B.A. Avhad

Year 2019-20

Impact Factor - 6.625

E-ISSN - 2348-7143

INTERNATIONAL RESEARCH FELLOWS ASSOCIATION'S

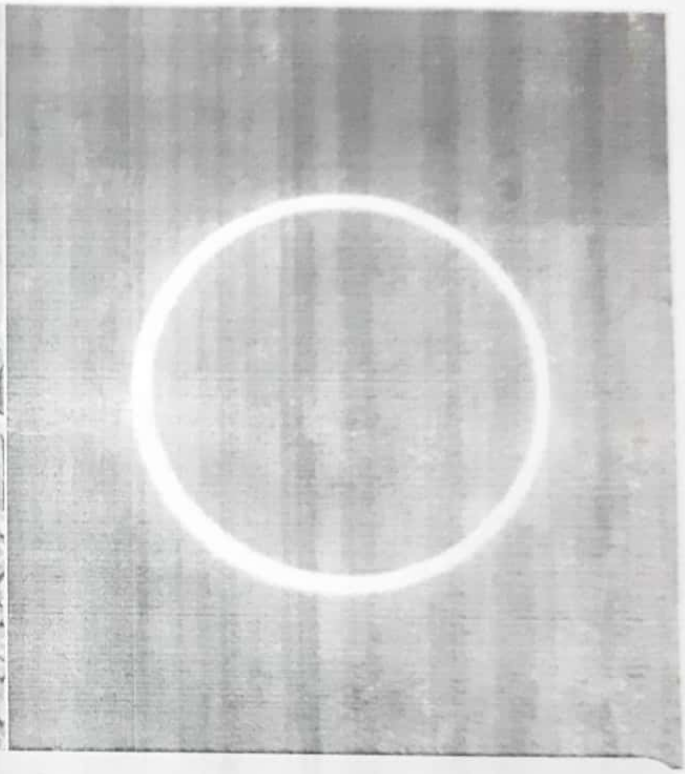
RESEARCH JOURNEY

International E-Research Journal

PEER REFREED & INDEXED JOURNAL

October-November-December 2019

Vol. 6 Issue 4 (A)



This Journal is indexed in :

- University Grants Commission (UGC)
- Scientific Journal Impact Factor (SJIF)
- Cosmoc Impact Factor (CIF)
- Global Impact Factor (GIF)
- International Impact Factor Services (IIFS)

For Details Visit To : www.researchjourney.net

SWATIDHAN PUBLICATIONS

Published by –
Mrs. Swati Dhanraj Sonawane, Director, Swatidhan International Publication, Yeola, Nashik
Email : swatidhanrajs@gmail.com Website : www.researchjourney.net Mobile : 9665398258

'RESEARCH JOURNEY' International E- Research Journal
Impact Factor - (SJIF) - 6.625 (2019),
Vol. 6, Issue 4 (A)
Peer Reviewed Journal
E-ISSN : 2348-7143
Oct.-Nov.-Dec. 2019

Geographical Analysis of Changing Landuse Pattern of Mahabaleshwar Taluka

B. A. Avhad
(Assistant Prof in Geography)
SPH, Mahila College Malegaon Camp
Mo. 9922369447

Introduction:

Need of study:

The interaction between man and environment has a long and complex history. Which varies greatly from time to time and place to place these interaction resulting changes on the earth surface is directly observable on the earth surface. along with this human activities are so evasive and profound in their consequences that they affect the earth in complex, interactive and accelerating ways, humans now have capacity to alter the earth system in ways that threaten the very process and component both biotic and abiotic up on which human depend.

Consequences of these changes have catastrophic effects on ecosystem structure and function, long term ecological process and biodiversity. Land use and land cover changes thus contribute significantly to earth atmosphere interaction and biodiversity loss, and it is a major factor in sustainable development and human responses to global change. Therefore a firm understanding of land use and land cover is necessary to keep environmental sustainability and economic development compatible.

In view of this present study deals with the land use and land cover of MahabaleshwarTaluka which is based on toposheet techniques and direct field observation and remote sensing satellite imagery.

Aims & Objectives:

1) To delineate and map the various land use and land cover of the region at present and in the past using toposheets and satellite imagery.
2) To examine and to get better insight into temporal changes in the nature of land use of study region
3) To assess the causes and consequences of nature of changes in land use in the study region

Study region:

Location:

It is located between 17 50, north to 17 59 north and 73 32 east to 73 52 east longitude in Satara district of west Maharashtra. The Taluka is bounded in north west byRaigarh district , in west by Ratnagiri district, in south by Patantaluka&in east by Satara& north east by WaiTaluka. The total geographical area of Mahabaleshwar is 223.10sq km. thetaluka is surrounded by shyadri mountains, and having a famous hill station Mahabaleshwar located at 1436mt above msl.

