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Address for correspondence:
Dr. Chaitanya Ashok Nikam
Assistant Professor, Dalit Mitra
Kadam Guruji Vidnyan
Mahavidyalaya, Mangalwedha
Email:

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GIS Based Village Proximity Analysis and Impact of Urban Centre on Village: A Geographical Study of Dhule Tehsil

Dr. Chaitanya Ashok Nikam

Assistant Professor, Dalit Mitra Kadam Guruji Vidnyan Mahavidyalaya,
Mangalwedha

Abstract

Villages are the key factor for clear environment to its surroundings because its most part covered with trees and farming so it makes climate stable and give fresh air to the surroundings. But now a days unplanned urbanization leads to major problems like pollution, (air, water, noise, light), altered water cycle and produced waste also causes soil degradation, urban heat island which effect environment majorly. So it is very important to manage the urbanization for the future wellness. Also well management of urbanization can solve many problems of pollution and environmental losses. Urban geography is the sub branch of human geography in which we study the urban settlement, management of urban settlement, factors affecting the urban settlement and more important population growth and how to managed population growth. Recently geospatial

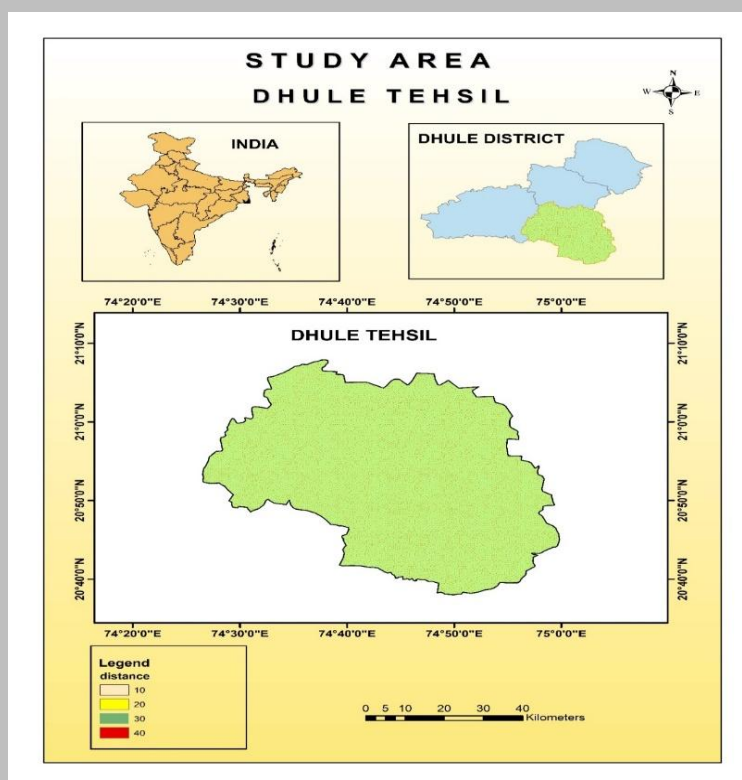
Keywords: Geospatial technic, Proximity Analysis, Rural Transformation, Urbanization

Introduction

Urban geography is one of the leading branch of human geography which study the human settlement also study the shape, pattern of human settlement now a days urbanization is one of the leading problem which emerge many crises and crime also pollution is one of the major problem in today's history which makes world tired of. But with the help of research and well study problem of urbanization can be resolve. Now geography is not only bounding with the books it's come with the modern technic and it is very helpful for resolving the universal problems.

Geospatial technology has power to measure the disaster risk before the disaster and also gives the sustainable solutions geospatial technology deals with the spatial data which having a location and also spatial values.

Study Area:



Dhule district is located in the north-western part of the state of Maharashtra. It extends between 200 38' to 210 38' north latitude and 740 52' to 750 11' east longitude. Dhule District covers an area of 8063.11 Sq. Km, which is 2.62% of the geographical area of the state of Maharashtra, its length is 112 km. North to South and 108 km. From east to west. The map of Dhule district is made from a topsheet of scale 1:50,000. Survey of India Topshits No. 46G, 46H, 46K, 46L and 46O have been used for the present study. The study area is bounded on the north by Badwani district of Madhya Pradesh, on the east by Jalgaon district, on the south by Nashik district, on the west by Nandurbar district and on the southwest corner by Dang district of Gujarat. According to the 2011 census, the population density of Dhule district is 285 persons per sq. Km. The literacy rate is 72.80 percent. Dhule district has a very small urban population within 27.84 per cent of the total population and 72.16 per cent of Page 78 the total population lives in rural areas. Dhule, Shirpur and Dondaicha are the major urban centers in the area.

