

2018-19

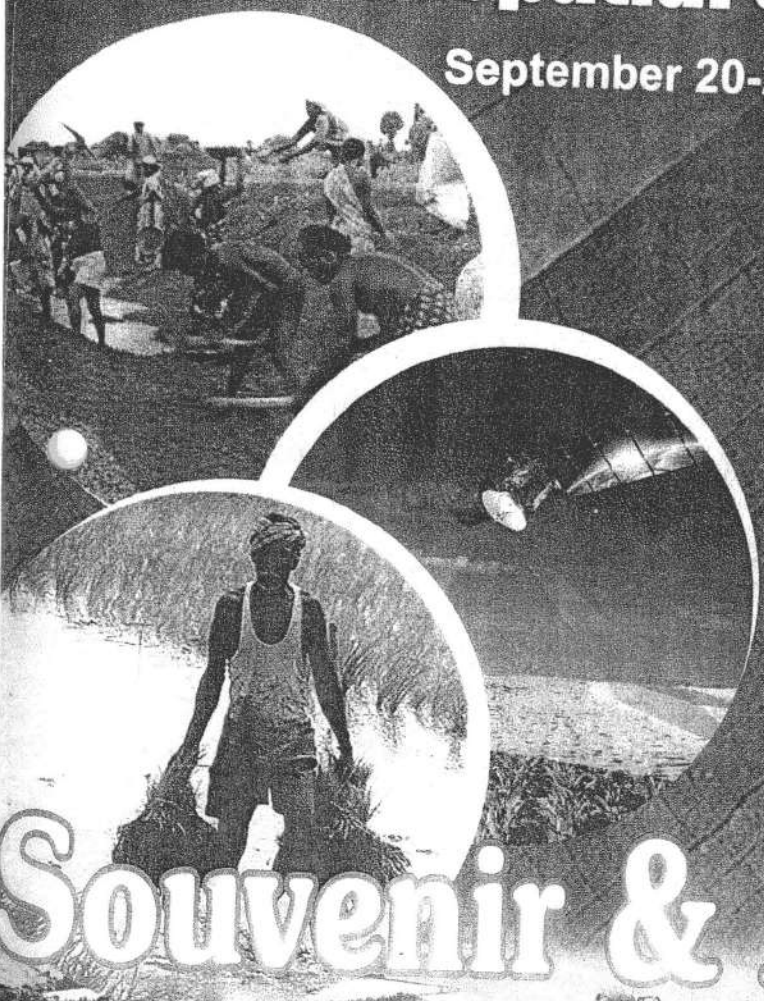


**Bangalore University**  
Department of Geography  
Bangalore - 560056

**The Deccan Geographical Society (DGS)**  
Department of Geography  
Pune - 411007

# XIII DGS International Geography Conference on **Sustainable Rural Development** **- Geospatial Solutions**

September 20-22, 2018



Convener  
**Dr. A.S. Rayamane**  
Professor & Chairman

Organising Secretary  
**Dr. Ashok D. Hanjagi**  
Professor

# **Souvenir & Abstract**

Department of Geography & Geoinformatics



among them. Rural tourism is a collective form of agriculture, culture, nature and eco-tourism. This form of tourism provides rest and relaxation to the tourists and generates job opportunities in the rural areas. This paper highlights about the centres of rural tourism in Tamil Nadu, development strategies and the problems faced by rural tourism.

Keywords: rural areas, nature, culture, farm, agriculture, tourism.

\*\*\*\*

### **Tourism Places in Marathwada Region (M.S.) and its Impact on Rural Sustainable Development**

Dr. Sunita S. Shinde, Head, Dept. of Geography, Smt. Sushiladevi Deshmuk, Mahila Mahavidyalaya, Latur.

Dr. Wani P.R., Asst. Prof. Dept. of Geography, Arts & Science College, Chousala.

Tourism is one of the main basic activities in a community or region, that requires planning and coordination and its impacts on the Sustainable Development in the region. Tourism emerged as the largest global industry of the 20<sup>th</sup> century. In the new millennium global economy will be governed by tourism. Tourism has potential to the maximum numbers of jobs. According to an assessment in India alone 100 million additional jobs will be created by the tourism industry in the next 25 years. It helps to earn valuable foreign exchange. There has been a race among the developed and developing countries to expand tourism indiscriminately which has resulted in severe cultural and ecological damages to the host country.

Keyword: Tourism – Tourist – Sustainable Development – Tourism Industry - Foreign Exchange - Expand Countries – Potential - host country heritage-Culture - Historical – Picnic - Glorious – Domestic – Foreign etc.

\*\*\*\*

### **Rural Tourism and Transition of Tribal Economy: Case Study of Semadoh, Melghat Tiger Reserve, Amravati, Maharashtra**

Dr. Udhav Zarekar, Asst. Prof. Department of Environmental Studies, Jai Hind College, Mumbai.

