



Land use Change Analysis Case Study of Kadavur Taluk in Karur District, Tamil Nadu, India; during on 2001 to 2015

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Abstract:

Land is the most important resource which determines the regional development of a country. The transformation of land from one form to another is due to climatic and social economic change in ecology and hydrologic chain i.e., non-availability of water and migration of population. My study area is Karur district which lies between 10.59° N latitude and longitude 78.18° E are the geo coordinate of the globe. It is a sub-tropical region. The aim of the present study is Land use Change analysis of the study area. The major Objectives of my study is to find out the land use distribution, the land changing percent in the study area and compare land use changes in categories and year wise. The study Land use analysis data collected from USGS Earth Explore Using satellite data LAND SAT 8 satellite imagery in different period (2001, 2011 and 2015) will be prepared according to the NRSC standardised classification scheme. After using the GIS software classify the land in category wise like that agriculture land, settlement land, water bodies, vegetation land and waste land. These all land use percentage data comparing the year wise and category wise. Finally come from output report in the research work from the study area. These region agriculture land percentage is decreasing and same year waste land increasing same level during on 2001 to 2015.

I. INTRODUCTION

The land use and land cover pattern of a region is an outcome of natural and socio-economic factors and their utilization by man in time and space. The terms “land use” and “land cover” are often used simultaneously to describe maps that provide information about the types of features found on the earth’s surface is called as land cover and the human activity that is associated with them. Land cover is an important input parameter of understand region wealth.

The land studies optimally and to provide as input data in modelling studies, it is not only necessary to have information on existing land use/ land cover but also the capability to monitor the dynamics of land use resulting out of changing demands. If the site is small and easily accessible a suitable land cover may be based on ground observation and surveys. However such methods are quickly become less feasible, if the site is large or difficult to access.

II. REVIEW OF THE STUDY

Verburg Peter et al. (2006) expose the six concepts important to land use modeling. They are level of analysis, cross scale dynamics, driving factors, spatial interaction and neighbourhood effects, temporal dynamics and level of integration.

The authors have used variety of methods to implement the above six concepts. Some of the important models are micro level perspective: model based on the micro-level perspective are all based on the simulation of the behavior of individuals and up scaling of this behaviour, in order to relate it to changes in the land use pattern.

Rajeev Kumar Jaiswal, Rajesh Saxena, Saumitra Mukherjee focus the Land use /land cover changes over a period of

30 years were studied using remote sensing technology in a part of Gohparu block, Shahdol district of Madhya Pradesh.

Tsolmon Renchin focus to Remote Sensing and GIS functions were used to monitor interactions and relationships between land use and landcover changes in the regional area. This study aims to determine the land degradation condition in the Ongi river basin of Uvurkhangai Province, Mongolia.

Using GIS functions the climate factors:

Precipitation, air temperature, and vegetation condition and socio-economic factors: goat number, population number and mining activities we reanalysed. Eighty percent of the study area is used as pasture land and for mining which means coupled human environment systems are mainly causing poor land use and land degradation. We focused on developing a methodology for monitoring land degradation using both GIS and Remote Sensing.

Lukas Egarter Vigl Managing multiple ecosystem services (ES) in agricultural landscapes is a challenging task, especially in regions with complex topographical and agro-ecological conditions.

These challenges require ES assessment approaches that go beyond the case study level and provide multi-temporal information at a transnational level.

We used a spatiotemporal approach to examine the impact of specific land use/land cover (LULC) trajectories on eight ES for the past 150 years. We show how a spatially explicit ES upscaling procedure, from case study to an Alpine-wide level, based on topographical, agro-ecological and socioeconomic parameters, can improve our understanding of ES dynamics and bundles.