Objectives:

- To determine changes in the rural villages because of urbanization.
- To study the process of urbanization in study region.
- To use geospatial technology for the particular research.

Database And Methodology:

Present research is totally based on secondary data which is collected from district census hand book to calculate the population change and also to analyse the households and occupational structure of selected study area. Also primary facilities have been considered in present research to determine the changes in the villages. Also road transportation facilities are observed to determine the progress in the villages. Geospatial technology has been used to conclude the result. Vector data have been downloaded from the survey of India and later QGIS software has been used for data processing also Dhule District shape file have been separated from Maharashtra shape file using clip tool and later villages vector data displays in the selected study area. The main objective of present study area i.e. Proximity analysis perform using QGIS software and make it in four categories.

Discussion:

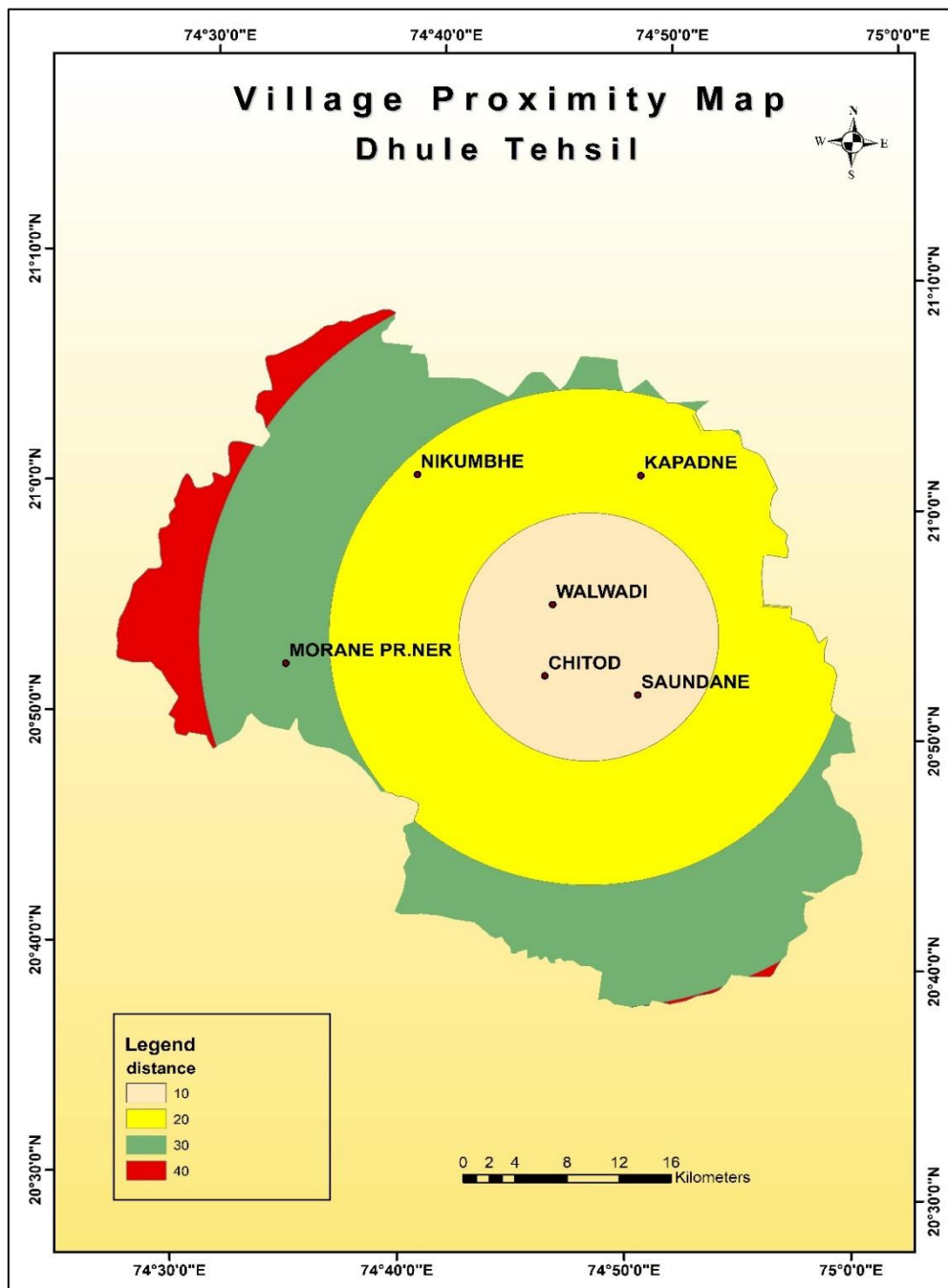
Present research study focuses on the rural change due to the urbanization so there many factors that comes under this change i.e. road transportation, education facilities, industrial areas etc. but here in this research researcher focuses on the rural household and the changes in the rural household from 1981 to 2011, here researcher classified the data in to five categories i.e. from I to V according to particular villages that selected in the study area. The study region highest household in IIIrd category (5 to 6) members with 44.17 per cent followed by category IInd (3 to 4), category IVth (7 to 8), category Vth (above 9) and category Ist (1 to 2) member of household with 25.46, 15.65, 09.20 and 05.52 per cent respectively.

