EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Applications and Economic Benefits (5)

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GEOINFORMATICS FOR NATURAL RESOURCES MANAGEMENT AND SOCIO -ECONOMIC DEVELOPMENT – AN INDIAN PERSPECTIVE

Abstract

The population growth, rapid industrialization and changing life styles in India have made the natural resources management very critical. The social, economic and ecological imperatives have become the interwoven driving forces of optimal use of natural resources use , developmental activities and global change .The challenges of resource use management in India today is to meet the food and water security for 46 M people living below poverty line through integrated land use management practices, development of scientific planning and mechanisms to resolve conflicting land use systems and conservation of natural habitats, biodiversity and carbon sequestration to sustain ecosystem services and goods.

For inclusive growth and development in various spheres and sectors mentioned above, several national missions on watershed management for enhanced agriculture production, drinking water supply, joint forest management, tribal area development, rural employment generation schemes, integrated district level planning are initiated. These missions have greater involvement of people participatory systems, planning and implementation at national, regional and local level scales with financial outlays of several billion dollars and varied time scale systems. In order to accrue the economic benefits out of these programs, reliable scientific planning, monitoring and assessment systems have been realized as one of the primary requisite.

Keeping in view of this complexity, Indian Remote sensing applications has coevolved with requirements and demands from user community in developing suitable missions for satellite sensor systems and operational remote sensing applications for sustainable resources management. The Indian Remote Sensing Satellite missions have been built thus based on the spatial and temporal data requirements of the resources planning specific to Indian context in particular and global context in general.

The paper presents how scientific databases developed using remote sensing and geospatial analysis of retrospective and prospective scenarios using prognostic and diagnostic methods have facilitated the resource management and policies towards sustainable development and. These efforts include development of geospatial databases and integrated analysis of natural resources, socioeconomics, infrastructure and environmental data to facilitate natural resources planning, suitability assessment, visualization for alternatives; smart growth planning, impact analysis and land use decision support systems.

Integrated Mission for Sustainable development, watershed development, natural resources census, comparative evaluation and prioritization of tribal areas, urban growth planning studies under taken in India using multi thematic remote sensing based information in conjunction with ancillary information provides how land use planning efforts are facilitated at local and regional level to meet food and water security. Coastal zone regulation, protected area development and monitoring, development of Special Economic Zones and delineation of eco-sensitive areas are a few other examples where land use planning has been effectively facilitated to address environmental security. Studies on river basin ecology, carbon sequestration and biodiversity being conducted at decadal scales for the entire nation using satellite

remote sensing and agent based change models are aimed to provide various scenarios of impact of land use planning and policies.