

# ANALYSING THE CHANGING PATTERN OF LAND USE IN KHORDHA DISTRICT, ODISHA

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## ABSTRACT

The world around U.S. is undergoing complete metamorphosis, that is boosted by the population explosion and technological growth. the matter is a lot of severe for Asian nation that has a lot of cities that need to be reworked in to giant cities to accommodate its ever-increasing population. during this study AN analysis is finished by exploitation ARC-GIS (geographic data system) wherever map of the region was analyzed for recognizing the distribution of land use sorts throughout the area; land sorts thought of are - Agriculture Land, Settlement Land, Vacant Land, Forest Land and Water Bodies. This analysis was performed for 3 years: 2005, 2010, 2015, and 2021. Results obtained show that the world of agricultural land decreased in 2021 which of settlement finally end up is apace increasing.

**Keyword:** - Metamorphosis, Explosion, Exploitation, and Land use etc....

## 1. INTRODUCTION

Land use pattern is envisaged ashore capability profile. Land use modification may be a method by those human activities rework the natural landscape, relating however land has been used, sometimes action the purposeful role of land for economic activities.

Land use changes area unit typically non-linear and may trigger feedbacks to the system, stress, living condition and threaten folks with vulnerability.

Land-use- modification patterns area unit the results of the advanced interaction between the human and also the physical setting.

Land-use modification will facilitate to research that theory is acceptable during an explicit region and stimulate the event of latest conjectural understanding.

### 1.1 What is land use pattern?

Land use is that the characterization of land supported what is designed thereon and what the land is used for. Its determinative what form of community, setting or settlement is used on a particular sort of land. One definition of land use is "the total of arrangements, activities and inputs that folks undertake during a sure land cowl type". It's vital to notice that land use and segmentation aren't a similar. wherever land use is that the manner that folks adapt land to suit their desires, segmentation is however the govt regulates the land.

## 1.2 why it is important?

Understanding land use has several advantages, however their square measure 2 that directly have an effect on land emptor. First, it helps stop a pricey and long misunderstanding once it involves what may be designed wherever. On a bigger scale, understanding land use helps to know patterns that square measure related to land and urbanization. Understanding however land was employed in the past may be a big indicator of however the property are going to be employed in the long run. It's safe to assume that humans can continuously admit crops and eutherian mammal as their food sources, that highlights the importance of land selected for agricultural use within the community.

## 2. STUDY AREA

Khordha district is found within the south-eastern part of Odisha, abutting the coastal space.

It occupies a vicinity of regarding 2888 sq kilometer. The district is delimited by latitudes a hundred ninety 40' to two hundred 25' and longitudes is 840 56' to 86005'.

It is enclosed by Cuttack district to the north, Ganjam and a part of Puri district to the south, Puri district to the east and Nayagarh district to the west.

Bhubaneswar – Vizianagaram section of the East-coast railway runs through the district on NE –SW direction.

Khordha district is AN dominion of the state of Odisha, India. it had been fashioned on Apr one, 1993, by the division of former Puri District into Puri, Khordha and Nayagarh districts.

In the year 2000 the district name was modified to Khordha. The district headquarters is Khordha city.

Bhubaneswar, capital of Odisha, belongs to Khordha district and is just twenty-five kilometers from Khordha city. Khordha is that the most urban of all the districts of Odisha.

Khordha Road, the terminal that serves the city, is additionally the divisional headquarters of the geographic area Railway of the Indian Railways, and contains its own division.

Khordha is thought for its brass utensils, bungalow industries, railway coach producing and cable producing unit.

### 2.1 Geographical condition

Khordha is found at twenty.18°N 85.62°E. it's a mean elevation of seventy-five m (246 ft). space of the district is 2,888 sq. kilometers (1,115 sq. miles).

From climatological purpose of read, the common annual precipitation over the district is concerning 1,200–1,400 mm.

Moderate temperature prevails over the realm throughout the year expulsion the summer season (March–June), wherever the utmost temperature even exceeds forty-five °C. the common minimum temperature over the district is 9.6 °C.

## 3. CONCEPTUAL STUDY

Urban growth refers to the method of growth and decline of economic agglomerations.

The pattern of concentration of economic activity, and its evolution, has been found to be a crucial determinant, and in some cases the result, of urbanization, the structure of cities, the organization of economic activity, and national economic process.