III. STUDY AREA

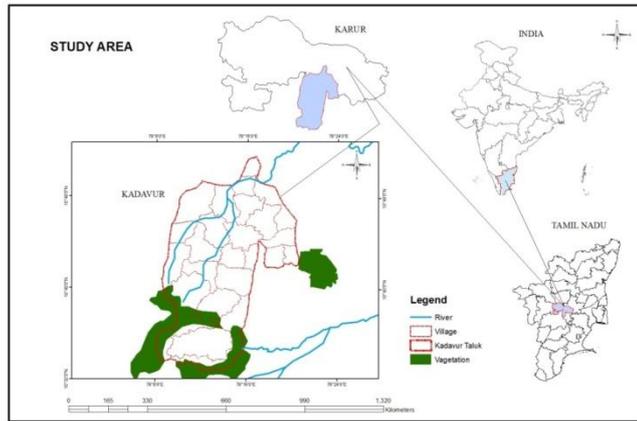


Figure.1. Study Area.

Kadavurtalukis lies between Karur district in Tamil Nadu, India. The study area centre Part of the Karur district. The area lies between 10.59°N latitude and longitude 78.18°E are the geo coordinate of the globe. The neighbouring region is northern part of Krishnarayapuram, north western Karurtaluk, western in Dindugul District, south eastern in Tiruchirappalli district. The headquarters of the taluk or study area is the town of Thargampatti. The study area lies along the east coastal plain and form a part of the Deccan plateau, one of the natural divisions of India. The area formed of peculiar tectonic activity. These region flows from the Cauvery River and Amaravathi River. The total spread geographical area is 42710 hector. The average temperature of study area is 35°c. The major soil types spread over Yellow wish Red, Fine Loamy Soils, Dark Red Coarse Loamy Soils Yellowish Red Fine Loamy Soils, Dark Clay, Sandy Clay Loam, Dark Grayish, Brown Fine Clay Loam. The demographic status is 109810 persons living in study area (2011 census), male population is 49.9 Per cent and female population is 50.1 per cent of total population. The literacy rate is 57 per cent of total population, has been 58% of population engaged in main or marginal workers, 61% male and 56% female population are working population. There are about 22 villages located in study area. The study area most of people depended the agriculture. These

are a major agriculture crops growing in Banana, Paddy, Jowar, Cumbu, Redgram, Chillies, Sugarcane, Banana, Groundnut, Gingelly and Maize. Most of the area is under upland with thin veneer of soil. The present study area is a rain shadow region and has no proper drainage network. Uncertainty of dry agricultural system is in practice. These are a major tourist spot isponnaiyar dam and VasanthaPerumal Temple. The study area has a well-developed transport network. The understanding of the geographical environment of the study area will be helpful in understanding land use change in KadavurTaluk.

III. METHOD AND METHODOLOGY

The aim of the present study is Land use Changes analysis using the geo spatial techniques from the study area. The major Objective is find out the land use distribution period wise (2001, 2011 and 2015), the find out the land changes and compare land use changes in catagories in year wise. The Land use analysis data collected from USGS Earth Explore Using satellite data LAND SAT 8 satellite imagery in different period (2001, 2011 and 2015) will be prepared according to the NRSC standardised classification scheme. After assigning the appropriate weight ages to the individual land parameters using the raster overlay technique. Finally using the ERADAS and Arc GIS 10.3 software create the land use maps from different years. Further the land use has been overlay on the land use maps will be arrived. After the compare the data year wise and category wise find out land use changes in my study area.

IV. RESULT AND DISCUSSION

LAND USE LAND COVER

The satellite data was observed and interpreted and after making thorough field check, the map was finalized. The various land use / land cover classes were interpreted further. The land use classes in the study area include Built-up, Agricultural land, Vegetation, waste land and water bodies. Detailed accounts of these land use / land cover classes of the study area described in the following section.

Table.1.

Land classes	Interpreted Tool
Settlement Land	The build-up lands areas of human habitation developed due to non-agriculture uses like Building, Transportation, Communication and Utilities in association with water and vegetation lands. These features are identified with their dark bluish green tone in the core and bluish tone on the periphery. They have a typical coarse and molted texture.
Agricultural Land	These are the lands mainly used for farming for production of food and other commercial and horticultural crops. The help of satellite data, it is possible to identify various agricultural land uses up to level III. The different types of agricultural lands identified yellow. These include all the agricultural areas identified by their characteristic tone, regular shaped agricultural fields and in associated with settlements water bodies. The crop lands are found well distributed throughout the foot hills zones hills zones, along.
Vegetation land	Vegetation comprises of thick and dense canopy of all trees. These lands are discerned by their red to red tone and varying in size. They show irregular shape and smooth texture. These forest areas are found southern part of Kadavur. Based on the tonal and textural variations, the forests of the study areas are divided in to three categories as deciduous forest, evergreen forest and degraded forest.
Water Bodies	Both manmade and natural water features included in this category. The deep water features appear black in tone in the satellite imagery. The shallow water and deep water feature appear in light blue to dark blue in color.
Waste land	The region only black colour and white colourpatches and smooth surface. Irregular land and shape less topography. Mountainous or hilly areas, areas with no vegetation cover or degraded agricultural lands

