

GIS for Forest Management



INTRODUCTION

Forests are of primordial importance to the environment, society, and the economy, but it faces challenges due to rapid population growth, deforestation, diseases and forest fires. Remote sensing and GIS can help to address these challenges by utilizing spatial data, satellite imagery, and advanced analytics through a Single Integrated Platform.

Some of the major innovative solutions of IGIS Technology in forest management are as follows:

Forest
Classification

Forest
Land Management

Forest
Monitoring

Forest / Plantation
Health monitoring

Forest
Vigilance

**Wildlife
Management**

Forest
Project Monitoring

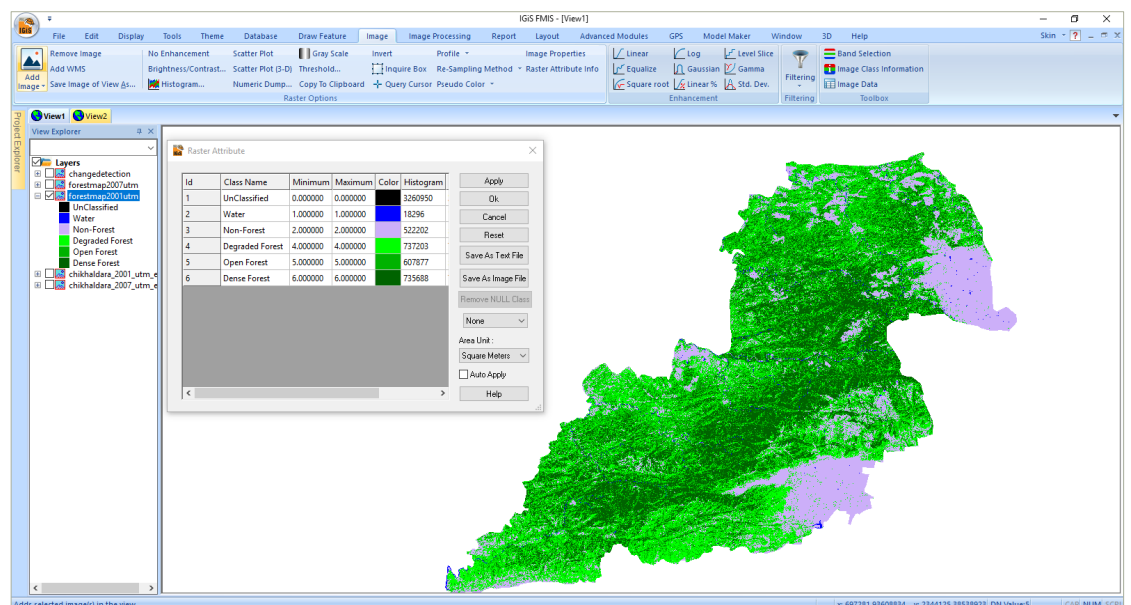
Forest
Tourism

Forest
**Production
Management**

**Real-Time
Monitoring**

Forest Classification

IGiS platform provides a range of functionalities to identify and map different forest types (Dense Forest, Open Forest, Grassland, and Marshy Land) over large regions. User can perform spectral analysis techniques such as spectral indices or supervised / unsupervised / Random Forest classification. Additionally, machine learning algorithms like Support Vector Machine, and Segmentations are also available.