The size distribution of cities is that the results of the patterns of urbanization, which ends in town growth and town creation.

The evolution of the scale distribution of cities is successively closely connected to national economic process. Urban growth, the expansion and decline of urban areas, as AN economic development is inextricably connected with the method of urbanization. urbanization itself has punctuated economic development.

The special distribution of economic activity, measured each in terms of population output and financial gain, is focused.

The pattern of such concentrations and their relationship to measured economic and demographic variables represent a number of the foremost intriguing phenomena in urban.

### **3.1 Land use changes**

Land use modification may be a method that transforms the natural landscape by direct human-induced land use like settlements, industrial and economic uses and biology activities.

It impacts the general surroundings in terms of gas emission, land degradation and global climate change.

Land use changes are typically nonlinear and would possibly trigger feedbacks to the system, stress living condition, and threaten folks with vulnerability.

#### **Human Causes of Land - use Change:**

Land use is clearly strained by environmental factors like soil characteristics, climate, topography and vegetation. But it conjointly reflects the importance of land as a key and finite resource for many human activities as well as agriculture, industry, forestry, energy production, settlement, and water construction and storage.

#### **Socio- economic Impacts:**

Land is one amongst 3 major factors of production in classical political economy (along with labor and capital) and a necessary input for housing and food production.

Thus, land use is that the backbone of agricultural economic and it provides substantial economic and social edges. Land use modification is critical for economic development and social progress.

## **4. METHODOLOGY**

### **4.1 Aim of the study**

To assess the land cover change of the khordha district.

### **4.2 Objectives**

The main objectives for the present study area are as follows:

To identify the land use pattern, change in the study area over the years.

To identify the growth areas and its causes.

### **4.3 Scope**

To provide a base map for the study areas and implementation of different land use scheme.

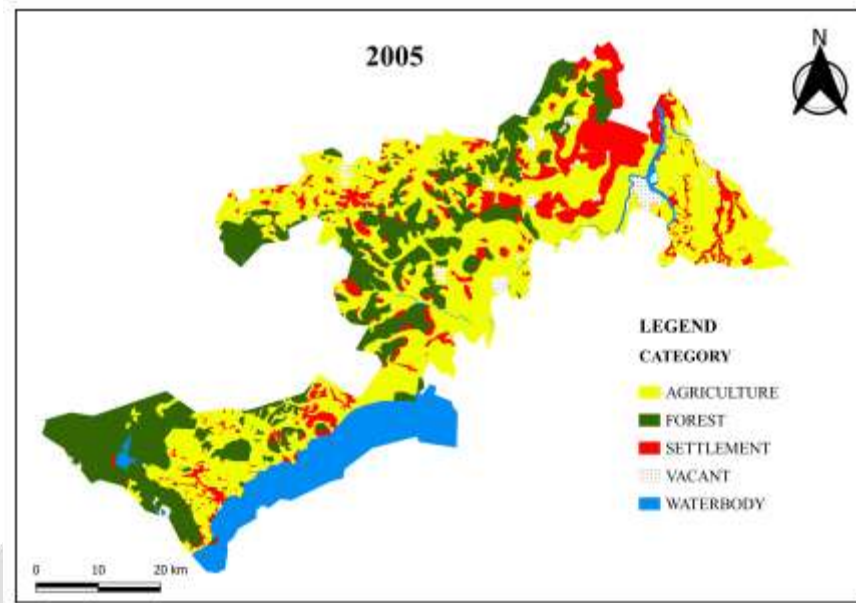
To provide direction for future urban expansion.

