the northern- and eastern boundaries of the Division as wells as the district. Godavari and Maneru are main rivers of KarimNagar East Division.

Land use pattern of the Division is given in Table 4.21.1.

The climate of this Division is generally dry with temperatures ranging from 20^0C to 44^0C and the annual rainfall is about 756 mm, received mainly from Southwest monsoons.

The soil types found mainly are black cotton, sandy loam, alluvial and lateritic with less humus in top layer.

Table 4.21.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	1333.62	34.92
Agriculture	1292.93	33.85
Land with Scrub	319.44	8.36
Fallow Lands	217.32	5.69
Settlements	32.87	0.86
Vegetation outside Forest	548.56	14.36
Water body	74.65	1.95
Total	**3819.39**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

Population of the Division is 1.12 million (2011 Census), Per capita forest area is 0.12 Ha and the population density is 542 persons per Km^2.

4.21.2 Recorded Forest Area:

The notified forest area of the Division is **1432.1 Km^2** which is 37.50% of the geographical area. Reserved, Protected and un-classed forests constitute **1382.13 Km^2** (96.51%), **27.43 Km^2** (1.913%) and **22.54 Km^2** (1.573%) of the forest area respectively.

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

4.21.3 Protected Area:

A portion of the Shivaram Wildlife Sanctuary is included in this Division. An area of 19.15 Km^2 is included in the WLS.

4.21.4 Joint Forest Management:

There are 127 Vana Samrakshana Samities (VSSs) in the Division spread over an area of **314.05 Km^2** of forest area, which is **21.93 %** of the forest area.

4.21.5 Forest Cover:

The forest cover in the Division based the interpretation of IRS R2 LISS III 2012 data (Dec 2012) is **1063.18 Km^2** which is **27.84%** of the geographical area. In terms of the forest canopy density classes the Division has **657.81 Km^2** of Moderately Dense Forests and **405.37 Km^2** of Open Forests. The area of the Scrub is **258.15 Km^2**; Non-Forest **59.22 Km^2** and Water Bodies **6.26 Km^2**.The distribution of the forest cover of the Division is shown in Fig 4.21.1.

Fig 4.21.1

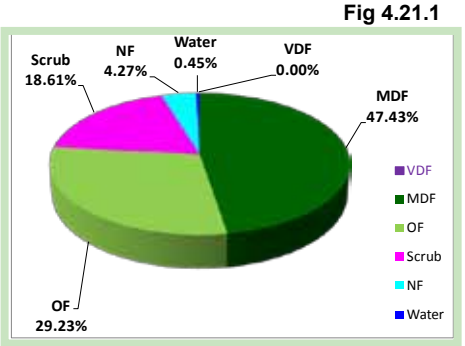


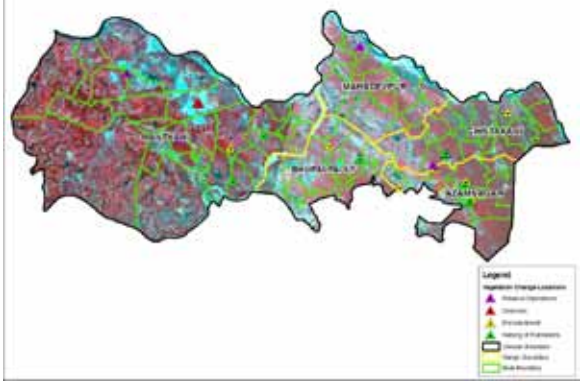




Fig 4.21.2: Map showing LISS-III Imagery of Karimnagar East Division of December 2011



Fig 4.21.3: Map showing Change in Vegetation in October 2012



4.21.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 seasons are shown in Figs 4.21.2 and Fig 4.21.3 respectively and the changes between this period are shown on the image of 2012.

Comparison of the current forest cover with that of previous assessment year shows a negative change of **46.58 Ha** and positive change of **39.04 Ha**. However including the scrub, the total positive change comes to **48.67 Ha** and the negative change **74.88 Ha** The forest cover change matrix given in Table 4.21.2 reveals the changes from one class to another class.

The positive change including scrub of **48.67 Ha** is on account of growth in raised plantations. Of the negative change including scrub of **74.88 Ha, 24.28 Ha** is on account of clearance of jungle growth for raising of plantations, **13.70 Ha** is an account of diversion of forest lands for non-forestry purpose and **36.90 Ha** is on account of encroachments. As clearance of jungle growth for raising of plantations and Diversion of forest Land is a Forest management intervention hence the same is 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 is **36.90 Ha** only.

There are 78 Beats in the Division. Negative changes in forest cover are noticed in 14 Beats and positive 6 Beats only. There are no changes in the remaining 58 Beats.

Details of forest cover in all the Beats of the Division is shown in Table 4.21.3.

Table 4.21.2: Forest Cover change matrix (Area in Km^2)

2011	2012						Total of 2011
	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	**657.81**	0.00	0.00	0.12	0.00	**657.93**
Open Forest	0.00	0.00	**404.98**	0.00	0.35	0.00	**405.33**
Scrub	0.00	0.00	0.39	**258.05**	0.28	0.00	**258.72**
Non-Forest	0.00	0.00	0.00	0.10	**58.47**	0.00	**58.57**
Water	0.00	0.00	0.00	0.00	0.00	**6.26**	**6.26**
Total of 2012	**0.00**	**657.81**	**405.37**	**258.15**	**59.22**	**6.26**	**1386.81**
Net Change	**0.00**	**-0.12**	**0.04**	**-0.57**	**0.65**	**0.00**	

Table 4.21.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
AZAMNAGAR Range									
AZAMNAGAR	0.00	1082.16	343.82	196.65	34.16	0.00	1656.79	**-2.31**	**2.31**

BORLAGUDA	0.00	881.70	267.75	79.43	197.19	0.78	1426.85	**-3.33**	**3.33**
ERRARAM	0.00	219.69	329.09	469.94	420.04	2.13	1440.90	0.00	0.00
KANAKANOOR	0.00	1318.66	419.17	153.54	13.72	1.57	1906.66	0.00	0.00
KHAMMAMPALLY	0.00	2953.65	811.95	188.34	102.68	0.00	4056.63	**0.15**	4.70
MUTHARAM	0.00	256.74	443.74	805.67	257.80	2.66	1766.61	0.00	0.00
NANDIGOAN	0.00	496.37	137.43	396.05	166.48	1.50	1197.83	0.00	0.00
PEGADAPALLY	0.00	3451.35	585.74	185.68	31.25	0.00	4254.02	**0.30**	**4.48**
POLARAM	0.00	188.23	411.76	531.24	202.58	1.27	1335.08	**-10.26**	**10.26**
REDDYPALLY	0.00	2204.64	800.90	230.26	85.36	0.00	3321.16	0.00	0.00
SINGARAM	0.00	4444.02	1008.82	187.21	73.62	7.18	5720.85	0.00	0.00
Total	**0.00**	**17497.22**	**5560.17**	**3424.01**	**1584.87**	**17.10**	**28083.37**	**-15.45**	**25.08**
BHUPALPALLY Range									
BHUPALPALLY	0.00	759.28	311.44	81.25	36.26	0.00	1188.23	0.00	0.00
EDLAPALLY	0.00	446.99	577.26	569.82	88.17	99.75	1781.99	**-3.15**	**3.15**
GORLAVEEDU	0.00	576.74	525.98	657.33	296.69	10.26	2067.00	0.00	0.00
KASIMPALLY	0.00	646.15	250.87	59.07	10.54	1.21	967.83	0.00	0.00
MALLARAM	0.00	1106.30	1388.51	1036.43	111.73	4.65	3647.62	0.00	0.00
MEDIPALLY	0.00	307.64	822.30	472.91	91.91	0.00	1694.76	0.00	0.00
MULUGUPALLY	0.00	499.81	983.55	713.45	90.83	0.75	2288.40	0.00	0.00
RUDRARAM	0.00	139.28	883.55	949.36	137.61	44.07	2153.87	**2.43**	0.00
SHATRAJPALLY	0.00	463.67	529.04	604.29	235.71	0.00	1832.71	0.00	0.00
TADICHERLA	0.00	56.85	296.26	666.73	512.49	0.00	1532.33	0.00	0.00
TOONDLA	0.00	1311.30	651.82	274.85	62.14	0.18	2300.30	0.00	0.00
VALLAMKUNTA	0.00	9.35	28.09	39.17	11.34	0.34	88.30	0.00	0.00
Total	**0.00**	**6323.38**	**7248.67**	**6124.66**	**1685.42**	**161.21**	**21543.34**	**-0.72**	**3.15**
CHINTAKANI Range									
CHINTAKANI	0.00	900.25	449.74	232.02	52.85	0.92	1635.77	0.00	0.00
ETHNARAM	0.00	1892.54	358.91	112.50	56.58	0.00	2420.53	0.00	0.00
KHAMANPALLY	0.00	2452.71	1038.33	385.02	40.58	0.00	3916.64	0.00	0.00
LENKALAGADDA	0.00	924.84	962.29	401.87	1.10	0.00	2290.09	0.00	0.00
LINGAPUR	0.00	1405.08	393.08	92.65	44.42	1.75	1936.98	0.00	0.00
MUKNOOR	0.00	1679.60	211.97	68.29	5.34	0.00	1965.20	0.00	0.00
NEELAMPALLY	0.00	1956.71	434.44	127.59	0.52	1.73	2521.00	0.00	0.00
NIMMAGUDA	0.00	2141.24	830.21	329.34	58.91	0.00	3359.70	**1.04**	0.00
PANKENA	0.00	1989.04	1429.19	295.27	74.72	12.76	3800.97	0.00	0.00
PANMALLA	0.00	669.77	1217.03	591.93	50.19	4.79	2533.70	**-6.57**	**6.57**
PEDDAMPET	0.00	1106.19	804.26	279.73	10.68	0.37	2201.23	0.00	0.00
SARVAIPET	0.00	962.91	669.73	154.73	7.87	0.00	1795.24	0.00	0.00
SINGAMPALLY	0.00	2197.58	397.33	158.54	54.42	0.60	2808.46	0.00	0.00
YAMANPALLY	0.00	1234.91	359.83	180.55	89.31	0.00	1864.60	**-4.21**	0.00
Total	**0.00**	**21513.35**	**9556.33**	**3410.02**	**547.48**	**22.93**	**35050.11**	**-9.75**	**6.57**
MAHADEVPUR Range									
ANNARAM	0.00	620.48	480.35	480.12	35.03	1.26	1617.24	0.00	0.00
BEERASAGAR	0.00	1463.29	438.07	177.79	10.91	0.00	2090.06	0.00	0.00
DAMARAKUNTA	0.00	249.39	778.86	457.46	23.10	4.27	1513.09	0.00	0.00
ELKESHWAR	0.00	1028.34	371.81	143.23	3.72	1.16	1548.27	0.00	0.00
GUMMALLAPALLY	0.00	1157.74	682.35	808.94	167.42	2.33	2818.79	0.00	0.00
HEERAPUR	0.00	957.65	472.43	301.96	29.39	12.91	1774.35	0.00	0.00
KALESHWAR	0.00	872.10	500.40	177.78	27.41	19.13	1596.82	**-4.41**	0.00
KATARAM	0.00	431.86	59.55	54.78	16.80	0.00	562.99	0.00	0.00
KUDURUPALLY	0.00	1184.11	574.45	259.44	3.29	0.00	2021.29	0.00	0.00
MAHADEVPUR	0.00	1010.47	197.89	91.36	0.00	0.00	1299.71	0.00	0.00

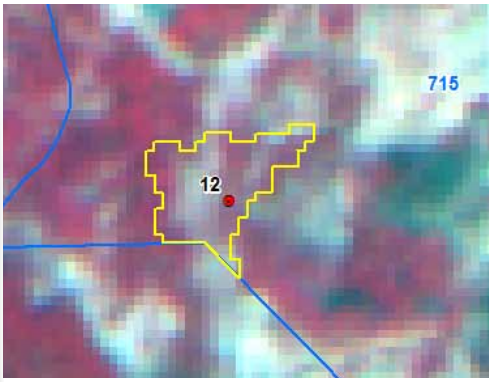




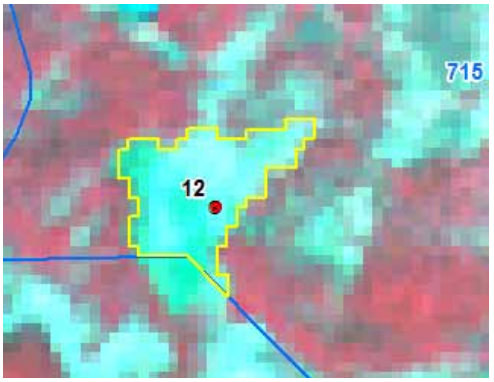
NASTURPALLY	0.00	1118.23	223.82	162.29	9.06	0.00	1513.40	0.00	0.00
PALGUL	0.00	443.94	485.90	398.12	53.11	0.00	1381.07	0.00	0.00
PRATAPGIRI	0.00	663.86	286.51	91.77	35.28	0.49	1077.91	0.00	0.00
RAPALLYKOTA	0.00	558.55	680.46	184.75	18.81	7.01	1449.58	0.00	0.00
SANDRUPALLY	0.00	979.85	364.74	281.02	15.13	0.00	1640.74	0.00	0.00
SURARAM	0.00	85.37	694.12	301.20	84.01	2.97	1167.68	0.00	0.00
Total	**0.00**	**12825.24**	**7291.72**	**4372.01**	**532.48**	**51.55**	**25073.00**	**-4.41**	**0.00**
MANTHANI Range									
ADAVISRIRAMPUR	0.00	358.87	846.99	286.46	15.79	0.76	1508.87	**6.57**	0.00
ARINDA	0.00	17.14	464.44	650.79	74.27	1.32	1207.96	0.00	0.00
BEGUMPET	0.00	567.04	146.46	8.40	0.43	0.00	722.33	0.00	0.00
BHATPALLY	0.00	70.79	507.84	392.14	2.05	0.83	973.66	0.00	0.00
BOMPALLY	0.00	51.96	135.97	44.38	1.64	0.00	233.95	0.00	0.00
EKLASHPUR	0.00	369.99	531.08	445.12	8.70	0.00	1354.89	0.00	0.00
GAJULAPALLY	0.00	745.04	325.73	92.64	2.10	0.00	1165.51	**-2.10**	**2.10**
GOPALPUR	0.00	343.90	732.77	500.88	71.12	8.83	1657.51	**24.95**	0.00
GUNJAPADUGU	0.00	0.00	0.00	116.52	336.51	112.20	553.16	**-13.70**	0.00
KALVACHERLA	0.00	953.71	530.96	142.70	78.29	0.00	1705.66	**-4.09**	0.00
KANNAL	0.00	2.88	189.06	689.93	137.98	35.56	1055.42	**-7.51**	0.00
KHAMMAMPALLY	0.00	366.60	784.44	465.95	28.36	0.00	1645.35	0.00	0.00
KHANSAIPET	0.00	55.37	536.00	807.98	29.79	0.00	1429.13	0.00	0.00
KUKKALAGUDUR	0.00	744.59	445.26	131.60	5.42	0.00	1326.86	0.00	0.00
KUNARAM	0.00	359.69	402.93	245.21	16.94	0.00	1024.77	0.00	0.00
LAKKARAM	0.00	460.86	418.68	496.38	195.29	0.98	1572.19	0.00	0.00
MAIDAMBANDA	0.00	677.03	272.84	88.42	14.13	11.69	1064.11	0.00	0.00
MAREDUGONDA	0.00	33.66	568.88	567.12	145.67	0.00	1315.33	0.00	0.00
PEDDAPALLY	0.00	360.98	598.81	230.66	12.60	0.00	1203.04	0.00	0.00
PUTNOOR	0.00	229.54	374.32	115.08	0.57	0.00	719.51	0.00	0.00
RAMAGUNDAM	0.00	151.32	493.54	175.64	209.92	113.13	1143.55	0.00	0.00
RANGAPUR	0.00	44.89	144.65	442.15	53.81	0.00	685.50	0.00	0.00
SABITHAM	0.00	23.71	209.58	147.07	1.05	0.51	381.92	0.00	0.00
SOMANPALLY	0.00	236.31	656.75	1087.16	85.21	13.62	2093.07	0.00	0.00
TAKKALLAPALLY	0.00	395.96	562.11	113.91	44.09	73.78	1189.85	0.00	0.00
Total	**0.00**	**7621.81**	**10880.11**	**8484.30**	**1571.74**	**373.22**	**28933.12**	**4.12**	**2.10**
Grand Total	**0.00**	**65781.00**	**40537.00**	**25815.00**	**5922.00**	**626.00**	**138680.99**	**-26.21**	**36.90**

Satellite Imageries

2011



2012



Longitude	79.99116 ° E
Latitude	18.50222 ° N
Area in Ha	10.26
Change	OF to NF
Comp No.	715
Beat	Polaram
Range	Azam Nagar
Division	**Karimnagar East**





4.22 KARIM NAGAR WEST DIVISION

4.22.1 Introduction:

Karim Nagar West Forest Division lies in the western part of Karim Nagar district between latitudes 17^0 58' 58" N & 19^0 4' 37"N and longitudes 78^0 30' 56" E & 79^0 36' 54"E. Geographical area of the Division is 8035.72 Km^2 which is 67.78% of the geographical area of district. This Division lies on deccan plateau. The River Godavari forms Northern boundary of the Division. Godavari and Maneru are main rivers of KarimNagar West 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 20^0C to 44^0C and the annual rainfall is about 756 mm, received mainly from south-west monsoons.