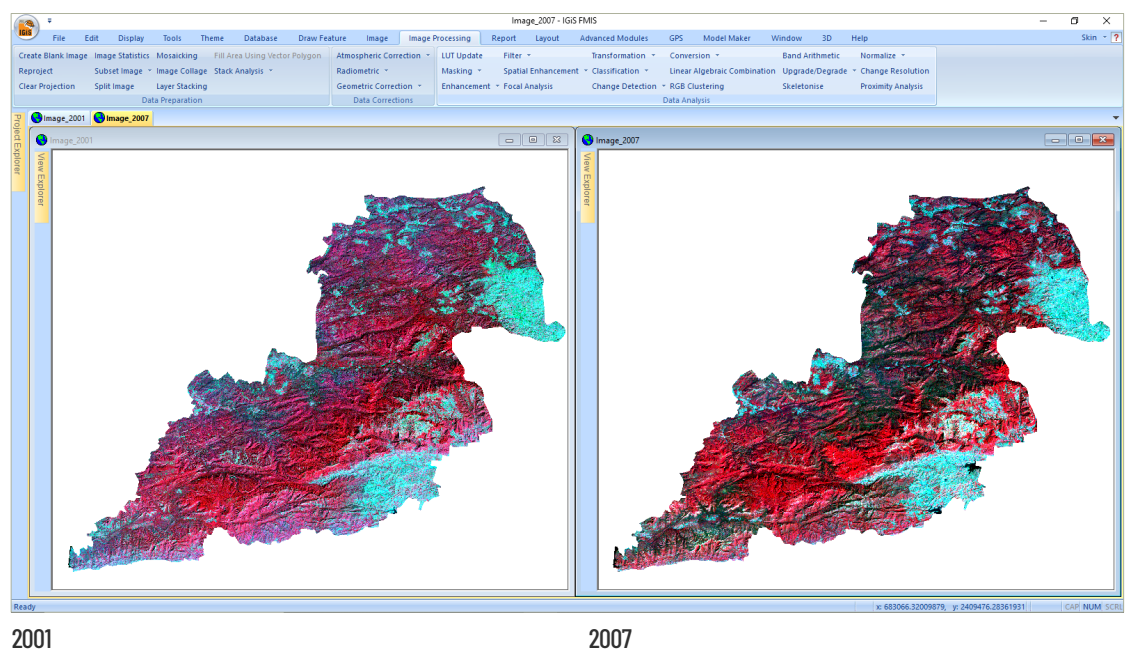


Forest Land Management

Forest Land Management plays a vital role in Forest Management. IGiS provides a Centralized and Integrated Solution for Forest based Land Information system. It consists of Mobile based field survey application, Dashboards for Field Monitoring and Data Updation / Publishing of final GIS data. By using these innovative and integrated solution, Forest Land Management system can be done efficiently. In addition to it further user centric functionalities like geo-enabled support for land management schemes, planning etc. can be incorporated as per specific requirements.

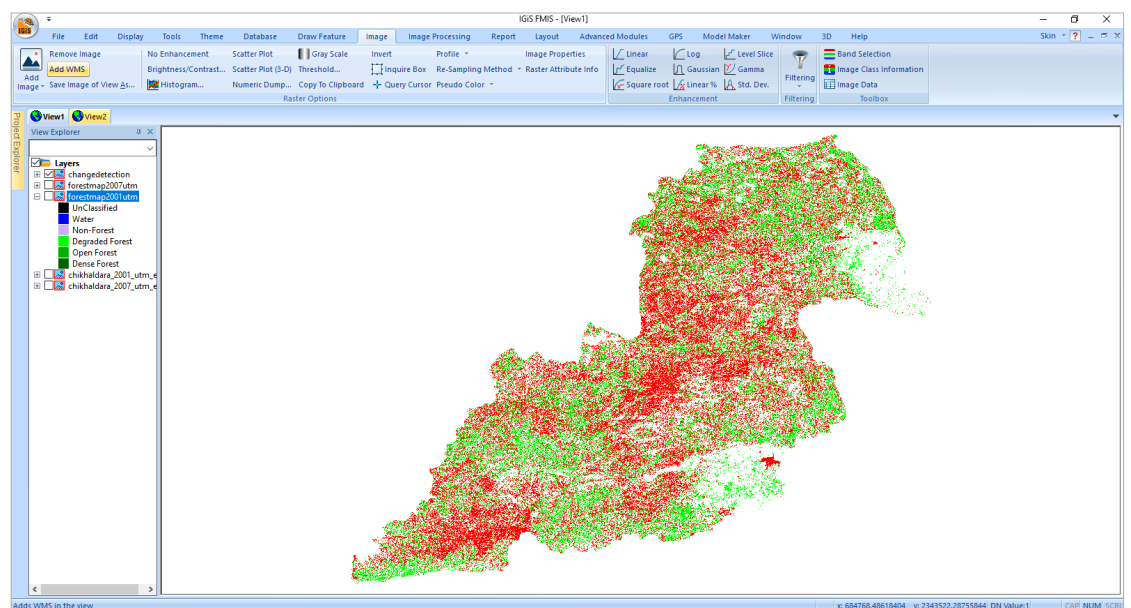
Forest Monitoring

Remote Sensing and GIS are important tools for monitoring for forest areas. IGiS platform have image processing / analysis components with full phase change detections module available at desktop and server ends. By using time series images, the authorities can effectively monitor the temporal changes, coverages and incidents over time. This empowers forest officials to make timely decision for sustainable management and disaster mitigation.