### **4.4 Need of the study**

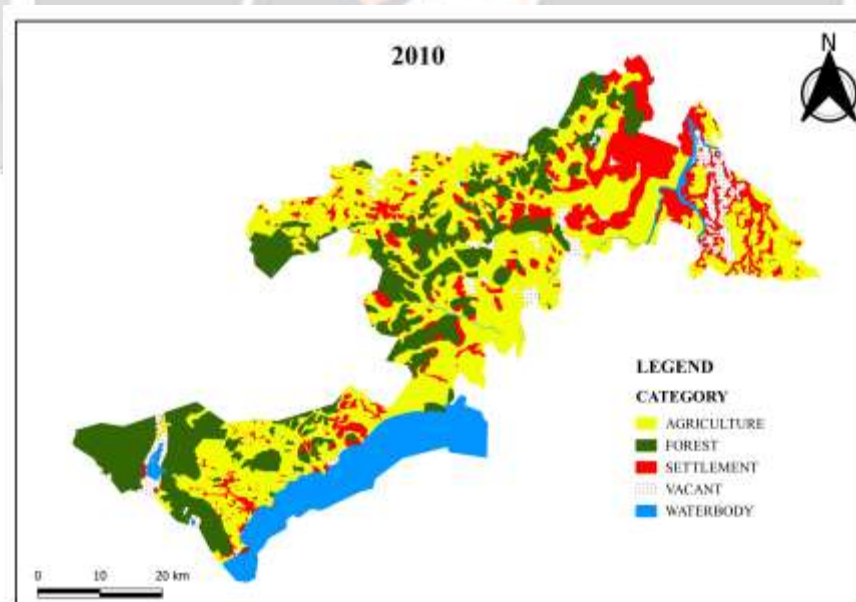
Today with the growing population and increasing land degradation it is necessary to study the land use/land cover in the form of maps and statistical data, which is very vital for land use planning.

Deals with the land use pattern information of khordha district.

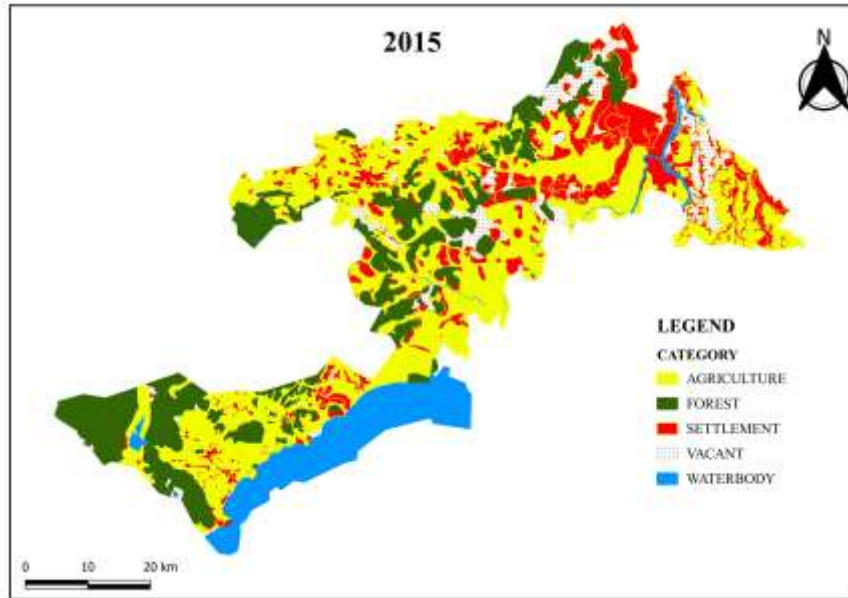
### 5. DATA ANALYSIS



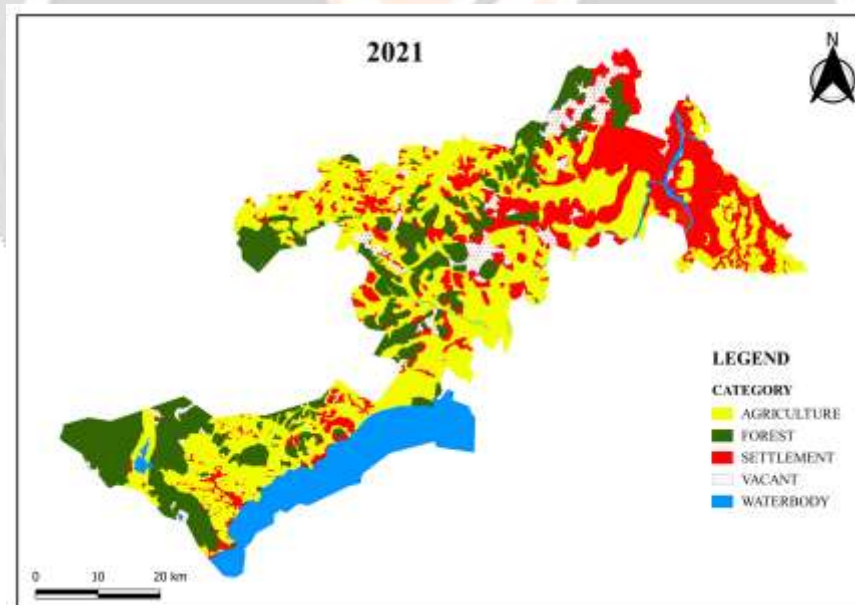
Map no. 1. Land cover map 2005  
Source: Primary