Tribal communities around the world are grappling with major socio-economic change. They are on the cusp of the crisis in sustainable development. Tribal society is marginalized and is there foreseeably transformed. Deprivation of land and forests are the oppression that these people experience. Inclusive growth is high-priority. Generation of productive and gainful employment for the tribes is crucial for inclusive growth. Scheduled Tribes (STs) of Maharashtra are the most marginalized. They have become disadvantaged and vulnerable as a result of invasion of their territories since the era of colonisation. Urbanization and commercialization have threatened the livelihood of the tribal communities. They struggle for survival in remote and inaccessible location. The issue of tribal work participation and unemployment is related to number of factors. As a result, tribal families regularly migrate in search of work. Tribes therefore are acculturated marginal workers in most of the regions in Maharashtra. Rural tourism has a potential to provide employment opportunities to this marginalized section of the society. The paper will bring forth the success story of Korkus of

2018-19

139



CONTENTS

Sr. No.	Title	Authors Name
1	Geomorphic and Slope Analysis of Palas Basin from part of SE Maharashtra; India	Dr. Vadagbalkar Shrinivas Krishnaji
2	Application of Remote Sensing & GIS in Environmental Resource Management	Dr. P. R. Wani
3	Types of Rural Settlements in Parbhani District (Maharashtra)	Dr. B. P. Shendge

Asst./Asso./Prof.in...  
NSSR's Arts and Sci. College  
Chousala, Tq. Dist. Beed.



## Application of Remote Sensing & GIS in Environmental Resource Management

Dr. P. R. Wani

### ABSTRACT

Remote Sensing (RS) and Geographic Information System (GIS) techniques become potential and essential tools for environment resource management. RS and GIS help us to analyze the data spatially, offering possibilities of generating various options (modeling), thereby optimizing the whole planning process. These information systems also offer interpretation of physical (spatial) data with other socio-economic data, and thereby provide an important linkage in the total planning process and making it more effective and meaningful. Remote sensing provides data on earth's available resources where as GIS co-relates different kinds of available resources, so as to use them in various fields for the development of human being such as Agriculture, Land management, Civil Engineering, Marine, Fire Hazard, Water Resource Management and so many fields. Remote sensing technology in recent years has proved to be of great importance in acquiring data for effective resources management. For this Remote sensing and GIS are used to generate development models by integrating the information on natural resources, demographic and socio-economic data in a GIS domain with satellite data. A number of satellite systems have been dedicated to monitoring the global environment.

Through this paper the authors have tried to stress the importance of remote sensing and GIS Applications. Remote Sensing and GIS technology is a useful tool for following and managing natural resources. Using Remote Sensing and GIS technology to quickly detect changing of environment by time, preventing natural disaster to serve agriculture.

**Key words:** Remote Sensing (RS), Geographic Information System (GIS), Environmental Resources, Earth Observation.

Asst./Asso./Prof.in  
NSSR's Arts and Sci. College  
Chousale, Tq. Dist. Beed. 12



Introduction

Remote sensing is the technique to get the information about an object, without making physical contact with the object. In this Science age, the remote sensing refers to the use of aerial sensor technologies to detect and identify objects on Earth. It may be on the surface or in atmosphere or in oceans. Remote sensing use the propagated signals e.g. electromagnetic radiation emitted from aircraft or satellites. There are two main types of remote sensing:

- 1. Passive Remote Sensing
- 2. Active Remote Sensing.

Passive sensors detect natural radiation that is emitted or reflected by the object or surrounding area being observed. Reflected sunlight is the most common source of radiation measured by passive sensors. Examples of passive remote sensors include film photography, infrared, charge-coupled devices, and radiometers.

Active Sensors emits energy in order to scan objects and areas whereupon a sensor then detects and measures the radiation that is reflected or backscattered from the target. RADAR is an example of active remote sensing where the time delay between emission and return is measured, establishing the location, height, speeds and direction of an object. A Geographic Information System (GIS) integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. GIS also allows the integration of these data sets for deriving meaningful information and outputting the information derivatives in map format or tabular format.

Approaches to GIS

A GIS can be viewed in three ways:

Asst./Asso./Prof.  
NSSR's Arts and Sci. College  
Chousha, Tq. Dist. Beed.

1) **The Database Approach:** A GIS is a unique kind of database –a geographic database. It is an "Information System for Geography." Fundamentally, a GIS is based on a structured database that describes in geographic terms.

2) **The Map Approach:** A GIS is a set of intelligent maps that shows the features relationships on the earth's surface. Maps of the underlying geographic information can be constructed and used as "windows into the database" to support queries, analysis, and editing of the information.

3) **The Model Approach:** A GIS is a set of information transformation tools that derive new geographic datasets from existing datasets. These geo-processing functions take information from existing datasets, apply analytic functions, and write results into new derived datasets. By combining data and applying some analytic rules, we can create a model that helps answer the question you have posed. Remote sensing makes it possible to collect data on dangerous or inaccessible areas. Remote sensing applications also include monitoring dense forest area and depth of coastal and ocean depths. Remote sensing also replaces costly and slow data collection on the ground, ensuring in the process that areas or objects are not disturbed. By satellite, aircraft, space craft, ship, and helicopter images, data is created to analyze and compare things like vegetation rates, erosion, pollution, forestry, weather, and land use. These things can be kept for further analysis like if you have the data of any populated area & after a long time that is affected by any natural climate then you can analyses the losses of that area. You can calculate the approximate losses for that region. The process of remote sensing is also helpful for city planning, archaeological investigations, military observation and geomorphologic surveying.