Data Base:

In order to study the above objectives various primary and secondaroy data were used. To have the past land use land cover information the Toposheet 47 G/9 and 47 G/13 on the scale 1:500000 and other gazetteer and historical information are used.Along with this land sat MSS imagery of 1972 and IRS-1C imagery (95 path and 60 row) of 2002 and 2012 is used. For proper understanding of the study region and other features intensive fieldwork is carried out. The climatic, physiographical, and demographical data is collected from the socio-economic abstract of satara District and census report.

Methodology:

The present study of land use and land cover of Mahabaleshwartaluka is done with the help of remote sensing techniques. The IRS-1C satellite data has been used for the present study. The said data is available in (FCC) false color combination on the hard copy.The detail interpretation of the satellite imagery and toposheets is carried out, which is also the base map of the region and the satellite imagery is visually interpreated.

Land use and land cover and remote sensing:

For the present study Remote sensing techniques is use because of following reasons

1) Large area can be imaged quickly & respectively
2) Remote sensing image eliminates the problems of surface access that often hamper ground survey.
3) Image interpretation is faster and less expensive than conducting ground survey

Land use and land cover of MahabaleshwarTaluka

Land use describe how a parcel of land is used such as agriculture, residence or industries. The term land use relates to the human activity or economic function associated with a specific land. The term land cover relates to the types of features present on surface of earth e.g. crop field , concrete highways, land cover describes the material such as vegetation, rocks or building that are present on surface.

Land use can be defined as the use of land by human, usually with emphasis on the functional role of land in economical activities land use from abstraction. Land cover in its narrow sense, often designated only the vegetation either natural or man made earth surface. Land use pattern reflect the character of society interaction with physical environment. For example forested area is certainly known as land cover but land use of that area may be lumbering, oil extraction or various combination of activity.

USGS Land use and land cover classification system

1.Urban built up	1)Residential 2)Commercial and services

	3)Industrial 4)Transportation 5)Communication 6)Institutational 7)Recreational 8)Mixed 9)Open land and other
2.Agriculture	1)Cropland 2)Orchards, horticulture area 3)confined feeding operations 4)other agriculture
3.Range Land	1) Grassland 2)Shrub and bush land
4.Forest land	1)Mixed rangeland 2)Evergreen forest 3)Deciduous Forest 4)Mixed forest 5)Clear cut area 6)Burned area
5.Water	1) stream and canal 2)lakes and ponds 3)Reservoirs 4)Bay and estuaries 5)Open marine water

Land use and land cover of MahabaleshwarTaluka

From the study of interpretation of Topo sheet 47 G/9 and 47 G/13 OF 1960, land sat MSS imagery of 1972 and IRS-1C imagery of 2002, IRS-1C imagery of 2012 Along with this the field work of study region and the proper understanding of various features and phenomena, we have derived five major land use and land cover variables which are agriculture, settlement/built up, roads, forest/vegetation and water bodies. From our studies and interpretation a table of land use and land cover was prepared.

Area under various category of land use and land cover:

Year	1961		1971		2002		2012	
category	percentage	Area in sqkm	percentage	Area in sqkm	percentage	Area in sqkm	percentage	Area in sqkm
Agriculture	7.23	16.13	8.19	18.22	10.11	22.55	12.20	27.21
Settlement	10.30	22.98	13.27	19.67	20.14	44.93	23.10	51.53
Roads	8.24	18.38	8.98	20.03	9.15	20.42	10	22.31
Forest/vegetation	61.85	137.98	57.16	127.562	50.20	112	44.3	98.83
Water bodies	12.38	27.59	12.40	25.66	10.40	23.20	10.40	23.20
Total	100.00	223.1	100.00	223.1	100.00	100.00	223.1	223.1

SOURCE:TOPOSHEET, 47G/9 ,47G/13 (SOI-1960) IRS-1C IMAGERY-2002 IRS-1C imagery of 2012

Forest : As in the 1961 the forest cover of the region was more than 60 percent and it has decreased to 57.16 and 50.20 and 44.3 percent in 1971 and 2002,2012 respectively. This

decrease is mainly accounted due to only decreases in rainfall from average of more than 7000mm to 6000mm at present. Along with this certain human factor such as change in population size, occupational shift and certain mining activity has resulted in its decrease.