The soil types found in the Division mainly are clayey loam, sandy loam and red chalkas interspersed with black cotton soils.

Table 4.22.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	959.19	11.94
Agriculture	5315.40	66.15
Land with Scrub	732.57	9.12
Fallow Lands	246.07	3.07
Settlements	123.64	1.54
Vegetation outside Forest	426.79	5.31
Waterbodies	232.06	2.89
Total	**8035.72**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

Population of the Division is 2.69 million (2011 Census), per capita forest area is 0.04 Ha and the population density is 276 persons per Km^2.

4.22.2 Recorded Forest Area:

The notified forest area of the Division is **1044.71 km^2** which is **13.00%** of the geographical area. Reserved, Protected and un-classed forests constitute **864.29 Km^2** (82.73%), **168.72 Km2** (16.15%) and **11.70 Km^2** (1.12%) of the forest area respectively.

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

4.22.3 Protected Area:

There are no Protected Areas in the Division.

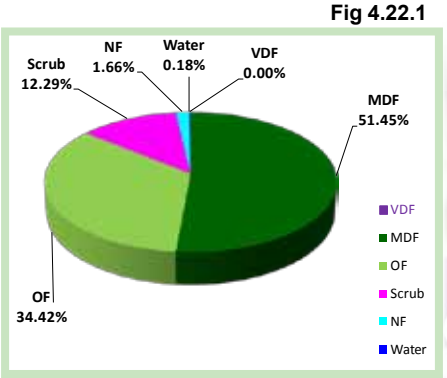
4.22.4 Community Forest Management:

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 the management of VSSs.

4.22.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **836.75 Km^2** which is **10.41%** of the geographical area. In terms of the forest canopy density classes, the Division has **501.38 Km^2** of Moderately Dense Forests and **335.37 Km^2** of Open Forests. The area of the Scrub is **119.75 Km^2**, Non-Forest **16.19 Km^2** and Water Bodies **1.78 Km^2**. The distribution of the forest cover of the Division is shown in Fig 4.22.1.

Fig 4.22.1







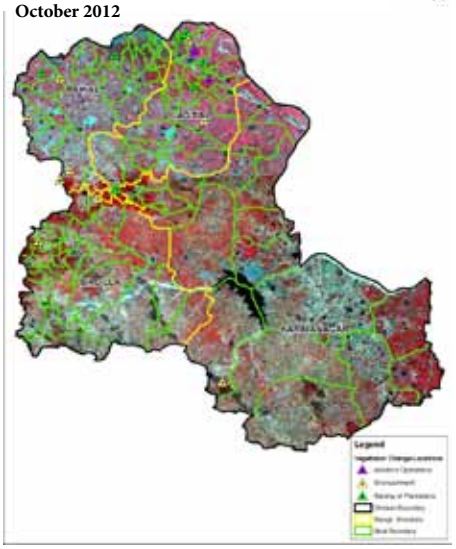
4.22.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 seasons are shown in Figs 4.22.2 and 4.22.3 respectively and the changes between this period are shown on the image of 2012.

Fig 4.22.2: Map showing LISS-III Imagery of Karimnagar West Division of Nov - 2011



Fig 4.22.3: Map showing Change in Vegetation in October 2012



Comparison of the current forest cover with that of previous assessment year shows a negative change of **10.05 Ha**. However, including the scrub, the total positive change comes to **19.61 Ha** and the total negative change **61.82 Ha**. The forest cover change matrix given in Table 4.23.2 reveals the changes from one class to another class.

The total positive change including scrub is **19.61 Ha** on account of growth in raised plantations. Of the total negative change including scrub of **61.82 Ha, 41.86 Ha** is on account of advance operations for raising of plantation and **19.96 Ha** on account of encroachments. As advance operation, for raising of plantation is a Forest management intervention and hence not considered as loss of forest Cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the net loss of forest is **19.96 Ha** only.

There are 106 Beats in the Division. Negative changes in forest cover are noticed in 10 Beats and Positive in 8 Beats only. There are no changes in the remaining 88 Beats.

The forest cover change matrix is given in Table 4.22.2.

Details of forest cover in the all the Beats of the division is shown in Table 4.22.3.

Table 4.22.2: Forest Cover change matrix (Area in Km^2)

2011	2012						**Total of 2011**
	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	**501.38**	0.00	0.00	0.04	0.00	**501.42**
Open Forest	0.00	0.00	**335.37**	0.00	0.06	0.00	**335.43**
Scrub	0.00	0.00	0.00	**119.55**	0.52	0.00	**120.07**
Non-Forest	0.00	0.00	0.00	0.20	**15.57**	0.00	**15.77**
Water	0.00	0.00	0.00	0.00	0.00	**1.78**	**1.78**
Total of 2012	**0.00**	**501.38**	**335.37**	**119.75**	**16.19**	**1.78**	**974.47**
Net Change	**0.00**	**-0.04**	**-0.06**	**-0.32**	**0.42**	**0.00**	





Table 4.22.3: Beat wise forest cover **(area in ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
Jagtial range									
Allipur_east	0.00	198.47	33.99	4.84	0.00	0.00	237.31	0.00	0.00
Allipur_west	0.00	286.45	309.11	7.87	0.00	0.00	603.43	0.00	0.00
Battapally	0.00	294.25	248.90	83.33	6.05	3.41	635.94	0.00	0.00
Chinnapur	0.00	477.78	80.12	15.59	0.00	0.00	573.49	0.00	0.00
Donoor	0.00	495.83	365.91	47.04	0.83	0.00	909.61	0.00	0.00
Eldurthy	0.00	582.21	33.18	6.42	0.00	0.00	621.81	0.00	0.00
Govindaram	0.00	751.13	97.25	8.74	0.00	0.00	857.12	0.00	0.00
Habsipur	0.00	527.33	56.17	23.15	0.63	0.00	607.28	0.00	0.00
Kalleda	0.00	660.23	164.38	64.17	5.72	0.00	894.50	**-1.18**	**1.18**
Kandlapally	0.00	836.29	431.42	99.13	7.92	12.46	1387.23	0.00	0.00
Kolvai	0.00	421.85	378.17	284.40	11.20	0.00	1095.62	**-1.01**	**1.01**
Laxmidevipally	0.00	774.44	119.63	18.20	0.83	1.79	914.89	0.00	0.00
Maddutla	0.00	676.06	7.85	1.71	29.17	0.00	714.79	0.00	0.00
Manal	0.00	511.18	39.05	25.14	0.00	0.00	575.36	0.00	0.00
Muthkuraopet	0.00	620.48	51.13	67.90	21.48	0.00	760.98	**5.23**	0.00
Nagnoor	0.00	763.49	276.52	25.27	0.00	0.00	1065.28	0.00	0.00
Narsimulapally	0.00	557.00	436.14	195.93	29.03	5.46	1223.55	**-20.02**	0.00
Nerella	0.00	790.43	495.88	115.13	26.05	0.00	1427.48	**-16.57**	0.00
Ogulapur	0.00	820.40	137.50	11.76	0.72	0.00	970.38	0.00	0.00
Rangasagar	0.00	566.23	445.95	47.78	4.19	0.00	1064.16	0.00	0.00
Rechapally_east	0.00	548.15	155.81	30.87	0.19	0.00	735.02	0.00	0.00
Rechapally_west	0.00	324.28	33.52	4.20	0.95	0.00	362.95	0.00	0.00
Sarangapur	0.00	740.43	142.95	43.10	4.20	7.14	937.82	0.00	0.00
Talladharmaram	0.00	310.18	390.90	172.63	19.37	0.00	893.08	**8.04**	0.00
Tatipally_north	0.00	437.68	49.62	4.80	5.53	0.00	497.63	0.00	0.00
Tatpally_south	0.00	493.83	99.07	20.22	5.60	0.00	618.72	0.00	0.00
Thurthi	0.00	643.76	70.18	11.76	17.61	0.00	743.31	0.00	0.00
Tuminalla	0.00	414.49	343.76	132.46	10.94	1.29	902.93	0.00	0.00
Velgonda	0.00	137.04	25.85	0.40	0.00	0.00	163.29	0.00	0.00
Waddat	0.00	1199.49	194.10	17.57	1.20	0.00	1412.36	0.00	0.00
Total	**0.00**	**16860.87**	**5714.02**	**1591.49**	**209.42**	**31.55**	**24407.36**	**-25.51**	**2.19**
Karimanagar range									
Bommareddypally	0.00	527.43	355.63	18.05	3.20	0.00	904.31	0.00	0.00
Dammaipet	0.00	901.73	159.97	35.45	0.00	0.00	1097.15	0.00	0.00
Elkaturthy	0.00	30.27	19.99	4.51	0.68	0.00	55.46	0.00	0.00
Fazilnagar	0.00	960.16	190.36	18.40	0.00	0.00	1168.92	0.00	0.00
Gangadhara	0.00	1.21	4.16	0.37	0.00	0.00	5.73	0.00	0.00
Gollakota	0.00	603.36	286.61	37.13	5.03	4.12	936.25	0.00	0.00
Kapparaopet	0.00	113.75	222.61	298.97	32.99	0.00	668.33	0.00	0.00
Karimanagar	0.00	0.00	1.27	0.00	2.08	0.00	3.34	0.00	0.00
Kodmial	0.00	819.28	116.46	15.85	0.00	0.00	951.59	0.00	0.00
Lagalamarri	0.00	584.11	381.61	38.56	2.97	0.00	1007.26	0.00	0.00
Mirzapur	0.00	2043.04	1211.04	557.89	71.70	0.00	3883.67	0.00	0.00
Muthyampet	0.00	713.75	87.44	21.08	0.00	0.00	822.27	0.00	0.00
Raipatnam	0.00	244.13	362.33	413.18	77.75	0.00	1097.38	0.00	0.00
Regonda	0.00	60.73	679.12	808.46	38.03	0.00	1586.34	0.00	0.00
Shanigaram	0.00	164.38	711.01	393.21	51.99	12.70	1333.29	**-2.65**	**2.65**
Surampet	0.00	849.57	75.93	20.02	1.63	0.00	947.15	0.00	0.00
Tirumalapur	0.00	849.31	111.84	8.91	1.06	0.00	971.12	0.00	0.00





Total	**0.00**	**9466.20**	**4977.37**	**2690.04**	**289.13**	**16.82**	**17439.57**	**-2.65**	**2.65**
Raikal range									
Amberpet	0.00	739.93	170.20	56.30	6.20	0.00	972.63	0.00	0.00
Bandalingapur]	0.00	354.96	255.46	61.42	15.93	1.51	689.27	0.00	0.00
Bhupathipur	0.00	957.92	94.20	13.97	2.91	0.00	1069.00	0.00	0.00
Bornapally_north	0.00	719.59	540.32	375.12	52.77	0.28	1688.09	0.00	0.00
Bornapally_south	0.00	457.34	150.51	6.59	0.00	0.39	614.83	0.00	0.00
Chintakunta	0.00	1628.71	151.91	58.29	13.71	0.00	1852.62	**-5.90**	**5.90**
Chintalur	0.00	789.75	124.34	13.06	0.00	0.00	927.15	0.00	0.00
Dabba	0.00	455.48	230.47	73.89	4.80	0.00	764.64	0.00	0.00
Devanpally	0.00	298.50	294.62	90.44	10.83	0.00	694.39	0.00	0.00
Dharmajipet	0.00	736.91	23.49	1.86	0.00	0.00	762.26	0.00	0.00
Gorrepally	0.00	747.55	273.93	118.55	32.47	0.00	1172.50	0.00	0.00
Heerapur	0.00	451.66	143.51	1.21	0.00	0.00	596.37	0.00	0.00
Ibrahimpatnam	0.00	268.97	244.51	115.02	28.81	6.27	663.58	**-4.46**	**4.46**
Katkapur_north	0.00	117.96	377.80	251.61	54.99	0.00	802.37	0.00	0.00
Katkapur_south	0.00	388.82	498.18	113.25	1.41	0.00	1001.66	0.00	0.00
Kothapet	0.00	665.41	83.97	6.65	0.00	0.00	756.02	0.00	0.00
Laxmipur	0.00	80.12	296.17	125.03	3.17	0.00	504.49	0.00	0.00
Mallapur	0.00	47.61	114.81	84.68	126.67	7.45	381.22	0.00	0.00
Moghalpet	0.00	613.93	132.97	25.35	6.14	0.51	778.89	0.00	0.00
Rangaraopet	0.00	669.65	285.22	108.04	11.81	0.87	1075.59	0.00	0.00
Regunta	0.00	511.26	371.09	196.59	8.72	0.00	1087.65	0.00	0.00
Sattakkapally	0.00	58.07	68.78	0.90	1.62	0.00	129.38	**-1.46**	**1.46**
Tatalvai	0.00	717.68	8.53	0.00	0.00	0.00	726.21	0.00	0.00
Vasthapur	0.00	696.54	96.90	10.49	5.64	0.00	815.92	0.00	0.00
Vempallyvenkatraopet	0.00	865.13	263.71	15.95	11.71	0.67	1150.73	**-5.27**	0.00
Vemulakurthy	0.00	450.11	185.38	95.90	6.05	0.00	737.44	**6.34**	0.00
Total	**0.00**	**14489.56**	**5480.96**	**2020.16**	**406.35**	**17.96**	**22414.89**	**-10.75**	**11.82**
Sircilla range									
Advipadira	0.00	69.22	271.12	107.59	5.49	0.00	496.51	0.00	0.00
Akkapally	0.00	244.94	721.79	62.01	53.85	0.00	1039.51	0.00	0.00
Almaspur	0.00	230.12	803.71	155.69	5.71	0.00	1195.24	0.00	0.00
Chandurthy	0.00	971.56	60.06	51.01	0.00	0.00	1082.63	0.00	0.00
Chirlavancha	0.00	0.00	139.30	270.85	8.73	0.00	418.88	0.00	0.00
Garjanpally	0.00	318.03	393.24	194.41	27.21	72.79	1015.68	0.00	0.00
Gollapally	0.00	163.09	903.35	199.62	18.43	0.00	1274.48	0.00	0.00
Gorintial	0.00	249.06	682.76	233.86	34.61	1.00	1201.29	0.00	0.00
Gundaram	0.00	214.65	554.25	188.51	20.33	0.00	983.31	0.00	0.00
Irnapally	0.00	417.44	882.47	172.15	19.17	1.06	1486.72	0.00	0.00
Jillella	0.00	49.97	665.71	557.19	76.38	0.50	1362.56	0.00	0.00
Kancherla	0.00	480.44	400.97	59.03	1.43	0.00	929.06	0.00	0.00
Konaraopet	0.00	378.23	739.52	47.05	4.53	0.00	1169.33	0.00	0.00
Lingannapet	0.00	111.55	601.37	314.55	37.22	0.00	1064.69	0.00	0.00

