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[1]Research Scholar, Department of Geography, Shivaji University, Kolhapur

[2]Head & Assistant Professor, Dept. of Geography, P.D.V.P. Mahavidyalaya, Tasgaon, Dist. Sangli, Maharashtra

[3]Assistant Professor, Dept. of Geography, Chhatrapati Shivaji College Satara, A Constituent College of Karmaveer Bhaurao Patil University, Satara, Maharashtra
Email: vishal19gholap@gmail.com

Address for correspondence:
Dr. Vishal S. Gholap
Assistant Professor, Dept. of Geography, Chhatrapati Shivaji College Satara, A Constituent College of Karmaveer Bhaurao Patil University, Satara, Maharashtra
Email: vishal19gholap@gmail.com

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Land Use Pattern of Kongnoli Village, Sangli District: A Micro-Level Geographical Study

Smita Londhe[1], Dr. Arjun S. Wagh[2], Dr. Vishal S. Gholap[3]

Abstract

The present study examines the land use pattern of Kongnoli Village in Kavathemahankal Tehsil of Sangli District, Maharashtra, through a micro-level geographical approach. Land is a fundamental natural resource that supports agricultural production, ecological balance, and rural livelihoods. The study is based on primary data collected through field visits, farmer interactions, and direct observation, along with secondary data obtained from the Census of India (2011), District Census Handbook, and Gram Panchayat records. The total geographical area of the village is 1834.58 hectares, of which nearly 78 percent constitutes the net sown area, reflecting the predominance of agriculture as the principal economic activity. Despite its location in a drought-prone semi-arid region, about 84 percent of the cultivated land is irrigated mainly through wells and tube wells, indicating significant dependence on groundwater resources. The absence of forest cover and limited grazing land highlight ecological imbalance and environmental stress. The study emphasizes the importance of sustainable land use planning, groundwater management, afforestation, and the application of GIS and remote sensing techniques for effective monitoring and balanced rural development.

Keywords: *Land Use, Land Use Pattern, Net Sown Area, Irrigation, Kongnoli Village etc.*

Introduction

Land is a vital natural resource that supports human life, economic activities, and ecological systems. The manner in which land is utilized reflects the interaction between physical factors such as climate, soil, and topography and human factors including population pressure, technology, and socio-economic conditions. Land use pattern refers to the spatial arrangement and utilization of land for different purposes within a given area, and it provides a clear understanding of how land resources are allocated and managed (Coppock, 1968).

In rural regions of India, agriculture remains the dominant form of land use, and variations in land use patterns indicate levels of agricultural development, irrigation availability, and environmental stress. Several studies have emphasized that changes in land use directly influence agricultural productivity, groundwater resources, and environmental sustainability (Ramotra & Saymote, 2012; Jankar et al., 2013). Particularly in drought-prone regions, land use analysis becomes crucial for understanding resource constraints and planning sustainable development strategies.

The present study focuses on the land use pattern of Kongnoli Village in Kavathemahankal Tehsil of Sangli District, Maharashtra. The village lies in a semi-arid and drought-prone region where agriculture is the primary occupation. An analysis of land use distribution helps to assess the dominance of agricultural land, the extent of irrigation, and the availability of non-agricultural and wasteland categories. Such micro-level studies are essential for formulating effective land management policies and promoting balanced rural development (Kamble, 2018; Mather, 1990).

Study Area

Kongnoli Village is situated in Kavathemahankal Tehsil of Sangli District, Maharashtra. It lies about 36 km northeast of Sangli city and approximately 15 km from the tehsil headquarters. Geographically, the village extends between latitudes 16°54'23" N to 17°58'49" N and longitudes 74°33'32" E to 74°58'25" E. **(Fig.1).** The total geographical area of the village is 1834.58 hectares. The average elevation is about 642.5 meters above mean sea level, with higher elevations towards the eastern part and lower elevations in the west. The village experiences semi-arid climatic conditions and falls under a drought-prone region. According to *Census 2011*, the total population of Kongnoli Village is 6,255, with agriculture as the primary source of livelihood.