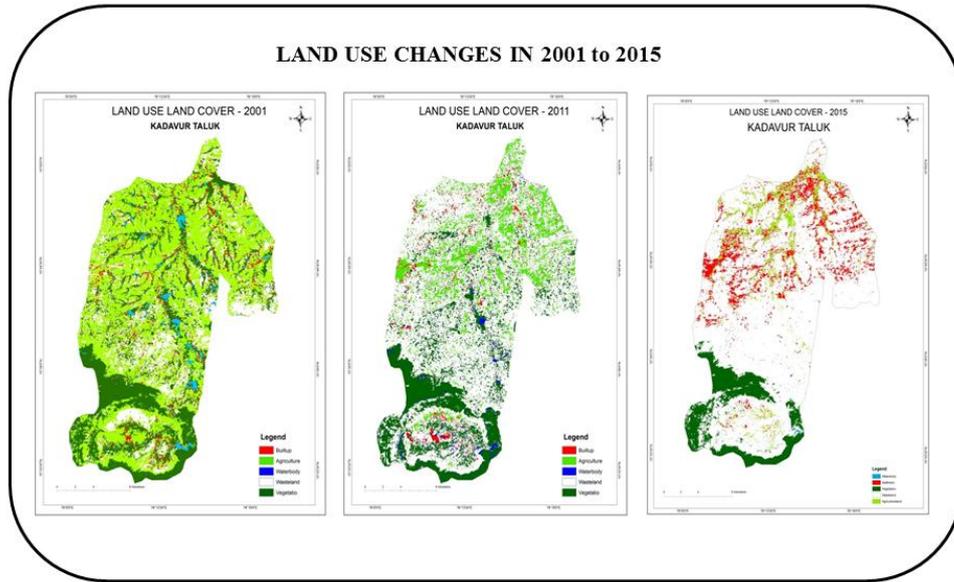


Figure.2. Land use (2001, 2011 and 2015)

The figure no.: 2 explain the land use and land cover changes in Kadavur Taluk during period in 2001 and 2015. The Remote Sensing and GIS was used to monitor interactions and Relationships between land use and land cover changes in the regional area. The study area comparing the 2001 to 2011 to 2015 high level land use changing the agriculture land,

settlement land, water bodies and waste land. This region high level changed in agriculture land and waste land, the agricultural land decreased and waste land increased. These land use changes explain the category wise from given below (table no.: 2)

Table.2.

LAND USE CATEGORIES	YEARS / LAND USE IN PERCENT		
	2015	2011	2001
Agriculture land	5.22	13.48	51.01
Vegetation	9.44	20.97	24.98
Settlement	8.88	5.62	4.03
Waterbody	0.04	1.40	2.42
Wasteland	76.42	58.52	17.56

The table no.: 2 explain the category wise land use changing per cent in 2001 to 2011 to 2015. During the period on 2001 land use percent distribution in Agriculture land, Vegetation, Waste land, Settlement and water body. The land use 2011 period land distribution is waste land, vegetation, agriculture

land, settlement and water body. During on 2015 period land distribution in Waste land, Vegetation, Settlement, Agriculture land and water body. The land cover and land use change relationship describe below given figure.