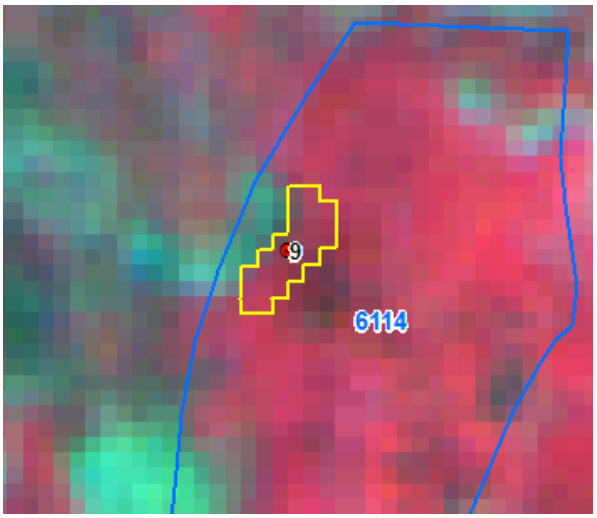




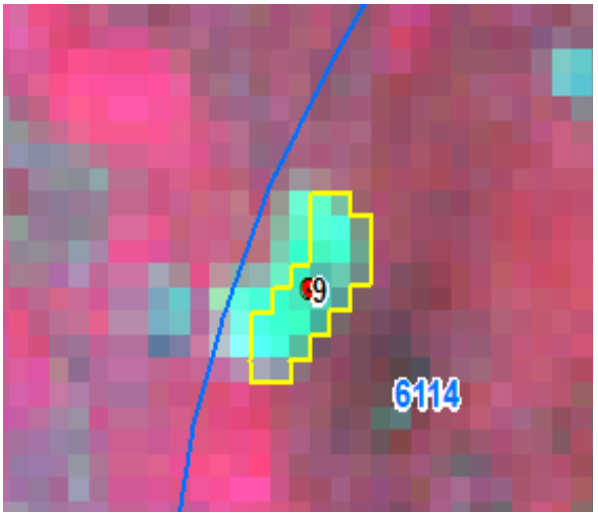
Maddimalla_north	0.00	433.83	369.04	255.08	106.75	0.00	1164.71	0.00	0.00
Maddimalla_south	0.00	196.28	420.65	385.90	79.85	0.00	1082.68	0.00	0.00
Marrimadla_north	0.00	581.24	1364.19	214.34	8.24	4.26	2172.26	0.00	0.00
Marrimadla_south	0.00	165.70	547.75	144.36	31.04	5.23	894.09	0.00	0.00
Mucherla	0.00	222.13	738.28	313.24	9.72	0.00	1283.37	0.00	0.00
Nimmapally	0.00	289.22	546.79	115.43	3.60	9.56	964.60	0.00	0.00
Nizamabad	0.00	297.17	845.57	139.02	9.33	0.00	1291.09	0.00	0.00
Nookalamarri	0.00	718.35	64.19	8.18	0.00	0.00	790.73	0.00	0.00
Peddalingapur	0.00	10.29	114.20	237.27	22.44	0.00	384.19	0.00	0.00
Rudrangi_east	0.00	807.09	216.22	16.75	7.03	0.00	1047.09	**-1.19**	**1.19**
Rudrangi_west	0.00	919.74	1401.08	253.84	10.07	6.01	2590.73	0.00	0.00
Thimmapur	0.00	202.23	491.35	236.91	33.43	0.78	964.70	0.00	0.00
Vanpally	0.00	269.54	428.87	118.73	42.02	0.00	859.16	**-2.11**	**2.11**
Vattimalla	0.00	185.81	1303.11	372.46	23.40	10.41	1895.19	0.00	0.00
Venkatapur	0.00	123.60	694.16	248.45	14.92	0.00	1081.13	0.00	0.00
Total	**0.00**	**9320.56**	**17365.06**	**5673.47**	**714.92**	**111.61**	**33185.61**	**-3.30**	**3.30**
Division total	**0.00**	**50137.09**	**33537.42**	**11975.16**	**1619.82**	**177.95**	**97447.43**	**-42.21**	**19.96**

Satellite Imageries

2011



2012



Longitude	78.55412 ° E
Latitude	18.83753 ° N
Area in Ha	1.46
Change	DF to NF
Comp No.	6114
Beat	Sattakkapally
Range	Raikal
Division	KarimnagarWest





4.23 WARANGAL NORTH DIVISION

4.23.1 Introduction:

Warangal North Forest Division lies in the north-western part of Warangal district between latitudes 17^0 29' 16" N & 18^0 36' 20" N and longitudes 78^0 49' 49" E & 80^0 40' 13" E. Geographical area of the Division is 8666.70 Km^2 which is 67.54% of the geographical area of the district. The elevation of the terrain Ranges from 266 to 518 m above Mean Sea level (MSL). The general slope of the land is towards south-east, the surplus water draining into Godavari River. Dayyam vagu is one of the important rivulets flowing in the Division and passes mostly through Forest area.

Land use pattern of the Division is given in Table 4.23.1

Table 4.23.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	2062.96	23.80
Agriculture	5402.94	62.34
Land with Scrub	353.33	4.08
Fallow Lands	304.51	3.51
Settlements	103.8	1.20
Vegetation outside Forest	171.84	1.98
Water Bodies	267.32	3.08
Total	**8666.70**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

The climate of this Division is generally dry with temperature ranging from 13.5^{0}C to 39.6^{0}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 Archaens, Granites, Gneisses and Dykes. The mineral resources in this Division are Iron ore, Lime stone and Coal.

Population of the Division is 2.57 million (2011 Census), per capita forest area is 0.09 Ha and the population density is 286 persons per Km^2.

4.23.2 Recorded Forest Area:

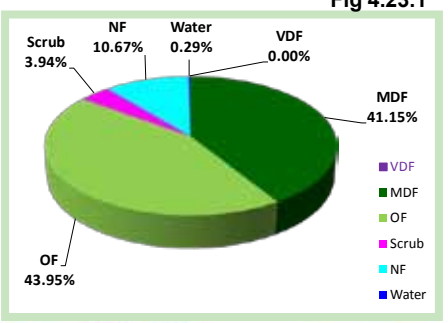
The notified forest area of the Division is **2310.25 Km^2** which is 26.66% of the geographical area. Reserved, Protected and un-classed forests constitute **1579.06 Km^2** (68.35%), **709.02 Km^2** (30.69%) and **22.18 Km^2** (0.95%) of the forest area respectively.

As per Champion and Seth's classification the forests of this Division fall under Dry Deciduous Teak Forests and Tropical Moist Deciduous Forests.

4.23.3 Protected Area:

There is no Protected Area in the Division, after carving out of Warangal WLM Division containing Eturnagaram and Tadwai WLSs.

Fig 4.23.1



4.23.4 Joint Forest Management:

There are 127 Vana Samrakshana Samities (VSSs) in the Division. 332.38 Km^2 of forest area, which is 8.95 % of the notified forests, is under the management of the VSSs.

4.23.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **1965.90 Km^2** which is





22.68% of the geographical area. In terms of the forest canopy density classes the Division has **950.56 Km²** of Moderately Dense Forests and **1015.34 Km²** Open Forests. The area of the Scrub is **91.02 Km²**, Non-Forests **246.60 Km²** and Water Bodies **6.73 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 2011 and 2012 seasons are shown in Figs. 4.23.2 and 4.23.3 respectively and

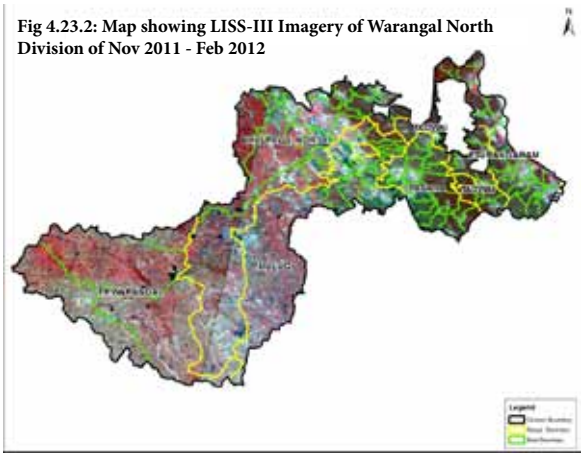


Fig 4.23.2: Map showing LISS-III Imagery of Warangal North Division of Nov 2011 - Feb 2012

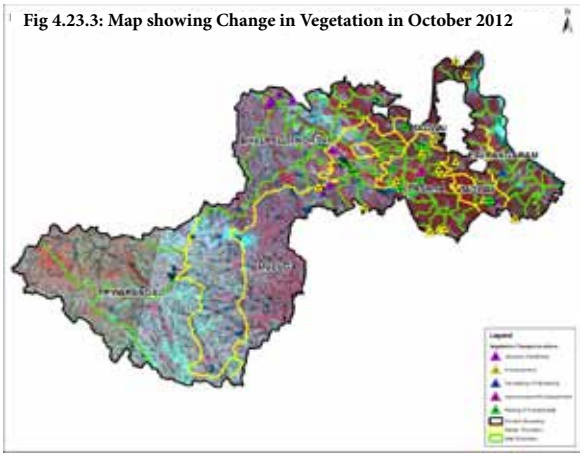


Fig 4.23.3: Map showing Change in Vegetation in October 2012

the changes between this period are shown on the image of 2012.

Comparison of the current forest cover with that of previous assessment year shows a **negative change** in forest cover of **71.21 Ha**. However, including the scrub, the **total positive change 96.71 Ha** and **the total negative change** (including scrub) is **126.64 Ha**. The forest cover change matrix given in Table 4.23.2 reveals the changes from one class to another class.

Out of the total positive change (including scrub) of **96.71 Ha, 92.96 Ha** on account of growth in raised plantations and **3.75 Ha** on account of evacuation of encroached land and consequent improvement in the greenness. Out of the total negative change (including scrub) of **126.64 Ha, 56.96 Ha** is on account of clearance of jungle growth for raising of plantations, **6.32 Ha** on account of harvesting of plantation and **63.36 Ha** on account of encroachments. As clearance of jungle growth for raising of plantations and harvesting of plantations are forest management interventions the same are not considered as loss of forest cover. Thus only the negative change due to encroachments is taken as loss of forest cover. Therefore the net loss of forests is **63.36 Ha** in the Division.

There are 84 Beats in the Division. Negative changes in the forest cover are noticed in 19 Beats and positive change in 8 Beats. There are no changes inthe remaining 57 Beats.

Details of forest cover in all the Beats of the Division is shown in Table 4.23.3

Table 4.23.2: Forest Cover change matrix (Area in Km²)

2011	2012						Total of 2011
	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	**950.56**	0.00	0.00	0.25	0.00	**950.81**
Open Forest	0.00	0.00	**1015.34**	0.00	0.46	0.00	**1015.80**
Scrub	0.00	0.00	0.00	**90.05**	0.55	0.00	**90.60**
Non-Forest	0.00	0.00	0.00	0.97	**245.34**	0.00	**246.31**
Water	0.00	0.00	0.00	0.00	0.00	**6.73**	**6.73**
Total of 2012	**0.00**	**950.56**	**1015.34**	**91.02**	**246.60**	**6.73**	**2310.25**
Net Change	**0.00**	**-0.25**	**-0.46**	**0.42**	**0.29**	**0.00**	





Table 4.23.3: Beat wise forest cover **(area in ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
Bhupalapalli_north range									
Andukthanda	0.00	235.40	504.12	66.94	152.39	0.00	958.85	**-19.40**	0.00
Bhagirthipet	0.00	18.79	411.10	190.67	480.62	0.00	1101.17	0.00	0.00
Chelpur	0.00	774.49	701.40	39.93	165.35	6.33	1687.50	0.00	0.00
Dudekulapalli	0.00	1356.79	1164.69	26.01	68.85	0.00	2616.35	0.00	0.00
Kamalapur	0.00	978.21	2231.97	143.00	368.01	7.26	3728.45	**-3.38**	**3.38**
Mallampalli	0.00	1078.16	656.56	20.35	117.59	0.00	1872.65	0.00	0.00
Nawabpet	0.00	218.57	432.79	95.79	107.50	38.97	893.61	0.00	0.00
Neredupally	0.00	3.09	453.56	172.32	561.53	14.56	1205.07	**-4.33**	0.00
Pambapur	0.00	164.69	667.00	80.93	617.55	25.49	1555.66	0.00	0.00
Peddapur i	0.00	1225.35	818.70	18.80	19.17	0.00	2082.02	0.00	0.00
Peddapur ii	0.00	1206.15	415.64	32.13	80.43	0.00	1734.35	0.00	0.00
Pongal	0.00	65.43	351.86	82.46	380.08	0.00	879.83	0.00	0.00
Rampur n	0.00	427.31	1321.58	92.88	198.11	0.00	2039.88	0.00	0.00
Rampur s	0.00	1772.00	2929.96	151.31	221.08	0.00	5074.36	0.00	0.00
Ravulapalli	0.00	51.42	545.47	78.89	349.29	5.11	1030.18	0.00	0.00
Thirmalagiri	0.00	126.88	1077.79	462.23	905.36	2.06	2574.33	**-2.80**	**2.80**
Velchal	0.00	122.97	280.80	106.05	219.63	0.79	730.24	0.00	0.00
Vencharam	0.00	63.36	950.47	276.95	957.11	0.00	2247.88	**-3.09**	0.00
Yennelamadugu	0.00	2215.88	2116.01	133.26	185.62	0.00	4650.77	0.00	0.00
Total	**0.00**	**12104.95**	**18031.45**	**2270.91**	**6155.26**	**100.57**	**38663.14**	**-33.00**	**6.18**
Eturangaram range									
Mallur	0.00	824.45	486.50	33.39	88.15	0.00	1432.50	0.00	0.00
Bhupathipur	0.00	1553.78	1217.16	34.11	91.02	1.21	2897.29	**-1.63**	**1.63**
Chittial	0.00	1597.62	834.13	14.90	49.72	0.00	2496.38	0.00	0.00
Domeda	0.00	512.04	1941.93	138.84	316.59	0.00	2909.40	**-1.81**	**1.81**
Eturnagaram	0.00	778.78	876.21	103.56	293.20	0.00	2051.75	0.00	0.00
Gangaram	0.00	2174.54	788.56	23.40	26.05	0.00	3012.56	0.00	0.00
Gurvella	0.00	1419.84	902.08	47.37	392.28	23.48	2785.04	**-5.50**	**5.50**
Komatpalli	0.00	407.44	1339.19	174.93	823.46	4.18	2749.20	**-6.32**	0.00
Mangapet	0.00	224.24	1225.18	156.86	352.65	0.00	1958.93	0.00	0.00
Narsimhasagar	0.00	575.97	1440.20	52.10	654.04	30.06	2752.37	0.00	0.00
Puredpalli	0.00	1263.36	1721.78	187.09	484.26	0.00	3656.50	0.00	0.00
Rajupet	0.00	649.50	165.77	34.98	65.93	0.00	916.18	0.00	0.00
Rampur_ Mulakatta	0.00	640.75	1390.47	71.20	326.97	14.74	2444.13	0.00	0.00
Rangapur	0.00	792.08	3197.77	210.53	109.04	0.00	4309.42	**-2.99**	**2.99**
Roheer	0.00	1597.63	1488.80	120.60	605.28	94.03	3906.33	0.00	0.00
Salpak	0.00	1710.88	1899.00	97.29	291.49	18.12	4016.79	0.00	0.00
Thimmampet	0.00	925.70	2096.99	199.76	1082.17	10.43	4315.06	0.00	0.00
Thimmapur	0.00	478.12	2532.26	179.84	106.68	0.00	3296.90	0.00	0.00
Tondyal Laxmipur	0.00	1208.48	1605.51	80.56	116.22	0.00	3010.78	0.00	0.00
Tupakulaguda	0.00	423.32	1057.04	27.36	144.83	12.10	1664.64	0.00	0.00
Total	**0.00**	**19758.54**	**28206.52**	**1988.67**	**6420.04**	**208.35**	**56582.12**	**-18.25**	**11.93**