**Environmental Resource Management by Remote sensing & GIS**

A very good aspect of remote sensing is to identifying the land sliding area. As most of the land sliding are detected by vegetation index. The use of vegetation

in dexes can help to the detection of big landslides. For finding the possibility for land slide, we have found the DTM for previous available data which we have received by satellite. Now you have to find the DTM for present situation then have to compare both the DTM. As we subtracted the two DTM, you can find the area whose value is exceeding from mean value. That area could be area of land slide. In the analysis of land sliding, Digital image processing plays an important role of analysis.

Remote sensing & GSI can be used in the field of medical & public health interaction. The use of remote sensing and GIS as a tool is applied for better understanding of infectious disease and environmental health interactions. We can study any rural area with the help of spatial data available from remote sensing & GIS. We can calculate the infected area & non-infected area and can find the reason for infection. After plotting the graph between infected verses non-infected area, we can provide the recommendation for the concern department for proactive precautions for non infected area and necessary action for infected area.

Remote Sensing & GIS are very important tools in the field of Agricultural development. Agricultural Development is one of the most important objectives for every country in the world, whether developed or developing country. The broad objective of sustainable agriculture is to balance the inherent land resource with crop requirements, paying special attention to optimization of resource use towards achievement of sustained productivity over a long period. Sustainable agricultural development/ sustainable increase in crop production could be achieved by adopting a variety of agricultural technologies. Remote sensing and GIS technology are being effectively utilized in India in several areas for sustainable agricultural development and management. The areas of sustainable agricultural development/ management include cropping system analysis, quantitative assessment of soil carbon dynamics and land productivity, soil erosion inventory,



integrated agricultural drought assessment and management and Integrated Mission for Sustainable Development (IMSD). Quantitative assessment of land productivity is one of the important components of integrated nutrient management for sustainable agricultural development. Land productivity data provide information about the inherent fertility status of soil escapes, which is a useful guideline for supplementing soil nutrients from external sources, such as fertilizers. Various studies carried out in several areas of sustainable agricultural management/ development in India by integrated use of aerospace data and GIS have clearly indicated that Remote Sensing and GIS technology are very effective tool for suggesting action plans /management strategies for agricultural sustainability of any region. Remote Sensing and GIS techniques can also be a important tool for solving many problems relating to civil engineering. Remote sensing observations provides data on earth's resources in a spatial format, GIS co-relates different kinds of spatial data and their attribute data, so as to use them in various fields of civil engineering. Different themes namely, terrain, geology, hydrology drainage, land use and so on can be extracted from remote sensing data. All the above thematic information along with their attributes can be integrated to solve many problems of civil engineering. Some current uses of GIS and Remote Sensing in civil projects are housing, sanitation, power, water supply, disposal of effluents, urban growth, irrigation project design and planning, new road alignment etc. All these can be derived from high resolution stereo pair of remote sensing data. These techniques are also useful in rehabilitation also. Other uses are Exploration and Management through Rainwater Harvesting, Identification & Management of Drinking Water Potential, Ground water Potential Zoning, and Water shed Management and irrigational Network Planning and tourism. These techniques are also vital tools for urban and rural developing planning.





### Conclusion

There are so many evidences of applying the recent advances in satellite based remote sensing and GIS technology in various fields like environmental resources, Agricultural, Medical, Mining, Forestry, Communication, mapping, economic and regional planning etc. India's space programme ensuring continuous availability of Remote Sensing data and launching of future satellites carrying high spatial and spectral resolution sensors can go a long way in providing useful information.

### References:

1. Konstantinos G. Nikolakopoulos, Dimitrios A. Vaiopoulos, Georgios Aim. Skianis, Panagiotis Sarantinos & Antonis Tsitsikas- Combined use of Remote Sensing, GIS and GPS data for landslide mapping.
2. Penny Masuoka, Richard Andre, Don Roberts, Gary Gackstetter, Pote Aimpun, Shilpa Hakre, Judi Chamberlin- A Remote Sensing and GIS Course for
3. Sumit Kumar Gupta : A Study on Resource Management using Remote
4. Sensing & GIS, International Journal of Applied Science & Technology. Students in Public Health
5. S.K. Bhan, S.K. Saha, L.M. Pande and J. Prasad-Use of Remote Sensing and GIS Technology in Sustainable Agricultural Management and Development.
6. Sandeepan Saha- Application of Remote sensing and GIS in civil engineering.
7. XIAO-LI ZHANG, XIAN-XIANG YOU, XU-SHENG LIU, HUA-GUO HUANG- A Study on forest Ecological Environment gradient with remote sensing, GIS & Expert System.

### Author Address :

Dr. P. R. Wani  
Assistant Professor,  
Department of Geography,  
Arts and Science College , Chausala,  
Tq. Dist. Beed

\*\*\*\*\*