2001

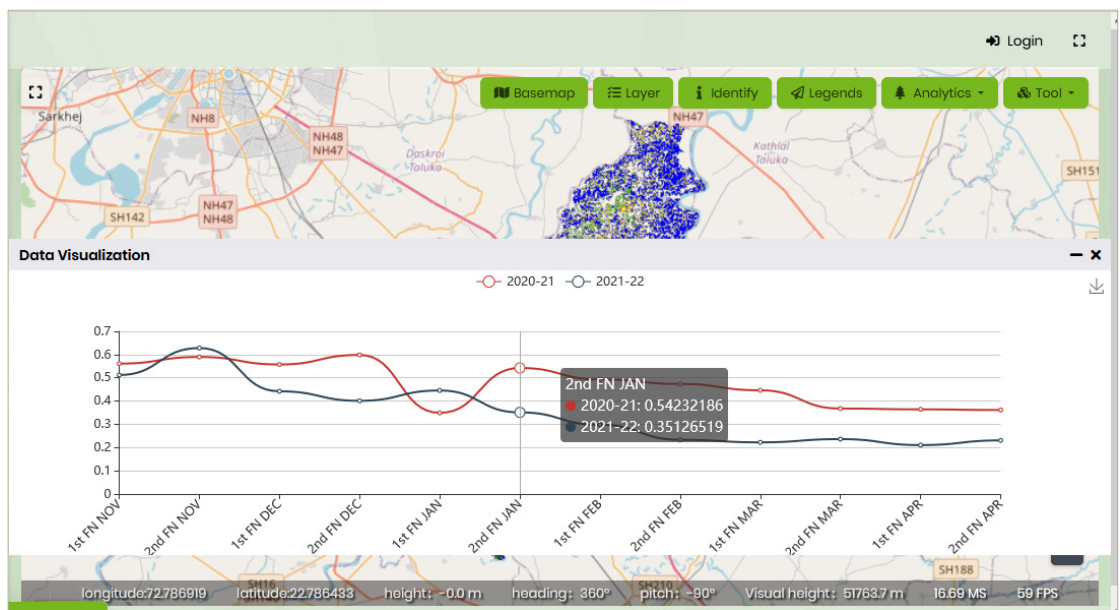
2007



Change Detection

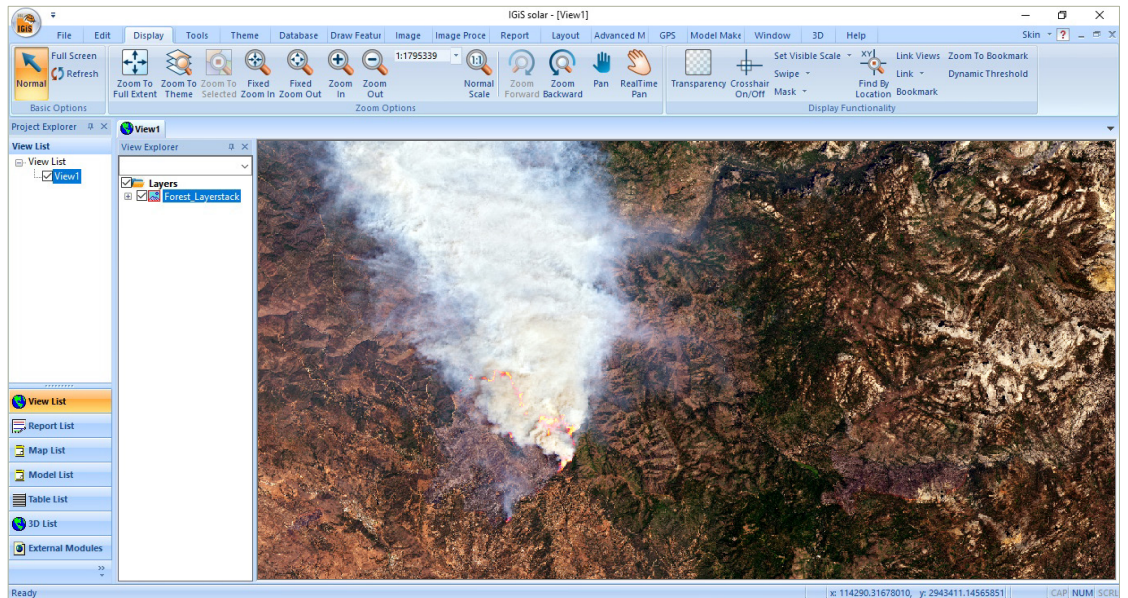
Forest / Plantation Health monitoring

IGiS platform have diverse techniques and tools for processing of satellite or aerial imagery w.r.t measuring and analyzing the health and density of existing forest and also man-made plantation in a particular area. By using these functions, the forest officers can monitor the vegetation growth and health factors for effectively implementation of forest policies.