Mulug range									
Burgupet	0.00	2788.53	1884.93	132.40	207.40	3.28	5016.54	0.00	0.00
Incherla	0.00	58.88	303.00	65.92	264.95	20.37	713.11	0.00	0.00
Jakaram	0.00	141.38	811.20	218.08	664.43	5.50	1840.59	0.00	0.00
Kasimdevipet	0.00	848.30	849.10	83.70	193.61	0.00	1974.71	0.00	0.00
Katrepally	0.00	114.69	863.65	111.89	365.46	0.00	1455.69	**-4.46**	**2.39**
Machapur	0.00	688.86	653.81	57.27	79.91	0.00	1479.85	0.00	0.00
Mulug	0.00	172.54	395.06	136.52	203.80	0.00	907.93	0.00	0.00
Nallagunta	0.00	996.61	462.93	16.23	27.70	0.00	1503.47	0.00	0.00
Narayanpur	0.00	813.14	1154.03	0.00	292.65	5.01	2234.84	0.00	0.00
Narsingapur	0.00	1599.94	998.58	50.95	26.91	0.00	2676.37	0.00	0.00
Palampet	0.00	88.60	512.04	59.72	407.40	9.03	1076.79	**-8.63**	0.00
Pandikunta	0.00	77.59	780.08	203.90	481.58	129.41	1672.57	**-14.03**	0.00
Rayanguda	0.00	864.97	3575.08	297.77	444.66	25.33	5207.81	**-0.99**	**0.99**
Venkatapur	0.00	1381.90	1253.38	142.63	166.53	0.00	2944.44	0.00	0.00
Total	**0.00**	**10635.93**	**14466.87**	**1576.97**	**3827.02**	**197.93**	**30704.71**	**-28.11**	**3.38**
Pasara range									
Alliguda s	0.00	2574.20	623.04	14.95	60.87	3.46	3276.51	0.00	0.00
Alliguda_n	0.00	2202.63	527.86	33.53	114.54	0.00	2878.56	0.00	0.00
Bandal	0.00	5076.76	1122.29	40.57	88.41	0.00	6328.02	0.00	0.00
Bussapur	0.00	631.58	916.77	128.51	183.94	0.67	1861.47	0.00	0.00
Karlapalli_n	0.00	963.16	2557.77	258.77	569.07	15.24	4364.01	**12.72**	0.00
Karlapalli_s	0.00	1746.33	2290.94	61.50	155.63	1.54	4255.93	0.00	0.00
Kodishella_n	0.00	1928.60	1869.98	29.65	35.68	0.00	3863.91	0.00	0.00
Kodishella_s	0.00	1303.10	1864.32	22.52	26.30	0.00	3216.24	**-3.53**	**3.53**
Kothanagaram	0.00	1101.26	955.85	81.64	598.15	6.51	2743.41	0.00	0.00
Lawal	0.00	4799.62	1448.47	90.45	177.14	0.00	6515.68	**13.17**	0.00
Lingal	0.00	2459.60	1721.89	121.49	489.30	2.15	4794.43	**-15.47**	**15.47**
Motlaguda	0.00	2322.30	2008.45	71.44	143.92	0.00	4546.11	0.00	0.00
Narlapur	0.00	829.59	1520.77	233.00	375.79	13.09	2972.24	**6.00**	0.00
Pasra	0.00	1661.21	1104.20	57.59	49.90	0.00	2872.90	**9.30**	**7.37**
Salvai	0.00	942.12	1673.05	129.73	379.87	0.00	3124.77	**4.88**	**1.52**
Yenglapur	0.00	1392.85	1674.14	73.65	156.35	9.01	3306.01	**-4.39**	**4.39**
Total	**0.00**	**31934.93**	**23879.79**	**1448.98**	**3604.85**	**51.67**	**60920.21**	**22.68**	**32.28**
T.P.Warangal range									
Devnoor	0.00	24.45	466.70	67.64	82.71	0.00	641.49	0.00	0.00
Machupad	0.00	622.71	708.21	51.19	94.06	0.00	1476.17	0.00	0.00
Nagapuri	0.00	0.00	30.50	50.68	895.96	3.13	980.27	0.00	0.00
Raghunathpalli	0.00	0.00	36.88	57.94	115.23	0.00	210.06	0.00	0.00
Tatikonda	0.00	2.61	673.13	437.04	1297.03	6.69	2416.50	0.00	0.00
Total	**0.00**	**649.77**	**1915.42**	**664.49**	**2484.99**	**9.82**	**5724.50**	**0.00**	**0.00**
Tadwai range									
Beerelli	0.00	1992.24	2024.01	291.70	575.72	18.98	4902.65	**3.57**	0.00
Bodiguda	0.00	2104.59	1348.19	45.56	89.93	25.49	3613.76	0.00	0.00
Chinna	0.00	1396.86	965.13	97.74	388.16	0.00	2847.89	**-3.65**	**3.65**
Boinapally Damervai	0.00	996.34	1159.18	68.05	133.20	0.00	2356.76	0.00	0.00

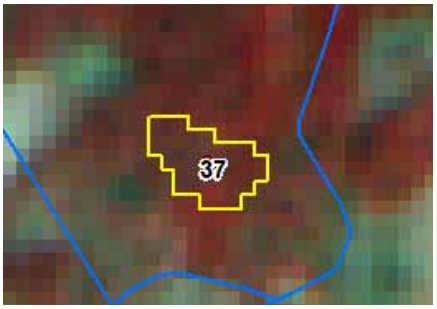


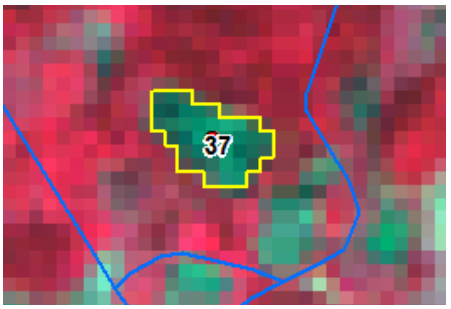


Katapur	0.00	1143.75	773.55	64.76	85.78	2.30	2070.15	**-3.98**	0.00
Oorattam	0.00	4603.03	3699.60	214.99	383.68	25.20	8926.50	**3.50**	**1.17**
Rampur_new	0.00	1177.56	877.18	107.55	34.64	0.00	2196.92	**29.70**	**2.38**
Shahpalli	0.00	2088.05	1478.43	92.97	265.78	21.90	3947.14	0.00	0.00
Souledu	0.00	2260.94	931.55	4.48	4.76	0.00	3201.73	0.00	0.00
Tadvai	0.00	2208.00	1777.53	163.65	207.15	10.49	4366.83	**-2.39**	**2.39**
Total	**0.00**	**19971.35**	**15034.35**	**1151.45**	**2168.80**	**104.37**	**38430.32**	**26.75**	**9.59**
Division total	**0.00**	**95055.47**	**101534.39**	**9101.47**	**24660.96**	**672.72**	**231025.01**	**-29.93**	**63.36**

Satellite Imageries

2011





2012

Longitude	80.39727 ° E
Latitude	18.11748 ° N
Area in Ha	2.38
Change	DF to NF
Comp No.	326
Beat	Rampur_New
Range	Tadvai
Division	**Warangal North**







4.24 WARANGAL SOUTH DIVISION

4.24.1 Introduction:

Warangal South Forest Division lies in the south-eastern part of Warangal district between latitudes 17^0 19' 05" N & 18^0 07' 04" N and longitudes 79^0 35' 32" E & 80^0 18' 32" E. Geographical area of the Division is 3,619.78 Km^2 which is 28.21% of the 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 above MSL.

Land use pattern of the Division is given in Table 4.24.1

The climate of this Division is generally dry with temperatures ranging from 13.5^{0}C to 39.6^{0}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.

Population of the Division is 0.95 million (2011 Census), per capita forest area is 0.18 Ha and the population density is 246 persons per Km^2.

Table 4.24.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	815.16	22.52
Agriculture	2296.34	63.44
Land with Scrub	177.88	4.91
Fallow Lands	75.84	2.10
Settlements	13.11	0.36
Vegetation outside Forest	94.30	2.61
Water Body	147.15	4.07
Total	**3619.78**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

4.24.2 Recorded Forest Area:

The notified forest area of the Division is **1174 Km^2** which is 32.43% of the geographical area. Reserved, Protected and un-classed forests constitute **572.8 Km^2** (48.79%), **598 Km^2** (51.03%) and **2.11 Km^2** (0.18%) of the 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 Tropical Dry Mixed Teak Forests.

4.24.3 Protected Area:

There is no Protected Area in the Division after carving out of Warangal WLM Division consisting of Pakhal WLS.

4.24.4 Joint Forest Management:

There are 147 Vana Samrakshana Samities (VSSs) in the Division. An area of 339.46 Km^2 of forests, which is 19.89 % of notified forest area, is under the management of the VSSs.

4.24.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **727.69 Km^2** which is **20.10%** of the geographical area. In terms of the forest canopy density classes the Division has **303.98 Km^2** of Moderately Dense Forests and **423.71 Km^2** of Open Forests. The area of the Scrub is **80.45 Km^2**, Non-Forest **344.22 Km^2** and Water Bodies **22.29 Km^2**. The distribution of the forest cover of the Division is shown in Fig 4.24.1

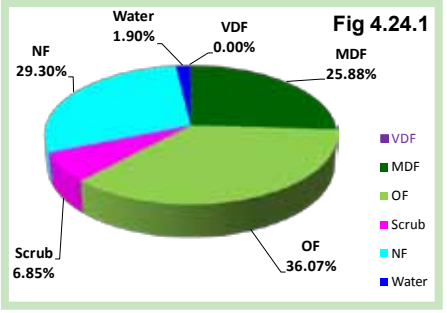


Fig 4.24.1

4.24.6 Change in Forest Cover:

The Satellite images of 2011 and 2012 seasons are shown in Figs. 4.24.2 and 4.24.3 respectively and the changes between this period are shown on the image of 2012.





Fig 4.24.2: Map showing LISS-III Imagery of Warangal Division of Oct 2010 / Feb 2012

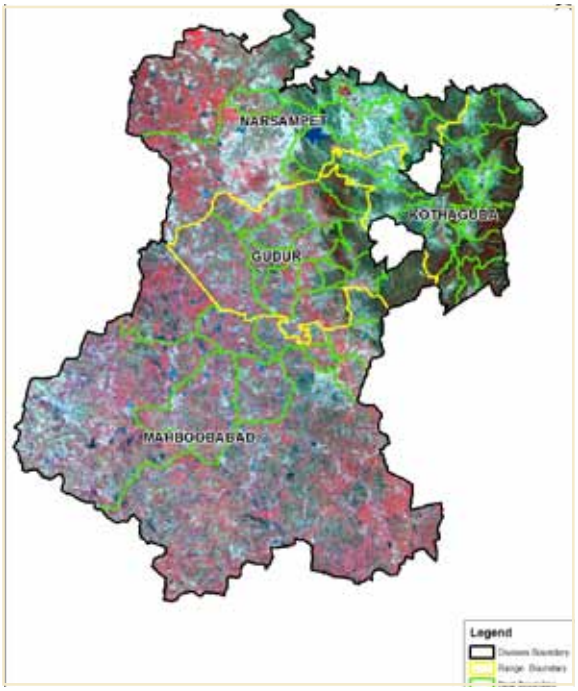
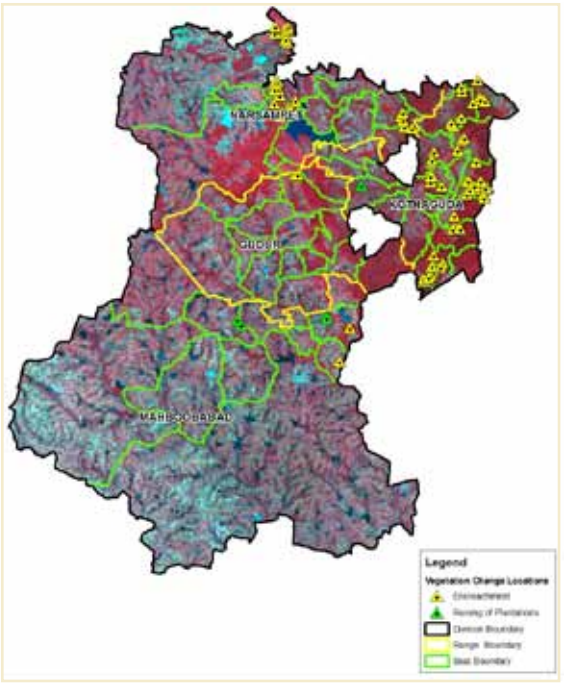


Fig 4.24.3: Map showing Change in Vegetation in October 2012



Comparison of the current forest cover with that of previous assessment year shows a **positive change** of **66.03 Ha** and **negative change** of **476.64 Ha.** However, including the scrub, the total **positive change** comes to **76.99** Ha and the **negative change** is **492.82 Ha**. The forest cover change matrix given in Table 4.44.2 reveals the changes from one class to another class.

The total **positive change** (including scrub) is **76.99 Ha** is on account of growth in raised Plantations. The entire **negative change** (including scrub) of **492.82 Ha** is on account of encroachments. Therefore the **net loss of forests** is **492.82 Ha**.

There are 56 Beats in the Division. Negative changes in forest cover are noticed in 18 Beats and positive changes in 3 Beats only. There are no changes in the remaining 34 Beats.