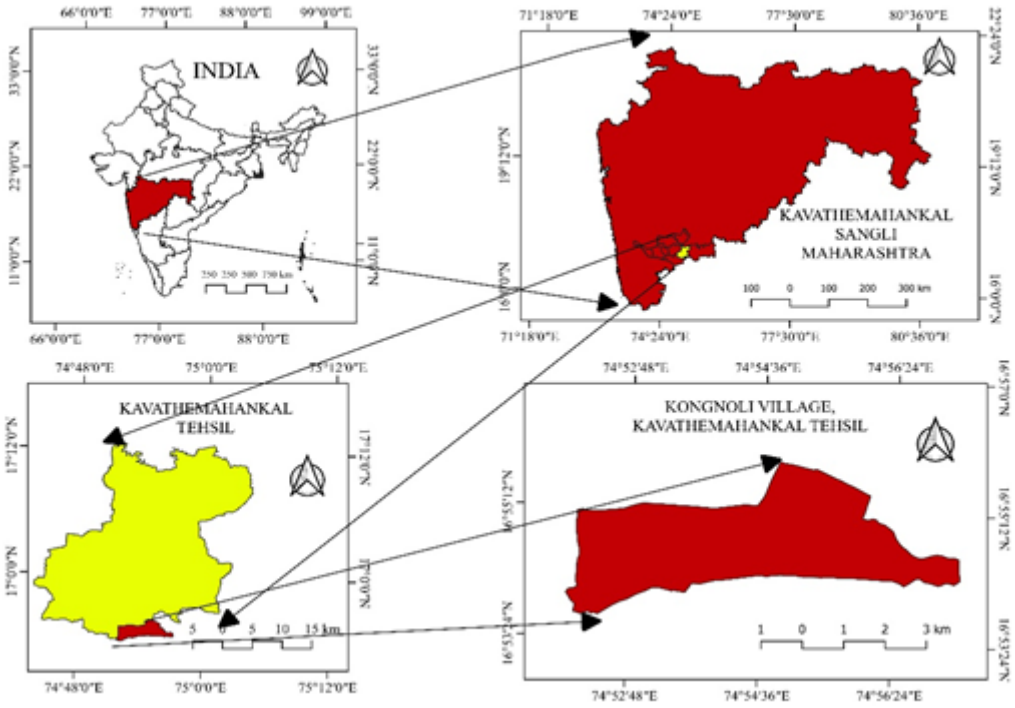

Fig. 1

Objective

1. To examine the existing land use pattern of Kongnoli Village.
2. To assess the dominance of agricultural land use and its irrigation status in the study area.

Methodology

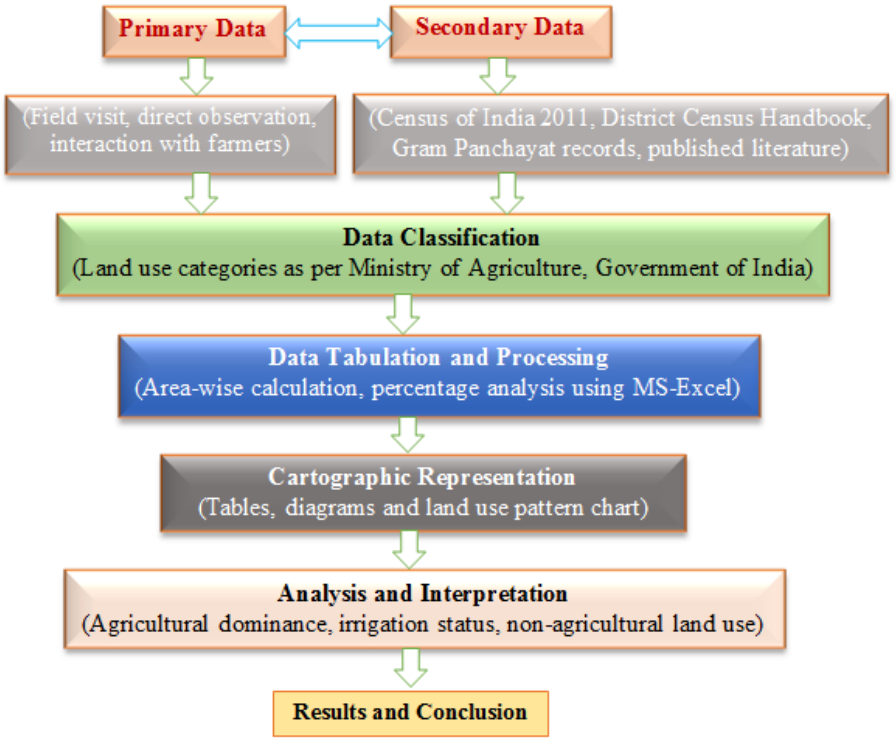

Fig. 2

Result and Discussion

The land use pattern of Kongnoli Village reflects the dominance of agricultural activities and highlights the influence of physical as well as socio-economic factors on land utilization. The distribution of land under different categories provides insight into the agricultural potential, resource availability, and environmental conditions of the study area.