Map no. 2. Land cover map 2010  
Source: Primary

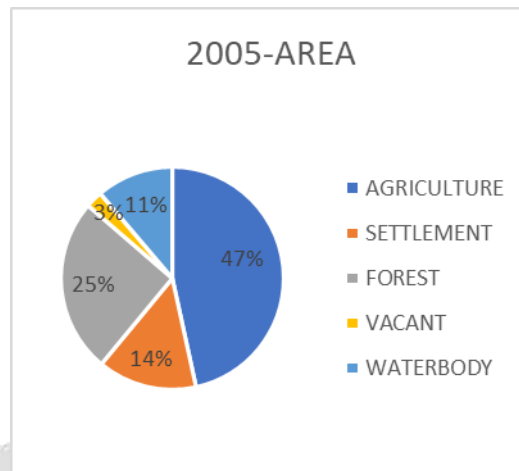


**Map no. 3.** Land cover map 2015  
Source: Primary



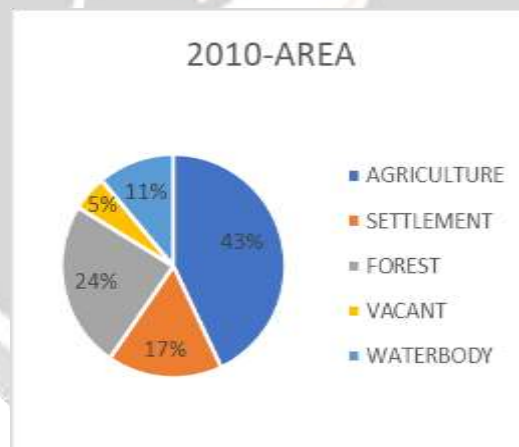
**Map no. 4.** Land cover map 2021  
Source: Primary





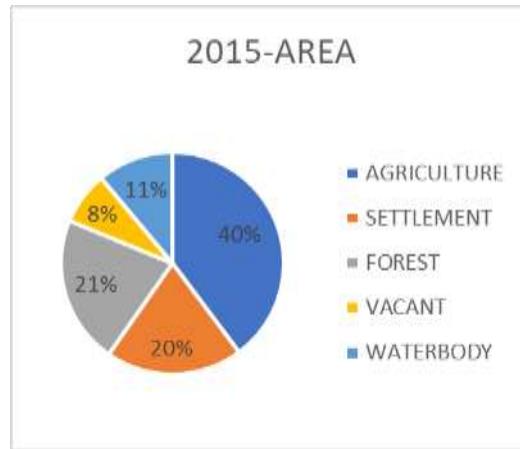
**Figure no .1.** Area of land cover 2005  
Source: primary

The land cover pattern of the study area is categorized such as agricultural land, settlement / build up land, forest land, vacant land, and water body.in 2005 agriculture land covers is 47% of the total area. Settlement /build up land covered 14%. Area taken by forest area was 25% of the total area. water body covered 11% of the total area and vacant land was 3% of the total area.



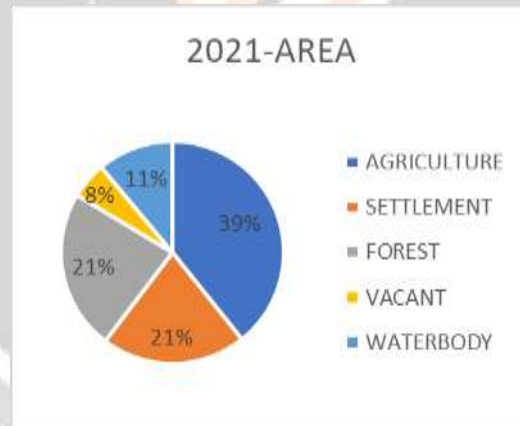
**Figure no. 2.** Area of land cover 2010  
Source: primary

The land cover map of 2010 shows a change in with respect to the map of 2005. In 2010 agriculture land covers 43% of the total area. Settlement/build up land covered 17%. Area taken by forest area was 24% of the total area. vacant land covered was 5% of the total area. The area under waterbody was approximately 11% of the total area.