Details of forest cover in all the Beats of the Division is shown in Table 4.24.3

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

2011	2012						**Total of 2011**
	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	**303.98**	0.00	1.19	1.27	0.00	**306.44**
Open Forest	0.00	0.00	**423.05**	0.65	1.66	0.00	**425.36**
Scrub	0.00	0.00	0.10	**78.50**	0.16	0.00	**78.76**
Non-Forest	0.00	0.00	0.56	0.11	**341.13**	0.00	**341.80**
Waterbodies	0.00	0.00	0.00	0.00	0.00	**22.29**	**22.29**
Total of 2012	**0.00**	**303.98**	**423.71**	**80.45**	**344.22**	**22.29**	**1174.65**
Net Change	**0.00**	**-2.46**	**-1.65**	**1.69**	**2.42**	**0.00**	





Table 4.24.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
GUDUR Range									
Apparajpally	0.00	273.68	582.67	324.31	737.32	7.45	1925.43	0.00	0.00
Bhupathipet	0.00	1292.10	801.12	85.11	623.34	16.12	2817.79	**-17.31**	**17.31**
Damarancha	0.00	1.83	171.21	132.72	620.86	0.00	926.62	0.00	0.00
Doravari thimmapur	0.00	2517.22	1910.77	60.89	66.87	2.53	4558.28	0.00	0.00
Gajulagattu	0.00	9.81	438.10	158.58	526.09	2.09	1134.67	0.00	0.00
Gudur	0.00	597.37	803.42	207.83	544.07	27.46	2180.15	0.00	0.00
Gunjed	0.00	1393.26	909.30	63.16	164.00	8.57	2538.29	0.00	0.00
Macherla	0.00	208.48	441.92	111.72	160.84	2.05	925.01	0.00	0.00
Matwada	0.00	487.45	1240.71	124.28	383.14	2.31	2237.89	0.00	0.00
Nagaram	0.00	10.40	442.93	242.29	1638.01	13.61	2347.24	0.00	0.00
Naikpally	0.00	9.49	303.63	116.90	653.01	21.50	1104.53	0.00	0.00
Otla	0.00	1244.49	1198.41	163.19	371.35	4.91	2982.35	0.00	0.00
Ponugodu	0.00	120.91	678.39	117.35	881.21	34.52	1832.38	0.00	0.00
Raichetlapad	0.00	75.23	170.01	24.97	335.30	0.00	605.51	0.00	0.00
Total	**0.00**	**8241.72**	**10092.59**	**1933.30**	**7705.41**	**143.12**	**28116.14**	**-17.31**	**17.31**
KOTHAGUDA Range									
Bavargonda	0.00	639.93	641.23	82.84	440.76	7.91	1812.67	**-5.35**	**5.35**
Buthulapally	0.00	177.48	1707.46	301.11	908.86	9.24	3104.15	**56.46**	**0.00**
Gangaram	0.00	2027.53	739.47	31.52	188.01	0.00	2986.52	**-7.81**	**7.81**
Gudipaddu	0.00	1693.25	362.85	44.95	374.12	4.36	2479.53	**-11.86**	**11.86**
Gurjalemote	0.00	1182.39	685.90	51.63	148.24	3.39	2071.55	**-24.59**	**24.59**
Jangalapally	0.00	1789.98	1235.99	167.13	322.85	1.29	3517.24	**-34.27**	**34.27**
Kamaram	0.00	878.67	2313.52	95.29	573.11	16.99	3877.58	**-9.14**	**9.14**
Komatlaguda	0.00	1338.60	836.14	135.31	533.79	7.35	2851.19	**-110.59**	**110.59**
Kothaguda	0.00	288.17	572.71	235.77	1507.26	21.12	2625.03	0.00	0.00
Madaguda	0.00	1049.03	1234.85	167.89	639.17	6.38	3097.32	0.00	0.00
Mamidiguda	0.00	960.67	1063.38	80.06	496.81	2.37	2603.29	**-41.26**	**41.26**
Marriguda	0.00	777.81	1490.05	170.46	426.65	5.02	2869.99	**-21.85**	**21.85**
Pandem-east	0.00	1423.84	545.80	46.72	15.32	0.01	2031.69	0.00	0.00
Pandem-west	0.00	1049.74	332.90	11.58	23.03	0.00	1417.25	**-12.49**	**12.49**
Polaram	0.00	361.98	1300.10	243.55	747.81	17.71	2671.15	0.00	0.00
Putlabhupathi	0.00	910.41	758.57	118.13	269.62	6.82	2063.55	**-4.45**	**4.45**
Thirmalgandi	0.00	87.18	1187.11	140.62	414.70	6.63	1836.24	0.00	0.00
Total	**0.00**	**16636.66**	**17008.03**	**2124.56**	**8030.11**	**116.59**	**43915.94**	**-227.20**	**283.66**
MAHBOOBABAD Range									
Alair	0.00	202.87	452.38	116.42	680.98	3.86	1456.51	0.00	0.00
Beriwada	0.00	59.80	419.95	110.96	660.97	0.00	1251.67	0.00	0.00
Chinnanagaram	0.00	6.05	485.22	296.27	790.97	19.92	1598.43	0.00	0.00
Edulapusapally	0.00	15.10	205.75	136.59	473.64	4.29	835.37	0.00	0.00
Inugurthy	0.00	14.24	603.34	264.21	767.42	2.38	1651.60	0.00	0.00
Jamandlapally	0.00	26.06	438.86	185.81	515.54	4.51	1170.78	**-9.53**	**9.53**

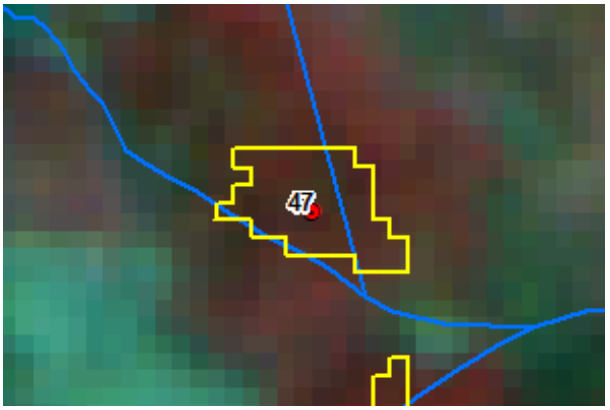




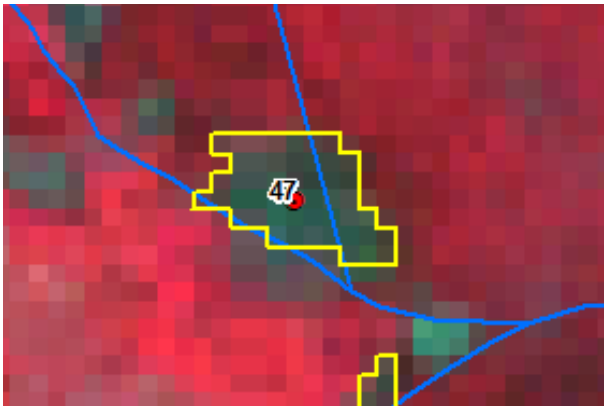
Kambalpally	0.00	274.47	584.70	161.11	834.14	46.13	1900.55	**4.85**	**0.69**
Kesamudram	0.00	29.05	277.88	65.92	582.21	8.72	963.78	**14.99**	0.00
Kongarigidda	0.00	446.18	1151.97	234.81	687.17	7.94	2528.07	0.00	0.00
Mahabubabad	0.00	56.14	559.37	154.57	1007.69	13.21	1790.98	0.00	0.00
Penugonda	0.00	11.71	168.36	96.20	369.26	3.59	649.12	0.00	0.00
Tadlapusapally	0.00	32.08	335.94	190.70	874.89	3.98	1437.59	0.00	0.00
Total	**0.00**	**1173.76**	**5683.72**	**2013.57**	**8244.88**	**118.53**	**17234.45**	**10.31**	**10.22**
NARSAMPET Range									
Ashoknagar	0.00	43.20	677.46	124.59	940.22	59.78	1845.25	**-26.79**	**26.79**
Budharaopet	0.00	27.79	38.71	10.04	33.85	0.00	110.39	0.00	0.00
Dabeerpet	0.00	469.54	1408.33	321.00	760.47	4.72	2964.06	**-79.89**	**79.89**
Govindapur	0.00	1109.20	965.85	359.28	1506.32	131.55	4072.20	**-56.57**	**56.57**
Inchaguda(n)	0.00	93.44	656.82	88.49	879.30	1.48	1719.53	0.00	0.00
Inchaguda(s)	0.00	16.26	521.01	208.61	1686.64	108.75	2541.27	0.00	0.00
Itkalpally	0.00	5.72	138.82	89.36	734.87	11.34	980.11	0.00	0.00
Khanapur	0.00	142.63	195.51	38.29	254.48	0.00	630.71	0.00	0.00
Musimi_ii	0.00	444.29	1344.71	90.76	179.95	4.73	2064.44	**-6.81**	**6.81**
Musmi-1	0.00	515.97	994.60	119.51	628.34	13.31	2271.73	**-11.57**	**11.57**
Pakhal	0.00	544.75	1145.17	324.63	1179.62	1500.23	4694.40	0.00	0.00
Pogallapalli	0.00	11.40	329.17	156.38	1590.68	15.29	2102.92	0.00	0.00
Ponugondla	0.00	922.22	1170.30	42.15	67.18	0.01	2201.86	0.00	0.00
Total	**0.00**	**4346.41**	**9586.46**	**1973.09**	**10441.92**	**1851.19**	**28198.87**	**-181.63**	**181.63**
Division Total	**0.00**	**30398.55**	**42370.80**	**8044.52**	**34422.32**	**2229.43**	**117465.40**	**-415.83**	**492.82**

Satellite Imageries

2011



2012



Longitude	80.25074 ° E
Latitude	17.86905 ° N
Area in Ha	2.9
Change	DF TO NF
Comp No.	886
Beat	Komatlaguda
Range	Kothaguda
Division	**Warangal South**





4.25 WARANGAL WLM DIVISION

4.25.1 Introduction:

Warangal WLM Forest Division lies in the north-western and south-eastern parts of Warangal district between latitudes 17^0 29' 16" N & 18^0 36' 20" N and longitudes 78^0 49' 49" E & 80^0 40' 13" E. Geographical Area of the Division is 545.44 Km^2. Land use pattern of the Division is given in Table 4.25.1.

The climate of this Division is generally dry with temperatures ranging from 13.5^{0}C to 39.6^{0}C and the annual rainfall is about 1015.8 mm, received mainly from Southwest monsoons.

Population of the Division is 0.039 million (2011 Census), per capita forest area is 1.38 Ha and the population density is 72 persons per Km^2.

Table 4.25.1: Land use Pattern (for entire Geographical area)

Land use	Area in Km^2	Percentage
Forest including Scrub	511.55	93.79
Agriculture	6.86	1.26
Land with Scrub	10.81	1.98
Fallow Lands	0.19	0.03
Settlements	0.00	0.00
Vegetation outside Forest	14.99	2.75
Water Bodies	1.04	0.19
Total	**545.44**	**100.00**

Source: As per LULC map prepared by NRSC, Hyderabad in 2007

4.25.2 Recorded Forest Area:

The notified forest area of the Division is 538.55 Km^2. 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.

4.25.3 Protected Area:

The Division consists of two Protected Areas – Etur Nagaram and Pakhal Wildlife Sanctuaries having an area of 364.25 Km^2 and 260.42 Km^2 respectively .

4.25.4 Joint Forest Management:

There are 43 Vana Samrakshana Samities (VSSs) in the Division. An area of 100.67 Km^2 forest area which is 18.69% of the notified forests is under the management of the VSSs.

4.25.5 Forest Cover:

The forest cover in the Division based on the interpretation of IRS R2 LISS III 2012 data (Oct 2012) is **494.87 Km^2** which is **90.73**% of the geographical area. In terms of the forest canopy density classes the Division has **218.50 Km^2** of Moderately Dense Forests and **276.37 Km^2** of Open Forests. The area of the Scrub is **15.30 Km^2**, Non-Forests **26.61 Km^2** and Water Bodies **1.77 Km^2**. The distribution of the forest cover of the Division is shown in Fig 4.25.1.

4.25.6 Change in Forest Cover:

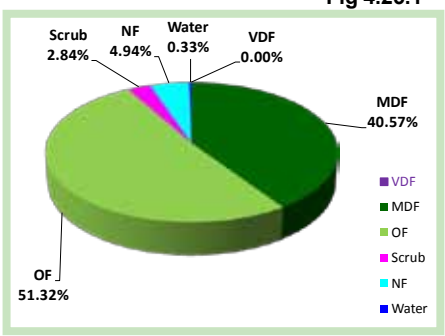
The Satellite images of 2011 and 2012 seasons are shown in Figs. 4.25.2 and 4.25.3 respectively and the changes between this period are shown on the image of 2012.

Comparison of the current forest cover with that of previous assessment year shows a **negative change** in forest cover of **2.07 Ha**. The forest cover change matrix given in Table 4.25.2 reveals the changes from one class to another class.

The entire negative change of **2.07 Ha** is on account of encroachments which is a loss of forest cover. Therefore, the net loss of forest cover in this Division is **2.07 Ha.**

There are 30 Beats in the Division. Negative changes in forest cover is noticed in 1 Beat.There are no changes in the remaining 29 Beats.

Fig 4.25.1







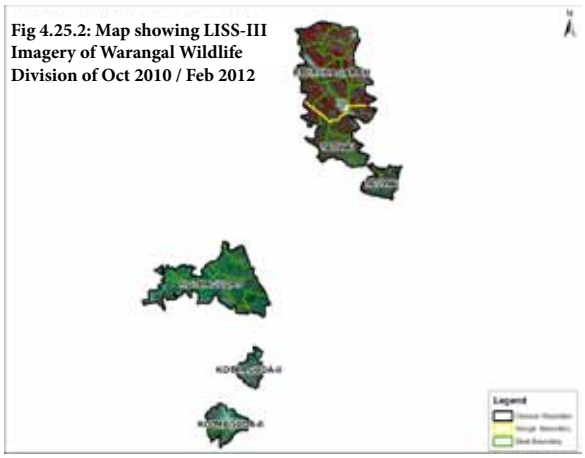


Fig 4.25.2: Map showing LISS-III Imagery of Warangal Wildlife Division of Oct 2010 / Feb 2012

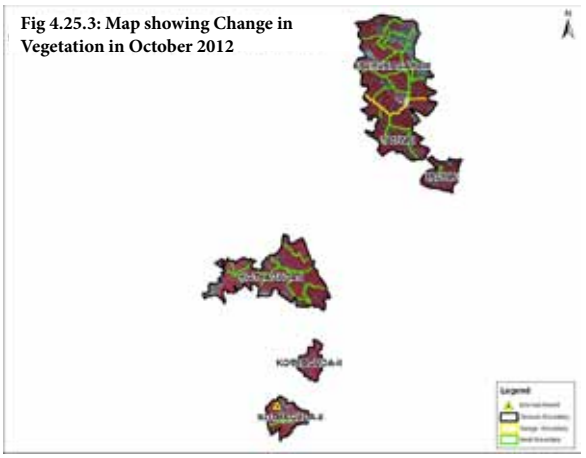


Fig 4.25.3: Map showing Change in Vegetation in October 2012

Details of forest cover in all the Beats of the Division is shown in Table 4.25.3.