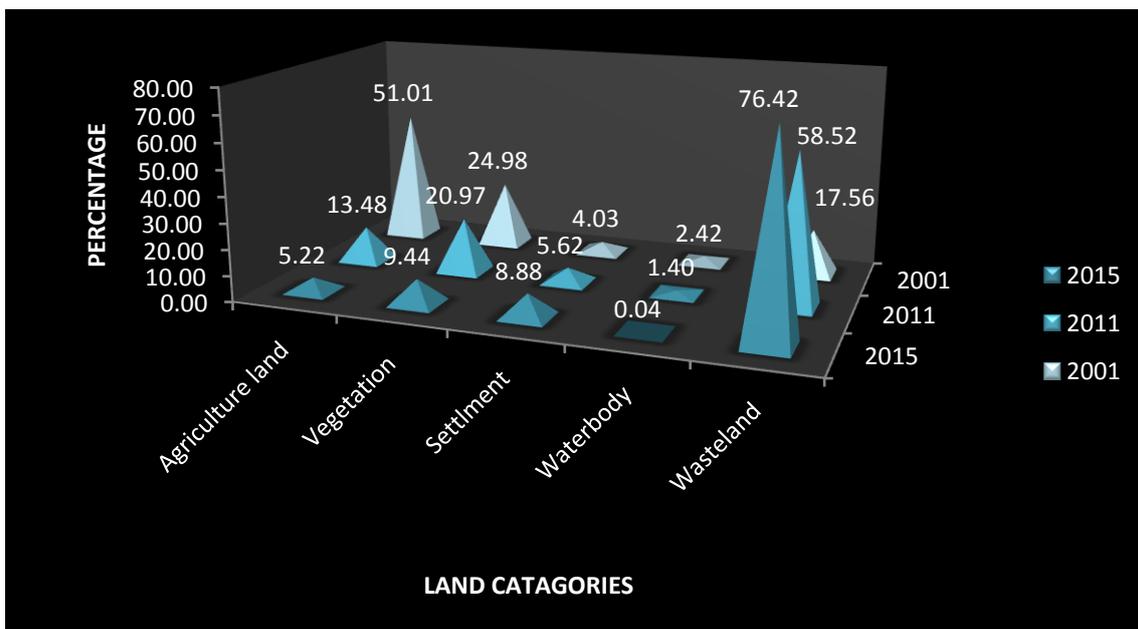


Figure.3.

Figure no.: 3 describe the agriculture land 38 per cent changed in 2001 to 2011, same thing 2011 to 2015 agriculture land changed in 8 per cent. The vegetation land use 4 percent changed in 2001 to 2011, 2011 to 2015 changed in -11 percent. The settlement land use changed 1.6 percent in 2001 to 2011, 2011 to 2015 the land changed in 3 percent. The water bodies lands during period 2001 to 2011 changed in 1 percent, during the period 2011 to 2015 changed in -1.4 percent. The waste land antagonise changed in this region. These region 40 percent of waste land increasing in unique change in 2001 to 2011, during on 2011 to 2015 change in 18thpercent. This study most agricultueal land convert to wasteland in uniquely. Other land change few percent only Conclusion: For the present study area during 15 years land use classes changed highly. Majorly agriculture lands decrease the 45 percent. Same period the waste land class increased 58 percent. The two major lands changed oppositely. These changes main causes is failure monsoon and Cauvery water interstate sharing problem is affected the irrigation system, farmer's capital investment subscribe definite limit low, agricultural labour shortage is due to decline of cultivable lands and other socio economic problem due to the agriculture land converted the Waste land. Other water bodies, vegetation land and settlement land also changed few percent only. Most of the agriculture owners and cultivated population have been migrated to the nearby town for want of regular employment. The study area after few years all the lands converted un green lands. These processes rising demand for food items.

V. SUGGESTION

Government and NGO agency proper advice the farmers in seasonal wise and arranged the farmer banking loan and other benefit schemes in seasonal wise. Farmers should be given advice after proper testing of the land minerals. The farmers follow the agriculture meteorological announcement seasonal and region wise. Using the latest irrigation techniques like that hand watering, Tube method, Overhead sprinklers, Drip irrigation, Mist system, Polythene tubing. It is possible to both intensify agriculture production through multiple cropping and by converting the available cultivable waste land to cultivable land. The agriculture lands should be kept reserved for agricultural use only. Use of organic seeds should be promoted to maintain the Fertility of the land.

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