Land Use Pattern of Kongnoli Village

The total geographical area of Kongnoli Village is 1834.58 hectares. Table 1 present the distribution of land under various land use categories. Among these, the net sown area occupies the largest share, covering 1432.5 hectares, which constitutes nearly 78 percent of the total geographical area. This clearly indicates that agriculture is the primary land use and the main source of livelihood for the majority of the population.

Barren and uncultivable land accounts for 158.2 hectares (about 9 percent), which can be attributed to poor soil conditions, rocky surface, and limited moisture availability. Culturable waste land covers 190.4 hectares (around 10 percent), suggesting that a considerable portion of land has the potential for cultivation if appropriate soil and water management practices are implemented. Current fallow land occupies 48.3 hectares, reflecting the practice of leaving land temporarily uncultivated to restore soil fertility.

The area under non-agricultural use is extremely small, limited to only 2 hectares, indicating minimal urbanization and industrial development. Permanent pastures and grazing land occupy merely 3.2 hectares, which is insufficient to support livestock needs. Notably, there is no land under forest cover or miscellaneous tree crops, highlighting ecological imbalance and lack of vegetation cover in the village.

Spatial Distribution of Land Use

The spatial distribution of land use in Kongnoli Village is illustrated through the land use map prepared using village boundary information, field observations, and secondary data sources. The map depicts the spatial arrangement of major land use categories such as net sown area, barren and uncultivable land, culturable waste land, current fallow land, grazing land, and non-agricultural land.

The net sown area is predominantly concentrated in the central and western parts of the village, where relatively gentle slopes, deeper soils, and better moisture conditions prevail. These areas are more suitable for cultivation and support intensive agricultural practices. In contrast, barren and uncultivable land is mainly found along the eastern and peripheral parts of the village, associated with higher elevation, shallow soils, and rocky terrain.

Table No. 1 Land Use Pattern of Kongnoli Village: 2011 (Area in Hectare)

Land Use Pattern	Area in Hectare
Forest Area	0
Area under Non-Agricultural Uses	2
Barren & Un-cultivable Land Area	158.2
Permanent Pastures and Other Grazing Land Area	3.2
Land Under Miscellaneous Tree Crops etc. Area	0
Culturable Waste Land Area	190.4
Fallow Land other than current fallow	0
Current Fallow	48.3
Net Sown Area	1432.5

Source: *District Census handbook of Sangli District 2011*

Culturable waste land is scattered near the village margins, indicating areas that can be brought under cultivation through improved irrigation facilities and soil conservation measures. Current fallow land is distributed intermittently within the agricultural zone, reflecting crop rotation and soil fertility management practices adopted by farmers. Areas under non-agricultural use and permanent grazing land are confined near the settlement area and occupy a very small proportion of the total area.

While the table 1 represents the proportional distribution of various land use categories, the land use map provides a clear understanding of their spatial distribution within the village.

Agricultural Land Use and Irrigation Status

Despite being located in a drought-prone region, Kongnoli Village exhibits a high proportion of irrigated agricultural land. Out of the total net sown area, approximately 1203.9 hectares are irrigated, primarily through wells and tube wells, while 228.6 hectares remain unirrigated. This indicates a strong dependence on groundwater resources for agricultural activities.

The dominance of irrigated agriculture reflects the adaptive strategies of farmers to cope with water scarcity. However, excessive reliance on groundwater without adequate recharge measures may lead to declining water tables in the future. Therefore, the present land use pattern emphasizes the need for sustainable irrigation practices and efficient water resource management.

Conclusion

The land use pattern of Kongnoli Village clearly reflects the dominance of agriculture and the dependence of the local population on primary economic activities. While the high proportion of net sown and irrigated area indicates agricultural potential, the absence of forest cover and limited grazing land pose serious environmental concerns.

The study suggests the need for sustainable land use planning, including afforestation, development of grazing land, and efficient water management practices. Integrating modern techniques such as GIS-based land use mapping and remote sensing can further enhance land resource monitoring and support balanced rural development.

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Conflicts of interest
The authors declare that there are no conflicts of interest regarding the publication of this paper.

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