Table 4.25.2: Forest Cover change matrix (Area in Km²)

2011	2012						Total of 2011
	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	**218.50**	0.00	0.00	0.00	0.00	**218.50**
Open Forest	0.00	0.00	**276.37**	0.00	0.02	0.00	**276.39**
Scrub	0.00	0.00	0.00	**15.30**	0.00	0.00	**15.30**
Non-Forest	0.00	0.00	0.00	0.00	**26.59**	0.00	**26.59**
Water	0.00	0.00	0.00	0.00	0.00	**1.77**	**1.77**
Total of 2012	**0.00**	**218.50**	**276.37**	**15.30**	**26.61**	**1.77**	**538.55**
Net Change	**0.00**	0.00	**-0.02**	**0.00**	**0.02**	**0.00**	

Table 4.25.3: Beat wise Forest Cover **(Area in Ha)**

Beat	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
ETURUNAGARAM Range									
Chintaguda	0.00	498.59	503.82	47.33	105.84	6.46	1162.04	0.00	0.00
Chittayal	0.00	1055.33	828.17	19.73	89.67	0.00	1992.90	0.00	0.00
Etur	0.00	316.42	553.00	47.32	101.22	10.51	1028.47	0.00	0.00
Iylapur	0.00	1579.16	815.56	19.97	34.99	0.96	2450.64	0.00	0.00
Kondai(n)	0.00	1256.37	539.22	4.07	8.77	0.00	1808.43	0.00	0.00
Kondai(s)	0.00	794.01	499.46	10.49	9.05	17.23	1330.24	0.00	0.00
Mallial(n)	0.00	1362.10	561.64	24.56	35.41	23.64	2007.35	0.00	0.00
Mallial(s)	0.00	1241.94	754.72	78.22	328.10	17.94	2420.92	0.00	0.00
Sarvai(n)	0.00	676.03	776.96	32.09	109.89	1.65	1596.62	0.00	0.00
Sarvai(s)	0.00	560.00	904.04	55.51	138.86	0.00	1658.41	0.00	0.00
Yelshatpally	0.00	849.41	578.86	10.63	31.81	7.30	1478.01	0.00	0.00
Total	0.00	10189.36	7315.45	349.92	993.61	85.69	18934.03	0.00	0.00

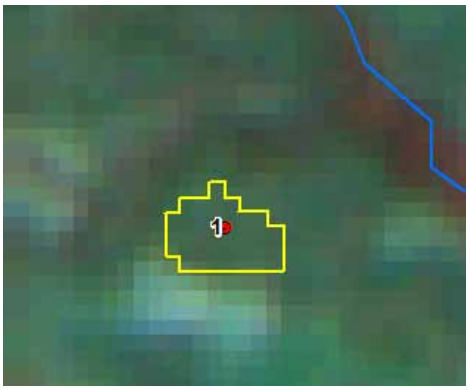




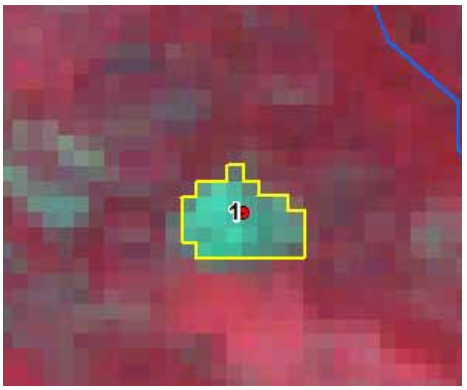
KOTHAGUDA-I Range									
Ankannaguda	0.00	468.80	694.17	11.17	20.92	2.50	1197.56	0.00	0.00
Konapur	0.00	41.63	1313.94	157.69	31.13	0.00	1544.39	0.00	0.00
Kondapur	0.00	150.48	307.19	13.67	26.58	0.00	497.92	0.00	0.00
Medapally	0.00	580.42	930.12	166.02	435.01	5.02	2116.59	0.00	0.00
Ootai	0.00	455.66	2013.51	136.55	87.12	0.00	2692.84	0.00	0.00
Pathipelly	0.00	359.01	1090.52	71.60	70.19	3.11	1594.43	0.00	0.00
Ponugondla	0.00	641.93	1178.23	39.47	38.89	0.00	1898.52	0.00	0.00
Rampur	0.00	1054.54	1458.10	20.28	2.34	0.00	2535.26	0.00	0.00
Sarvapur	0.00	242.11	2020.78	87.40	34.19	0.58	2385.06	0.00	0.00
Total	**0.00**	**3994.58**	**11006.56**	**703.85**	**746.37**	**11.21**	**16462.57**	**0.00**	**0.00**
KOTHAGUDA-II Range									
Doravarivempally	0.00	584.63	1771.17	56.58	88.86	0.00	2501.24	0.00	0.00
Karlai	0.00	404.34	1481.61	95.02	536.19	13.79	2530.95	**-2.07**	**2.07**
Ootla	0.00	485.16	730.19	21.91	36.86	3.75	1277.87	0.00	0.00
Total	0.00	1474.13	3982.97	173.51	661.91	17.54	6310.06	-2.07	2.07
TADWAI Range									
Chinnaboinapally	0.00	530.40	648.87	23.01	7.57	0.00	1209.85	0.00	0.00
Dodla	0.00	1521.15	795.60	43.76	20.02	16.43	2396.96	0.00	0.00
Heerapur	0.00	608.38	611.35	45.78	22.20	0.00	1287.71	0.00	0.00
Kamaram	0.00	1283.16	1464.11	50.67	26.27	0.00	2824.21	0.00	0.00
Medaram	0.00	874.23	465.85	7.25	6.47	28.15	1381.75	0.00	0.00
Oorattam	0.00	651.13	256.60	5.28	11.21	17.98	942.20	0.00	0.00
Tadawai	0.00	723.16	1089.54	126.53	166.08	0.00	2105.41	0.00	0.00
Total	**0.00**	**6191.61**	**5331.92**	**302.28**	**259.82**	**62.56**	**12148.09**	**0.00**	**0.00**
Division Total	**0.00**	**21849.68**	**27636.90**	**1529.56**	**2661.71**	**177.00**	**53854.75**	**-2.07**	**2.07**

Satellite Imageries

2011



2012



Longitude	80.09052 ° E
Latitude	17.82679 ° N
Area in Ha	2.07
Change	OF to NF
Comp No.	1024
Beat	Karlai
Range	Kothaguda-II
Division	**Warangal WLM**





Chapter - V
Forest Cover Statistics in Protected Areas

5.1. Introduction

India being situated in the tropical region harbors 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 need to be conserved or has an ecological system, which is fragile and needs to be protected. India is one of the 12 mega-biodiversity countries of the World.

The Telangana state has wide and varied vegetation types enriched by a variety of flora and fauna. Telangana being located strategically in the central region of the Indian sub-continent has representatives of the magnificent Indian plant and animal life which 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 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.

5.2. Protected Area Network in Telangana State

The State has 12 Protected Areas consisting of 3 National Parks and 9 Wildlife Sanctuaries. Later include 2 Tiger Reserves viz, Amarabad Tiger Reserve (ATR); Telangana Part of the Nagarjuna Sagar Tiger Reserve,having the distinction of being the largest Tiger Reserve of India and Kawal Tiger Reserve in Adilabad District . Out of 26903.70 Km^2 of notified forest area, 5856.04 Km^2 is included in the PA network, covering an area of about 21.77% of the notified forests and 5.22% 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 fully 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 under the scheme of Community based Eco-tourism Project (CBET). 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 Resourcesat-2 LISS III 2012 data is 4033.61Km^2, i.e. 3.59% of the Geographical area. In terms of the forest canopy density classes the PA Network has 88.01Km^2 of Very Dense Forest, 1562.09 Km^2 of Moderately Dense Forest and 2383.51 Km^2 of Open Forests. The area of the Scrub included is 1121.55Km^2, Non-Forest 584.71 Km^2 and Water Bodies 116.17 Km^2.

Comparison of the forest cover of 2012 with that of 2011 shows a net loss of 3.21Km^2 of forest cover.



Maximum habitat loss of 2.69 Km^2 has occurred in Kinnerasani Wild Life Sanctuary and the least loss of 0.07 Km^2 in Pocharam sanctuary. There is no Net gain of forest cover in any sanctuary. There is no loss of habitat (forest cover) in the remaining 8 WLSs.

Protected Area wise forest cover in different forest canopy density classes along with the changes compared to 2011 assessment is given in Table 5.1.

(Area in Km^2)

S. No.	Protected Area	VDF	MDF	OF	Scrub	NF	WB	TOTAL	Net Change	Encr.
1	Amrabad WLS &TR	0.02	333.26	998.05	696.14	70.02	68.88	2166.37	0.00	0.00
2	Kawal WLS&TR	48.26	332.03	300.57	93.05	115.29	3.80	893.00	0.00	0.10
3	Eturnagaram	0.00	416.87	349.56	23.91	76.22	4.11	870.66	-0.15	0.22
4	Pakhal WLS	0.00	144.90	402.06	66.11	191.67	23.21	827.94	-0.30	0.30
5	Kinnerasani WLS	1.54	226.62	284.85	182.39	115.08	15.28	825.75	-2.69	2.69
6	Pocharam WLS	38.19	82.88	13.32	7.63	0.20	0.16	142.38	-0.07	0.07
7	Pranahitha WLS	0.00	21.31	15.42	23.16	8.26	0.24	68.38	0.00	0.00
8	Shivaram WLS	0.00	4.00	19.12	16.12	0.81	0.04	40.09	0.00	0.00
9	Manjeera WLS	out of RF								
10	Mahavir Harina Vanasthali NP	0.00	0.18	0.49	11.95	2.45	0.00	15.07	0.00	0.00
11	Chilkuru Mrugavani NP	0.00	0.00	0.04	0.00	4.48	0.45	4.97	0.00	0.00
12	KBR NP	0.00	0.04	0.03	1.11	0.25	0.00	1.43	0.00	0.00
	T.S.TOTAL	**88.01**	**1562.09**	**2383.51**	**1121.55**	**584.71**	**116.17**	**5856.04**	**-3.21**	**3.37**

**Net Change in Forest Cover Only i.e. VDF, MDF and OF to Scrub and Non-Forest between 2011 and 2012.*







Chapter - VI
Forest Cover Statistics in Joint Forest Management Areas

6.1. Introduction

Telangana state is one of the pioneering Forest Departments in India in implementing the Joint Forest Management (JFM). Joint Forest Management (JFM) was introduced in Telangana in 1994 for protecting forests, to improve their productivity and to alleviate rural poverty in consonance with the National Forest Policy 1988 and GOI circular of June 1990 on people's participation in forest management. This strategy proved effective in 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 had 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 rights to non-timber forest products (NTFP) and modest benefit-sharing in timber with limited involvement in forest management, the CFM aims to improve forests both in coverage and productivity by empowering VSSs to take decisions regarding the management and use of 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 and confining the role of FD staff to act as facilitators. The state had provided 100% of net revenue generated from the VSS forest areas to the people with a stipulation that a minimum of 50% of the net revenue to be ploughed back in forest development works, as the key strategy to address the use of forest resources for poverty alleviation.

6.2. Numbers & Area under VSSs

There are 3436 Vana Samrakshana Samities (VSSs) or JFPCs in the State. **6756.41 Km²** forest area, which constitutes 25.11% of forest area, is under CFM. 9.1 lakh members are involved in JFM which includes 2.3 lakh members belonging to Scheduled Tribes and 1.8 lakh members belonging to Scheduled castes.

6.3. Forest Cover in VSS Areas

The forest cover in the VSS areas based on the interpretation of Resourcesat-2 LISS III 2012 data is **4639.84 Km²**, which is **4.13%** of the Geographical area. In terms of the forest canopy density classes the VSSs managed forests in the State consists of **10.76 Km²** of Very Dense Forest, **1831.83 Km²** of Moderately Dense Forest and **2797.25 Km²** of Open Forest. The area of the Scrub is **1502.80 Km²,** Non-Forest is **591.86 Km²** and Water Bodies is **21.91 Km²**.

Comparison of the forest cover of 2012 with that of 2011 shows a net loss of **10.11 Km²** of forest cover. It is seen that encroachments in VSS areas is **8.27 Km²**.

Division wise forest cover in VSSs in different forest canopy density classes along with the changes compared to 2011 assessment is given in Table 6.1.





(Area in Km^2)

Division	VDF	MDF	OF	Net Change	Scrub	NF	WB	TOTAL	Encr.
ETURUNAGARAM Range									
Adilabad	1.10	112.20	157.48	-0.02	39.76	48.35	0.45	359.34	0.01
Bellampally	2.33	100.35	70.80	-0.31	12.98	20.06	0.41	206.93	0.00
Jannaram	1.67	56.81	55.91	0.00	3.95	2.41	1.28	122.03	0.00
Kagaznagar	3.95	62.46	51.08	0.00	15.12	14.96	0.84	148.41	0.02
Mancherial	0.56	47.79	55.15	-0.25	20.65	13.01	0.51	137.67	0.03
Nirmal	0.29	107.34	122.80	-0.11	29.49	21.89	0.68	282.49	0.06
Total	**9.90**	**486.95**	**513.22**	**-0.69**	**121.95**	**120.68**	**4.17**	**1256.87**	**0.12**
HYDERABAD CIRCLE									
Hyderabad	0.00	65.18	113.53	-0.05	159.66	14.09	1.03	353.49	0.00
Mahabubnagar	0.00	13.58	246.26	-0.24	223.56	1.93	0.09	485.42	0.00
Nalgonda	0.00	0.21	23.22	-0.09	133.92	56.08	0.32	213.75	0.00
Total	**0.00**	**78.97**	**383.01**	**-0.38**	**517.14**	**72.10**	**1.44**	**1052.66**	**0.00**
AMRABAD TR & WLM CIRCLE									
Achampet	0.01	42.35	102.64	0.00	83.75	4.61	3.60	236.96	0.01
Wlm Nagarjunasagar	0.00	2.84	43.47	0.00	70.21	5.37	0.13	122.02	0.00
Total	**0.01**	**45.19**	**146.11**	**0.00**	**153.96**	**9.98**	**3.73**	**358.98**	**0.01**
KHAMMAM CIRCLE									
Bhadrachalam North	0.01	19.91	27.96	-0.73	21.78	13.86	0.31	83.83	0.47
Khammam	0.10	47.67	93.66	-1.15	68.43	28.13	0.76	238.75	0.58
Kothagudem	0.00	25.13	100.68	-1.48	72.76	39.90	0.17	238.64	0.84
Paloncha	0.30	36.47	82.89	-2.45	46.42	23.63	0.13	189.84	1.96
Paloncha WLM	0.44	59.70	75.02	-1.00	41.36	20.68	2.13	199.33	1.11
Total	**0.85**	**188.88**	**380.21**	**-6.81**	**250.75**	**126.20**	**3.50**	**950.39**	**4.96**
NIZAMABAD CIRCLE									
Kamareddy	0.00	83.47	177.56	0.27	34.67	28.67	1.28	325.65	0.05
Medak	0.00	69.29	359.57	-0.53	179.09	18.85	1.02	627.82	0.25
Medak Wlm	0.00	20.57	22.62	0.00	4.03	2.96	0.03	50.21	0.00
Nizamabad	0.00	130.89	183.30	-0.22	46.12	42.54	2.54	405.39	0.69
Total	**0.00**	**304.22**	**743.05**	**-0.48**	**263.91**	**93.02**	**4.87**	**1409.07**	**0.99**
WARANGAL CIRCLE									
Karimnagar East	0.00	382.61	169.90	0.01	60.18	9.08	0.45	622.22	0.02
Karimnagar West	0.00	120.26	118.07	-0.04	83.47	10.61	1.30	333.72	0.01
Warangal South	0.00	84.23	135.84	-1.40	29.66	88.56	1.19	339.48	2.14
Warangl North .	0.00	106.89	151.00	-0.14	18.65	55.17	0.67	332.37	0.02
Warangal WLM	0.00	33.63	56.84	-0.18	3.13	6.46	0.59	100.65	0.00
Total	**0.00**	**727.62**	**631.65**	**-1.75**	**195.09**	**169.88**	**4.20**	**1728.44**	**2.19**
TS State	**10.76**	**1831.83**	**2797.25**	**-10.11**	**1502.80**	**591.86**	**21.91**	**6756.41**	**8.27**





Encroachments are noticed in 210 VSS of the State. Totally **827 Ha** of encroachment is seen in VSS area in 17 divisions.

The 15 VSSs where maximum loss of forest cover was noticed (VDF, MDF, OF, Scrub) are:

Kandlapally(Hyderabad),Sambaigudem(paloncha),Murlinagar(Hyderabad),Yellampet(Hyderabad), Damrancha(Medak),Abbugudemi(Kothagudem),Rallabanjara(Khammam), Mukundapuram (Paloncha), Lalkohda(Hyderabad), Shapur(Hyderabad), Mudugunta (Mancherial), Chandraipalem-b (Khammam), Meenajipetai(Medak), Dhabeerpet(Wgl-south).

The 15 VSSs, where the forest cover has gained (VDF, MDF, OF, Scrub) are:

Punyathanda(Warangal South), Rallewada (Khamma), Kistapur(Medak), Atalakunta (Khammam), Namlipet(Medak), Shammunigudem(Kothagudem),Venkatapuram (Khammam), Manthur (Medak), Venkatapur (Medak), Veerareddipalli (Medak), Vallur (Medak), Sri Anjaneya (padmajiwada)(Kamareddy), Sripandurangam(Nerala)(Kamareddy), Honajipet(Kamareddy), Ankampalli(Warangal-North).