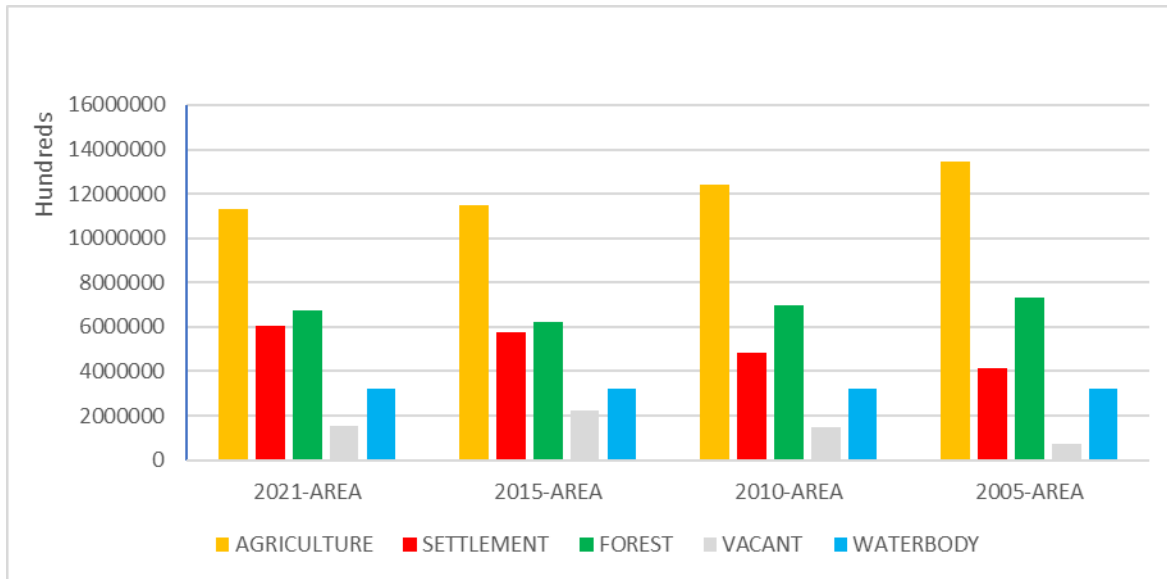
**Figure no .3.** Area of land cover 2015  
Source: primary

The land cover map of 2015 shows a change in with respect to the map of 2010. In 2015 the agriculture land covers 40% of the total area. Settlement covered 20%. Area taken by forest area was 21% of the total area. Vacant land area was 8% of the total area. The area under water body was 11% of the total area.



**Figure no. 4.** Area of land cover 2021  
Source: primary

The land cover map of 2021 shows a change in with respect to the map of 2015. In 2021 the agriculture land covers 39% of the total area. Settlement/ build up land was 21% of the total area. Area taken by forest area was 21% of the total area. Vacant land covered 8%. The area under the water body was 11% of the total area.



**Chart no. 1.** Area of land cover  
Source: primary

These maps show the land cover of khordha district during 2005,2010,2015,2021.

These maps are prepared with the help of Q GIS and ARC GIS.

The pie charts showing the percentage of land cover in different year.

The column graph shows change in different land cover between 2005-2021.

## 6. CONCLUSION

The study is concentrated on the land cowl amendment for the world of khordha district.

The amendment in land cowl is principally because of the industry and industrial purpose.

The current trend of settlement growth includes an important environmental impact on the encircling ecosystems and thus quality of life.

Strengthen the segmentation regulation and enact policies to cut back agriculture land los ses.

Controlling the expansion of industries into agricultural lands.

Penalties against any development in agriculturally productive land while not the consent of authority.

Proper data toward land cowl is critical for implementation of varied development, designing and preparation of land use theme to satisfy the increasing demand and basic human want.



## 7. ACKNOWLEDGEMENT

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## 8. REFERENCE

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