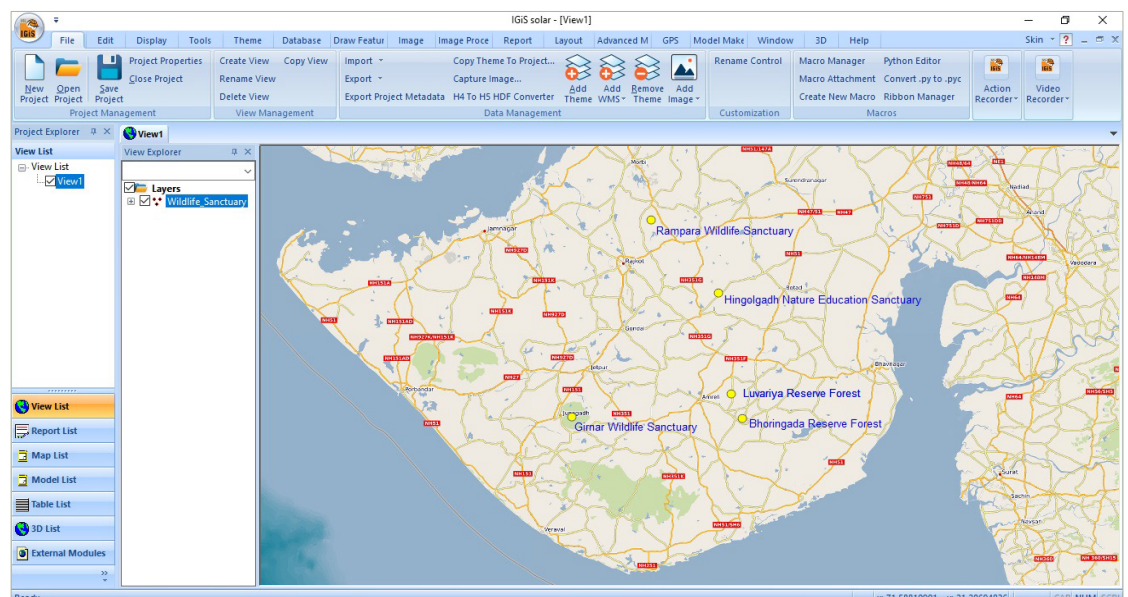
Forest Vigilance

GIS technology plays a crucial role in forest vigilance by facilitating the monitoring of forests, human-animal conflict, forest fires, and the management of protected areas. IGiS platform provides the facilities to integrate all surveillance system, acting as a backbone for a GIS-based surveillance and mitigation system. Various functionalities like live streaming of surveillance system on GIS dashboard, Incident notifications, dynamic route planning, mobile applications for field / Incident Marking, analysis of hot spots, and route tracking can be enabled in Centralized system. Facilities to import geo-tagged photographs and videos with other GIS based Decision support functionalities can also be incorporated into the Centralized system.



Wildlife Management

The health and biodiversity of wildlife are being adversely affected by various factors such as pollution and climate change. The end-to-end IGIS and GPS technology helps to analyze and visualize wildlife data. With the help of IGIS, the stakeholders can create action plans for prevention of local or global extinctions, restoration of habitats, and wildlife rehabilitation.



Forest Project Monitoring

IGiS-based solutions and the Field Survey Mobile App have the potential to greatly aid in the development of forest areas. By utilizing these platforms and user-centric applications, the stakeholders can effectively monitor forest cover and identify deforestation areas. Additionally, users can plan for afforestation and reforestation projects. The platform can provide real-time project status updates, enabling informed decision-making for fund allocation and manpower utilization in forest management. This approach ensures efficient project timelines and optimal resource utilization.