**Net Change in Forest Cover refers to overall changes in extent of VDF Plus, MDF Plus, OF between year 2010 and 2011.*







Chapter - VII
FOREST FIRES IN TELANGANA STATE

7.1. Introduction:-

Forest fires are the worst enemies of the forests and needs to be controlled. Attempts have been made to prevent forest fires but the success was limited. Telangana has an area of around **26,903 km²** of forest land under the control of Telangana State Forest Department. Out of the above, an area of about **18,765 km²** prone to fires. The fires in Telangana State (TS) are mainly ground fires in nature and manmade. These occur between December and June. March is the most susceptible month for the forest fires. The ground fires cause wide spread damage to the ground flora & the young regeneration is seriously damaged. Therefore control of forest fires is a prerequisite for a healthy forest in the state.

7.2 Forest Fires in Telangana State:-

No definite study has been carried out in TS to estimate the extent of forest fires and consequent damages. The IT wing of Forest department has carried out the Forest Fire Risk assessment by integrating various parameters governing the forest fires into consideration in a hierarchical scheme based on the degrees of influence on fire using modern IT & Geomatics tools, which fetched the department the **Silver Icon** from the Government of India in 2004. According to field observations, past fire data and vegetation characteristics, the variables were weighed in the order of influence viz., vegetation, aspect, slope and road etc. Ranking was given to each variable as per its influence. The weight factor contributes to the degree of influence in the modeling. The maps are being used for forest fire management. The **Fire Risk Zonation map** have been prepared up to Beat level and communicated for the use of field officers, based on which the field officers can take preventive measures before the commencement of fire season & avoid or minimize fires. However, the Fire Risk Map are Division independent and are not comparable between two Divisions i.e., the final classes given are Division-specific. It doesn't mean that a higher class in Adilabad Division is equivalent to that one in Paloncha Division. After the MODIS satellite data was made available by FSI & NRSC from 2004, fire occurrences were noticed in 27 percent of the compartments. MODIS information communicated by NRSC and FSI is points only, hence the extent of forest fire is not known. Moreover, some omissions of the fire points, especially fires occuring in evening and night may be there, as the satelite passes twice a day i.e. at 10.30am and 1.30pm. NRSC is trying to assess the impact of forest fires using AWiFS data. The Forest Fire Risk Map prepared earlier is under updation using MODIS and other ancillary data.

The forest areas of Telangana are mainly dry deciduous in nature, leaves start drying up and falling on the ground from January - February and it add to the inflammable material along with twigs, branches etc. The causes of most of the forest fires in TS are deliberate or incidental. The production of Tendu leaves (***Diospyros melanoxylon***) is major cause of forest fires. Another NWFP contributing to occurrence of forest fire is Mahua (***Madhuca indica***). Local people in tribal belt collect Mahua flowers to produce a popular beverage or use it as a seasonal grain substitute, by clearing the growth below the trees by burning which may spread to adjoining forests. Another cause of fires is clearing of growth and burning for cultivation.





Total number of fire incidents in TS communicated by FSI and NRSC between 2004 and 2014 is 6641, as shown in Table 7.1. Month-wise occurrence is detailed in Table 7.2. In all 6641 fire incidents have been reported since 2004. Most fire incidences are reported during February & March months. The Fire Locations are being sent to Field Staff through department's website (www.tgfdgis.com & www.tgfmis.com) and also through SMS alerts on the Cell phones of the concerned Officers and staff soon after receipt of data from NRSC and FSI, for speedier action in extinguishing the fire and also in assessing the extent of fire and damage done, if any.

Table 7.1: Table showing the Number of Fire Incidents observed through MODIS Sensor.

Circle/ Division	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
Adilabad Circle												
Adilabad	0	1	5	12	36	21	5	8	27	9	7	131
Bellampally	0	1	20	20	28	50	40	14	69	51	7	300
Kagaz Nagar	0	6	7	38	7	34	16	5	52	9	6	180
Mancherial	2	2	10	14	13	32	25	9	58	31	12	208
Total	**2**	**10**	**42**	**84**	**84**	**137**	**86**	**36**	**206**	**100**	**32**	**819**
Kawal Tiger Reserve												
Jannaram WLM	0	7	13	21	11	43	22	6	37	36	13	209
Nirmal	3	7	11	46	41	80	32	24	41	61	41	387
Total	**3**	**14**	**24**	**67**	**52**	**123**	**54**	**30**	**78**	**97**	**54**	**596**
Amrabad Tiger Reserve												
Achampet WLM	11	45	57	123	87	126	49	50	133	45	102	828
Nagarjuna Sagar WLM	0	0	0	0	0	0	0	0	0	0	0	0
Total	**11**	**45**	**57**	**123**	**87**	**126**	**49**	**50**	**133**	**45**	**102**	**828**
Hyderabad Circle												
Hyderabad	0	0	3	2	2	1	1	4	0	2	1	16
Mahabub Nagar	0	0	0	3	1	0	0	1	0	0	0	5
Nalgonda	0	0	0	0	0	0	0	0	0	1	0	1
Total	**0**	**0**	**3**	**5**	**3**	**1**	**1**	**5**	**0**	**3**	**1**	**22**
Khammam Circle												
Badrachalam (North)	0	22	88	82	74	127	86	40	78	100	75	772
Khammam	0	7	15	24	26	39	14	16	34	31	49	255
Kothagudem	1	13	39	25	30	100	38	15	78	69	131	539
Paloncha	0	8	10	29	17	36	18	5	34	23	48	228
Paloncha WLM	0	4	22	13	9	39	14	6	28	16	32	183
Total	**1**	**54**	**174**	**173**	**156**	**341**	**170**	**82**	**252**	**239**	**335**	**1977**
Nizamabad Circle												
Kamareddy	0	1	3	10	7	8	4	1	10	8	1	53
Medak	0	0	2	6	5	2	2	6	6	8	3	40
Medak WLM	0	0	0	2	1	0	0	1	1	0	0	5
Nizamabad	0	0	6	10	8	14	2	2	2	12	6	62
Total	**0**	**1**	**11**	**28**	**21**	**24**	**8**	**10**	**19**	**28**	**10**	**160**



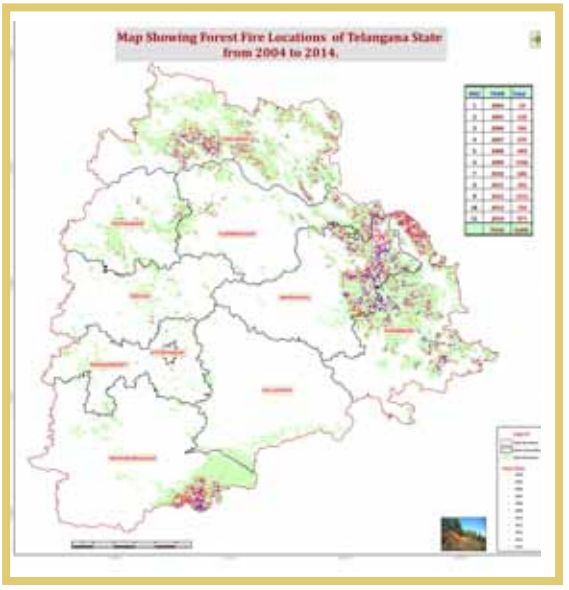


Warangal Circle												
Karim Nagar (East)	0	15	13	22	25	58	62	6	100	32	46	379
Karim Nagar (West)	1	4	12	11	14	15	10	4	15	12	10	108
Warangal (North)	0	49	90	90	87	135	104	42	123	129	168	1017
Warangal (South)	0	18	40	29	35	60	25	12	50	45	51	365
Warangal WLM	0	18	34	38	45	46	37	15	39	34	64	370
Total	**1**	**104**	**189**	**190**	**206**	**314**	**238**	**79**	**327**	**252**	**339**	**2239**
Grand Total	**18**	**228**	**500**	**670**	**609**	**1066**	**606**	**292**	**1015**	**764**	**873**	**6641**

Table 7.2: The following table shows the incidences of forest fires in different months.

Month wise Forest Fires from 2004 to 2014												
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
January	0	42	7	31	51	113	23	2	34	0	0	303
February	0	133	230	215	133	339	134	2	454	28	116	1784
March	0	45	218	353	330	573	379	148	485	490	568	3589
April	1	6	36	51	13	32	62	103	21	223	178	726
May	0	2	9	19	82	9	5	29	17	23	9	204
June	0	0	0	1	0	0	3	6	4	0	2	16
November	3	0	0	0	0	0	0	0	0	0	0	3
December	14	0	0	0	0	0	0	2	0	0	0	16
TS Total	**18**	**228**	**500**	**670**	**609**	**1066**	**606**	**292**	**1015**	**764**	**873**	**6,641**

Map 7.1: The following Map shows the incidences of forest fires in Districts from year 2004 to 2014.



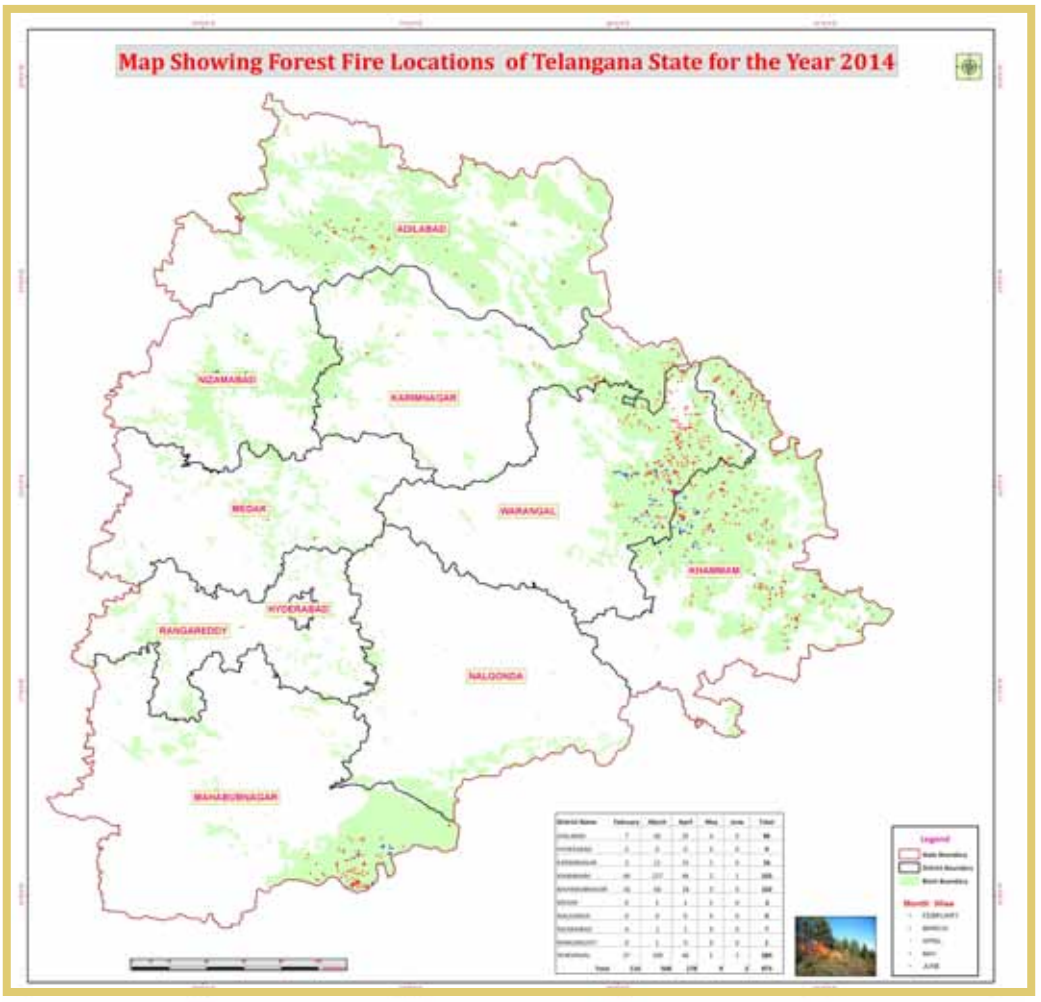




7.3 Damage caused due to Forest Fires:

The most important ill effect of fires is on the young regeneration, which is killed, thereby delaying the establishment of a new crop and extending the rotation. It also leads to lower yields of plantation crops at maturity. Repeated burning leads to deterioration of site, changes in soil nutrient status and accelerated erosion due to the destruction of the ground flora. In addition, wildlife patterns and habitat may also get disrupted.

Map 7.2: The following Map shows the incidences of forest fires in Districts for the Year 2014.





In all **873** fire incidents have been observed in **2014** year, as per the MODIS data. Khammam district is worst affected by forest fires followed by Warangal and Adilabad districts. No or very less number of Fire incidences have been reported in Hyderabad, Nalgonda, Rangareddy & Medak districts. Though, the incidences observed using MODIS data is not complete, an academic attempt is made to give ranking of fire incidences from the available data by making 3 classes viz., Low(<200), Medium(200-400) and High(>500) and the same is shown in Table 7.3



Table 7.3: The Fire Rankings from 2004 to 2014.

Division	Number of Fires	Rank Class
Nagarjuna sagar WLM	0	Low
Nalgonda	1	Low
Mahabubnagar	5	Low
Medak WLM	5	Low
Hyderabad	16	Low
Medak	40	Low
Kamareddy	53	Low
Nizamabad	62	Low
Karimnagar West	108	Low
Adilabad	131	Low
Kagaznagar	180	Low
Paloncha WLM	183	Low
Mancherial	208	Medium
Jannaram WLM	209	Medium
Paloncha	228	Medium
Khammam	255	Medium
Bellampally	300	Medium
Warangal South	365	Medium
Warangal WLM	370	Medium
Karimnagar East	379	Medium
Nirmal	387	Medium
Kothagudem	539	High
Badrachalam North	772	High
Achampet WLM	828	High
Warangal North	1017	High

However, the above table will not conclude the Fire Risk of a particular division.

Further, it is observed that forest fire incidences are more in MDF and OF classes as compared to other Crown cover density classes; more in > 30% slope classes whereas, influence of aspect on forest fire occurrence is less. This hypothesis was already adopted in the Forest Fire Risk Modelling performed during 2004. The resluts are shown in Charts 7.1. to 7.4. Surprisingly, the more number of forest fires occurred in medium grass class than high grass class, which require further study.