Agriculture Cover:

In the study region in 1961 the 7.23% area is occupied by agriculture field ie.16.13 sqkm. In 1971 it has increased to 8.19 percent and it has again increased to 10.11 and 12.20 in 2002.2012 respectively. it occupy 22.55 , 27.21 sqkm area under agriculture

Due to lack of plain topography most of the agriculture carried out at terraces due to that deforestation took place which ultimately change the land use and land cover of Mahabaleshwartaluka

Settlement/Built up:

In the study region in the last four decades the built up area has also show positive trend. In 1961 the area under build up was only 22.98sqkm which was nearly double to 44.93 sqkm occupying 20 percent of the total area in 2002 and 23.10 in 2012. Major cause behind the increase in the built up area is rise in population , as the population in 1961 which was 24370 has doubled to54546. which also due to increasing importance of tourist centre of Mahabaleshwar and it has resulted in construction of hotels and other facilities for the tourists

Roads:

Due to development of tourism activity automatically roads improvement considerably which from 8.24% to 9.15% in 1961 and 2002 respectively. which show the changing land use and land cover of Maharashtra Taluka

Water Bodies:

It includes streams. River. lake of the region .It appear darker shade with narrow to wide in size and smooth to medium in texture. In the region Krishna. Koyna. Gaytri and Savitririver are present but due to resolution and other factor only Krishna and koyna river observed. All these water bodies occupy 10.40 percent area with 23.20sq km area. This also has been decreased from 12.38 percent in year 1961. In the region Dendritic drainage pattern is seen. One lake is observed i.e. Venna. near Mahabaleshwar city in the north of the region.

Barren Land:

The open land denotes the lands which is not used at present for any activity and is vacant. Such land has the spectral reflectance yellow to greenish blue in tone depending on topography. It is present in smaller in size. Smaller patches of these features are present in all over the area.

Finding and Conclusion:

Lastly here research is made to summaries the main findings of study to highlight the broad generalization emerging out of it and suggest preventive measures to conserves land use and land cover changes in the region, Remote sensing techniques has been used for the present study to analyses the land use and land cover of MahabaleshwarTaluka. The land use and land cover is controlled by processes of nature and activities of human beings, as a result of which , in the last four decade from our analysis of toposheets, Land sat IRS images taken imagery and supplemented with field work information gathered, different land use and land cover categories has been identified and demarked on maps

In the present study region various categories of land use and land cover such as agriculture, settlement, roads , forest/vegetation and water bodies are taken in to consideration. Study is made to find out the changes taken place with land use and land cover within last four decades

The study region having dense forest cover , but last four decade study show that vegetation cover has also remarkable changes. These changes are mainly due to development of agriculture and construction (roads and buildings) and mining activities as a result there is a decreased in 17.65% of the forest cover. The physical as well as climatic factors are also responsible for decrease in forest area. New agriculture techniques developed that why agricultural area has increased by 5% in the total area from 1961 to 2012 in the study region the Mahabaleshwar and Panchagani one of the famous tourist centre of Maharashtra is developing.for providing the facilities to the tourist and local population of Mahabaleshwar the built up land area is also increasing. This built up is two stories building.The new construction of commercial nature, for rented residential purpose, hotel, business house, some farm houses etc are developing which provides the facilities of and boarding. In the study period the built up area has increased by 13.80%

Suggestions:

As per the climate and the topography the forest cover should be increased and new plantation must be carried out by government and social organization and through the awareness of local people. Government should be createfavourable and proper scheme for the conservation of forest area.

Proper monitoring the forest areas to control spread and growth of forest fire, diseases and pest infestation, and preventing illegal indiscriminate cutting of trees. Planned used of forestry resources by rural population Reforestation over cleared area and degraded forest lands. To utilize the present land there should be innovative agriculture practices like greenhouse house technology, high yielding seeds ,and other variety of crops. There should be proper managements of tourists and related activities .Along with this there should be proper disposal of waste materials for minimize the land pollution by tourist. Stop all illegal construction.

References:

1. Census of India(1961): general population Table
2. District Gazetteers of Maharashtra(1960)
3. Govt. of Maharashtra (1981):Socio Economic Review and District Statistical Abstracts of Satara District of Maharashtra(1971-1977)
4. lilesand.T.M and R.W Kiffer(1979):Remote sensing and image interpretation, John Wiley and Sons Inc. NEW YORK.
5. SureshPhule&AbhijitBadade: A Geographical study of land use changes in Marathawada Region. Maharashtra.The Deccan Geographer, December2003, vol- 41,no-2 page-41
6. Webster (1922): A Glossary of Geographical Terms, Longmans Green and Co.Ltd.London
7. Stamps Dudley(1970):Dictionary of Geography, William clowes and sons , London

- http : www.censusindia.net/data/27_mah.pdf
- http : www.censusindia.net/state_profile_index.html
- http : www.mapsofindia.com/map/maharashtra