Changing Rural Households (1981 to 2011)

Sr. No	Name of Sample Villages	Categories				
		I st (1 to 2)	II nd (3 to 4)	III rd (5 to 6)	IV th (7 to 8)	V th (Above 9)
8.	Kapadne	09.09	18.18	63.64	09.09	00.00
9.	Walwadi	20.22	13.11	10.56	41.44	14.67
10.	Morane Pr.ner	17.75	32.25	45.75	07.25	02.00
11.	Chitod	00.00	38.47	30.77	15.38	15.38
12.	Saundane	03.03	09.09	48.49	24.24	15.15
13.	Sonewadi	11.11	22.22	44.44	05.56	16.67
14.	Nikumbhe	16.67	05.56	11.11	33.33	33.33
15.	Kalamsare	15.22	18.11	42.44	10.56	13.67
Total Region						

According to the above table 5 to 6 members are found 63.64% in Kapadne village which is highest rate of family households. Walwadi village having 41.44% of members in IV category. Chitod, Saundane, sonewadi, Nikumbhe and Kalamsare having low rate of household's member from 1981 to 2011 respectively. This data shows how rural villages transform on the basis of household's member.

Researcher consider households member in this research because population having adverse effect on the rural transformation and also changes the environment of surrounding areas. If population increases in the villages, it means development is very fast in these particular areas. Because good facilities attract people and it cause population growth of the region also there is another and highlighted reason to growth of the population is urban fringe, urban fringe is the area where villages come on the boundary of the urban areas. And definitely urban areas affect this villages in part of facilities like education, good road network, hospitals etc.



Conclusion:

The researcher mainly focuses on the villages nearer to the urban area that is Dhule tehsil. The villages nearer to the urban areas have majorly affect in terms of change urban areas having large amount of population and it increases day by day and affect the rural areas. There are many reasons like migration, good road network, hospitals, good education qualities attract the rural people or they don't have choice so the moved to the urban areas this causes increase in the urban region and spread towards the village areas. The same conditions researcher observed in this research. Researcher used proximity tool to analyse the changes in this selected sample villages that affect more, with the help of GIS more accurate result can be concluded. Here four proximity zone have been classified i.e. 10 Km, 20 Km, 30 Km and 40 Km respectively. Walwadi, Chittod and Saundane comes under the 10 Km of radius and having a dynamin change because of urbanization and Morane, Nikumbhe and and Kapdane comes under the 20 Km radius of main urban centre. Urban centre has affected the environment of selected sample villages like increasing population, growing pollution that transform the good quality of environment in too bad. Also, this villages need proper management of population for the upcoming future.

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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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