Forest Tourism

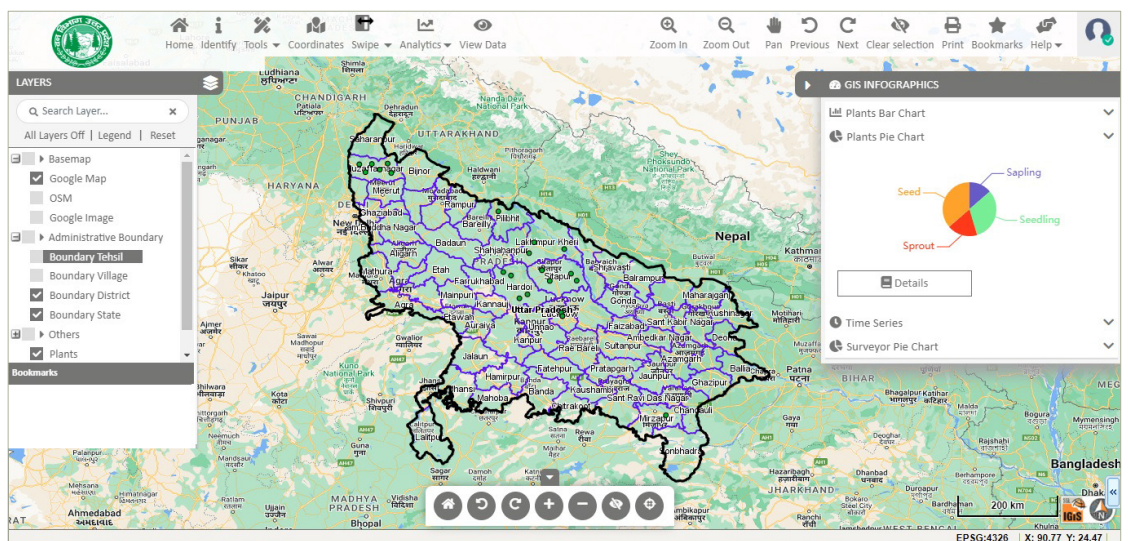
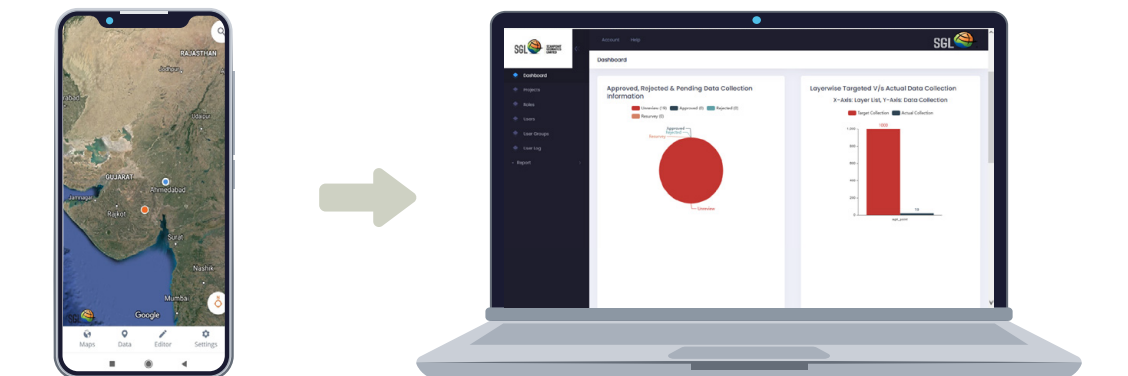
IGiS based Applications provide functionalities to geo-enable tourist spots, animal sightseeing locations, hotel and other relevant information. Additionally, Geo enabled mobile application can be customized having geo-fenced information and augmented reality features.

Forest Production Management

IGiS technology offer many applications in mapping and monitoring in various fields, including forest production management. IGiS based applications can provide location-based services for forest production surveying and planning, collection and dissemination of forest products. Additional functionalities such as grass collection, monitoring of timber & Fuel Wood, and many others along with reports generation tools w.r.t circle-wise can be also made available to stakeholders. The third-party application such as E-Auctioning and others can be integrated in the system for convenience.

Real-Time Monitoring

SGL provides an integrated survey solution comprising of the mobile application (Q-pad) and web portal that supports forest management by facilitating data collection and analysis, monitoring and reporting of forest health, communication and engagement, mapping and navigation of forest areas. Additionally, the integrated web portal allows users to visualize surveyed data in near-real-time. This valuable information can empower the forest managers to promptly take action in order to protect and conserve forests.



CONCLUSION

Thus, Scanpoint Geomatics Limited (SGL) offers innovative solutions to various stakeholders by leveraging Integrated GIS & Image Processing Enterprises Platform to achieve effective and efficient ways in forest management. Its capabilities enable the preservation of these crucial ecosystems for future generations, ensuring their sustainability and vitality.

ABOUT

Scanpoint Geomatics Limited

Scanpoint Geomatics Ltd. is the leader in the Indian Geomatics Industry. We pioneer the nation's geospatial domain through IGiS. An indigenous technology that brings GIS, Image Processing, and Photogrammetry together on the same platform under the Make in India Initiative. We are proud of our partnership with the Indian Space Research Organisation (ISRO). With an innovative approach and over two decades of rigorous research and development, the duo developed the IGiS platform. Backed by ISRO's domain expertise, we aim to push forth innovation and uplift the global geospatial domain.