Chart 7.1: Chart showing Forest Density vs. Fires from 2004 to 2014

Canopy Density	Number of Fires	%
Very Dense Forest (VDF)	123	1.85
Dense Forest (DF)	3003	45.22
Open Forest (OF)	2725	41.03
Scrub Forest (SF)	621	9.35
Non Forest (NF)	169	2.54
Total	**6,641**	**100**

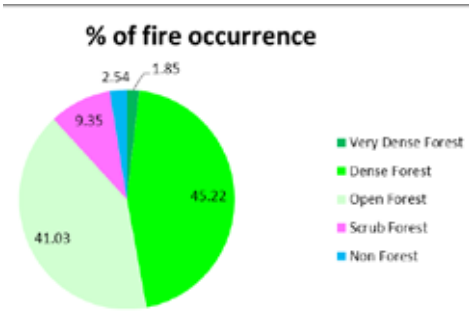


Chart 7.2: Chart showing Forest Slope vs. Fires from 2004 to 2014

Slope Class	Number of Fires	%
0 to 10	1284	19.33
>10 to 20	758	11.41
> 20 to 30	506	7.62
> 30	4093	61.63
Total	**6,641**	**100**

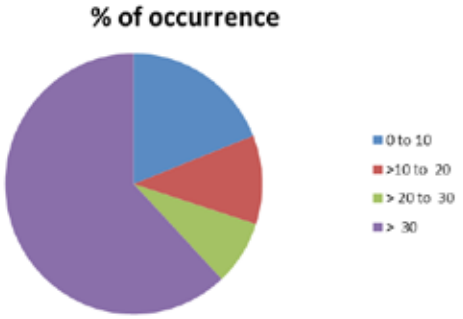


Chart 7.3: Chart showing Forest Aspect vs. Fires from 2004 to 2014

Aspect class	Number of Fires	%
North	978	14.73
North East	900	13.55
East	849	12.78
South East	697	10.50
South	849	12.78
South West	880	13.25
West	770	11.59
North West	718	10.81
Total	**6,641**	**100**

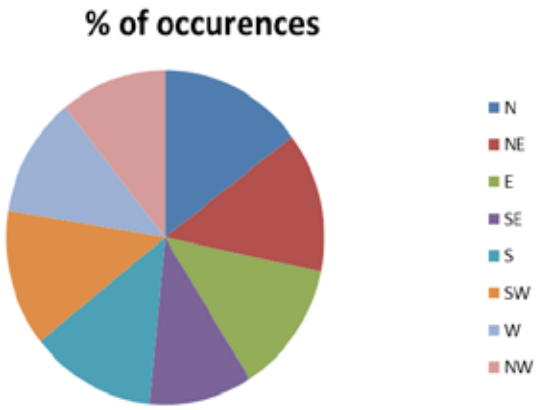
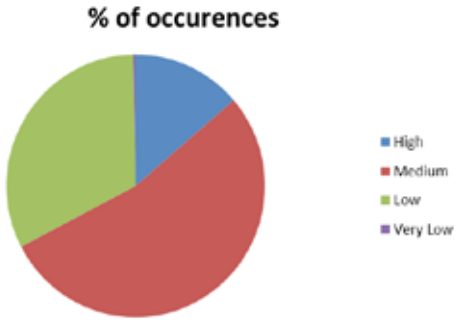


Chart 7.4: The following Chart shows Forest Grass Levels vs. Fires from 2004 to 2014

Grass	Number of Fires	%
High	910	13.70
Medium	3562	53.64
Low	2149	32.36
Very Low	20	0.30
Total	**6,641**	**100**







Chapter - VIII
ASSESSMENT OF FOREST RESOURCES IN TELANGANA

Background:

Efficient Forest Resource Management requires rapid, reliable and accurate information regarding the status of Forests. In order to achieve the goals of having 33% of land under forest and tree cover, one of the initiatives required would be to strengthen the current forest planning and management systems through latest information on forest resources. The growth and drain of forest cover is an important output in this direction. Earlier the inventory data used to be collected during the revision of Working Plans in the States for Stock Mapping purposes, which was time consuming & cumbersome. Pre Investment survey of Forest Resources had carried systematic assessment of the forest resources in parts of the State in the Seventies with a view to find out the sustainability of the wood based Industries on the basis of Catchments of the 5 major Wood based Industries. However they were mostly based on traditional methods as satellite, Remote sensing was not available.

The large scale Inventory:

Modern Forest Inventory methods using GIS, GPS & RS is faster and more accurate. Hence, it was decided to carry out the Forest Inventory Exercise covering entire State simultaneously with similar set of procedures, during 2006. The primary objective of this inventory was to assess the growing stock of forests (by volume & tree numbers) which is the most important indicator of health and productive capacity of forests. In the recent past, forest inventory has gained further importance due to its role in estimation of forest bio-mass and carbon needed for climate change studies. The design was based on the Stratified Random Sampling method using modern technologies of RS, GIS & GPS etc. The exercise began in 2006 and completed in 2010.

Materials and Methods:

Methodology followed in brief is as under:

A. Stratification of the forest areas into vegetation canopy densities and forest types using the IRS LISS III multi-spectral satellite imagery

B. Accurate Inventory design using Stratified Random Sampling Technique for locating Sampling Points for data collection.

a. Dividing forest areas into 7 ecological zones based on the similarity of species composition

b. Preparation of forest type + canopy density composite map

c. Analysis of variance for Volume, Basal Area(BA), Number of trees and BA/No. of trees. For each zone from field data collected during WP, VSS micro-planning and NRSC forest type mapping exercises.

d. Calculation of number of sample points required (N), using Forest Canopy Density map/Forest type map/Forest canopy Density plus Forest Type map for stratification independently and arrived at best method.

e. Size of the sample point was taken as 0.1 Ha as in such a size of sample point almost all important species of the region were available.

f. Development of necessary forms for collection of data in the field.

g. Preparation of field manual for collecting data including laying of sample plots.





h. Development of Package for Entry of Field Data and its Analysis
i. Dissemination of sample points to field officers
j. Collection of data by field officers into customized package.
k. Generation of various outputs like Tables, Graphs, Charts, Maps pertaining to Growing Stock in Cubic Meters by species and diameter class; number of stems by species and diameter Class; Regeneration status over all and species wise; Bamboo & Bamboo bearing areas; Regeneration Status of Bamboo etc

Results:

The following major outputs were derived from the Inventory data collected:

i.Growing Stock

a) Total growing stock in the **26903 km²** of recorded forest area of Telangana is estimated to be **105.30 million m³** (3781 Km² is Non forest area) and the average growing stock of the state is **39.14 cum/Ha.**

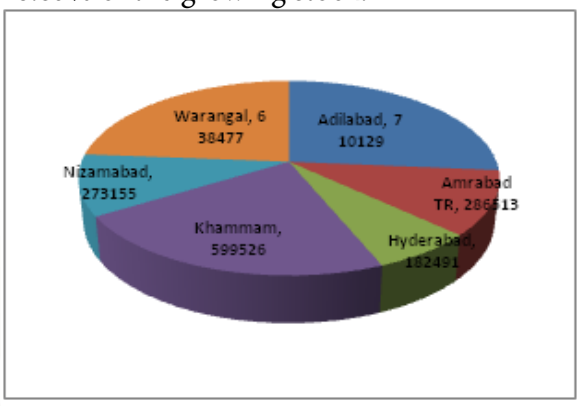
b) The distribution of growing stock in different canopy cover classes is shown in table below:

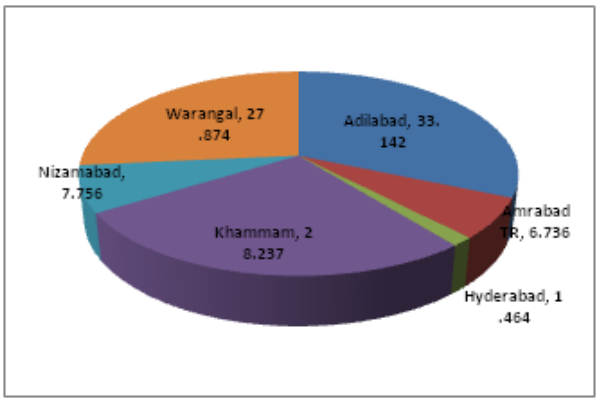
S.No.	Canopy cover class	Area in Km²	Total growing stock in million m³	Growing stock per Ha in cubic meter
1	Dense (>0.4)	11049	68.40	61.89
2	Open (0.1 - 0.4)	9591	34.64	36.12
3	Scrub (<0.1)	2482	2.26	9.11
4	Non Forest	3781	-	-
	TOTAL	**26903**	**105.30**	

The above table shows that the state has a growing stock of **105.30** million m³ out of which **68.40** million m³ is contributed by Dense Forests @ 61.89 m³ / ha, **34.64** million m³ is contributed by Open Forests @ 36.12 m³ / ha and **2.26** million m³ is contributed by Scrub Forest@ 9.11 cum m³ / ha.

c) Distribution of GS Circle-wise is given as below:

Of the total growing stock of the State, Adilabad circle with 26.39% of total forest area contributes 31.50% of growing stock of the State and Khamam district with 22.28% forest area contributes 26.83% of the growing stock.





d) **Species wise Growing Stock estimation**.

Tectona grandis is in top 5 species in 4 districts of Northern Telangana, Anogeissus latifolia is in top 5 species in 4 districts of Northern Telangana and Xylia xylocarpa is in top 5 species in 2 districts of Southern Telangana.





The top 5 species contributing most to the GS, district wise are as follows:

	ADILABAD		KARIMNAGAR	
S.No	Species Name	GS in m^3	Species Name	GS in m^3
1	Tectona grandis	8129774.37	Tectona grandis	1436277.14
2	Boswellia serrata	3537923.79	Lannea coromandelica	931694.62
3	Anogeissus latifolia	2773547.06	Dalbergia paniculata	911843.54
4	Madhuca indica	2721461.48	Terminalia tomentosa	805129.54
5	Lannea coromandelica	1981556.70	Madhuca indica	777319.51
	KHAMMAM		MAHABUBNAGAR	
S.No	Species Name	GS in m^3	Species Name	GS in m^3
1	Anogeissus latifolia	3202144.35	Hardwickia binnata	1494935.98
2	Xylia xylocarpa	2632366.09	Terminalia tomentosa	492768.98
3	Terminalia tomentosa	2241180.97	Anogeissus latifolia	356392.04
4	Madhuca indica	1927908.39	Chloroxylon swietenia	350489.06
5	Lannea coromandelica	1860340.57	Dalbergia paniculata	333854.05
	MEDAK		NALGONDA	
S.No	Species Name	GS in m^3	Species Name	GS in m^3
1	Lannea coromandelica	185221.21	Hardwickia binnata	63293.90
2	Dalbergia paniculata	163651.53	Manilkara hexandra	28144.63
3	Tectona grandis	145423.81	Gyrocarpus americanus	28130.48
4	Chloroxylon swietenia	67676.84	Ficus mollis	26047.98
5	Butea monospema	62361.10	Grewia rotundifolia	24261.98
	NIZAMABAD		RANGAREDDY	
S.No	Species Name	GS in m^3	Species Name	GS in m^3
1	Madhuca indica	1166866.00	Anogeissus latifolia	85162.30
2	Dalbergia paniculata	1015836.83	Bombax ceiba	62436.67
3	Tectona grandis	717326.69	Eucalyptus tereticornisis	59236.44
4	Boswellia serrata	606363.55	Lannea coromandelica	54968.62
5	Lannea coromandelica	580620.70	Dalbergia paniculata	51634.55
	WARANGAL			
S.No	Species Name	GS in m^3		
1	Terminalia tomentosa	1799072.08		
2	Anogeissus latifolia	1727200.02		
3	Madhuca indica	1406323.67		
4	Xylia xylocarpa	1319511.63		
5	Lannea coromandelica	1236499.43		

e) Growing Stock has also been estimated **diameter class wise** for each species. It is observed that there is abundance of GS in lower diameter classes (10-20 and 20-30 cm classes) except species like ***Mangifera indica, Madhuca indica,*** and ***Tamarindus indica***. The growing stock is relatively much less in higher diameter classes.

ii. Number of Stems:

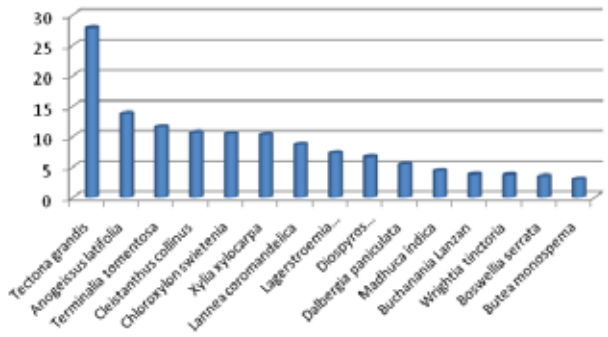
a) The total number of stems is estimated to be **504.85 million** in the State

b) The average number of stems per Ha in the State is **188/ha** (218/ha in inventoried area).

District wise the average number of stems is highest in Khammam which is 236/Ha and the low-







est is in Nalgonda which is 24/Ha.The stems are concentrated at 10-20 cm diameter class only.

c) The number of stems has also been estimated diameter class wise, species wise and canopy cover density wise. The top 15 species in terms of the number of stems is shown in the bar diagram. Interestingly 70% of trees enumerated are contributed by these top 15 species. As seen from above ***Tectona grandis*** contributes maximum in terms of number of stems followed by ***Anogeissus latifolia.***

iii. Bamboo Resources:

a) The results of the inventory show that Bamboo is available in 12.36% of area of the State. Extent wise Pure Bamboo stands (above 200 clumps/Ha) are distributed in an area of 82979 Ha; Dense Bamboo stands (100-200 clumps/Ha) in an area of 74137 Ha; Medium Bamboo stands (50-100 clumps/Ha) in an area of 64495 Ha and Scattered Bamboo stands (below 50 Clumps/Ha) in an area of **111032 Ha.**

b) Circle-wise area distribution of Bamboo is as follows:

(Area in Ha)

Circle	Pure	Dense	Medium	Scattered	Total	%
Adilabad	39740	36759	30798	43714	151011	21.30
Hyderabad	0	0	0	0	0	0.00
Khammam	23900	17801	16853	12897	71451	11.91
Nizamabad	0	0	0	0	0	0.00
Warangal	19339	11376	11376	21615	63706	10.00
Amrabad TR	0	8201	5468	32806	46475	16.19
Total	**82979**	**74137**	**64495**	**111032**	**332643**	**12.36**

iv. Health of Forests:

Regeneration Status:

a)Seedling regeneration is **profuse** in 5686.72 km^2, **adequate** in 6462.67 km^2, **inadequate** in 12478.91 km^2 and absent in 2274.69 km^2 in the state.

b)Coppice Regeneration is **profuse** in 3847.84 km^2, **adequate** in 5527.28 km^2, **inadequate** in 8524.77 km^2 and absent in 9003.09 km^2 in the state.

Incidence of grazing is **high** 3890.35 km^2, **medium** in 8216.52 km^2, **low** in 10416.81 km^2 and **absent** in 4379.31km^2 in the state.

Status of Soil Erosion: There is **severe** soil erosion in an area of 2062.10 km^2, **strong** erosion in 11554.15 km^2, **moderate** erosion in 6992.60km^2, **slight** erosion in 5612.32 km^2 and **no erosion** in 1381.82 km^2 in the state.



vi. Status of Forest Soils:

Forest soils were assessed in terms of Soil depth, Stoniness, Humus, Organic Carbon and pH.

Soil Depth: The soils are **Very Deep** in an area of 5304.06 km^2, **Deep** in 8662.95 km^2, **Moderately Deep** in 5920.57km^2, **Moderately Shallow** in 2434.13km^2, **Shallow** in 1392.45km^2, **Very Shallow** in 1456.22km^2 and **Extremely Shallow** in 1732.59 km^2 in the State.



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 multispectral 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 false color 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 un stocked 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 micrometers 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 (NDVI) 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 from 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 know 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 realization 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.



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There is global concern these days, to preserve the existing forests and enhance forest cover and growing stock. Our National Forest Policy advocates 33% of area to be covered with forest against which Telangana has 24% notified forests, out of which 16.74 % area covered with forests of > 0.1% canopy density, which is assessed using LISS III images. Apart from this, there is 3.63% forest cover including the manmade plantations outside the notified forests assessed using Cartosat Images. We therefore, must conserve the existing cover and measure the greening happening inside our notified forests.

This is the first annual report of Telangana showing how we are moving. A truthful picture of the forest growth and drain is published after a year of hard work, and it is hoped, it shall guide the Telangana Forest Department appropriately in achieving the national objectives. This book certainly helps in implementing 'Telanganaku Haritha Haram' programme for selection of appropriate sites for afforestation and watershed management.



State Flower - Cassia auriculata (*Tangedu*)



State Tree - Prosopis cineraria (*Jammichettu*)



State bird - Indian roller (*Palapitta*)



State animal - Axis axis (Spotted Deer)