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Delineation of Umland Zones of Udgir Using GIS

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Abstract:

Umland of a particular town or city is the area in which the region and the city are culturally, economically and politically interrelated. It is also known as urban hinterland, sphere of influence, catchment area, urban field, city region etc. by different geographers. It is the region of close relationship which is bounded by circulation of goods, movement of people, flow of ideas and a considerable degree of interdependence between the core and the area around. Udgir is the second largest regional centre next to Latur in Latur district. This is class II town (2001) and is likely to attain the status of class I in 2011. It is an important educational and trading centre of the region. Therefore, Udgir has been chosen to study Umland. The main aim of the present study is to identify and delineate Umland of Udgir which is rapidly growing town and to analyze the characteristics of Umland in terms of the occupational structure. Countryside interrelating factors such as milk, vegetables, and central interrelating factors such as education zone of Umland of Udgir are considered for the demarcation. The GIS techniques have been used to analyze and visualize the zones of the attributes as mentioned above.

Keywords: Umland, Hinterland, Sphere of influence, GIS.

Introduction

Modern means of communication have enabled towns and cities to extend the range of their services tremendously, thereby rendering more efficient and quicker services to the countryside. It is expected that an analysis of the bilateral relationships between the city and the surrounding area will reveal the nature and intensity of influences exercised by the city, as well as, the variation in the extent of area of influences of central places. In other words, such a study will go a long way in the understanding of spatial and functional relationships between the city and its Umlands. The shape, size, gradient, etc. in time and space would of-course, be the most vital part of the work. The importance of the work, therefore, is two-fold-theoretical and applied. This study would be useful to urban geographers, town and country planners and other scientists intimately concerned with dynamics of urban centers.

Meaning of Umland:

Generally the term um-land is used to indicate the area in which the city and its countryside exist in a cobweb of a symbiotic relationship, i.e. they are related historically, economically, politically, socially and culturally with each other. Considering its evolutionary aspect, it seems that the meaning of the term "um-land" has changed and was some what different from its original meaning in the course of time. The term "Hinterland" was also in use with an identical meaning with the term "Um-land" in the past. According to Andre Allix, a French scholar and the first exponent of the term" the um-land consists of the area immediately around a city, more particularly affair centre. The word "Um-land" has a German origin ("Um"=around). But according to Dr. Gilbert

the word “um-land” is translation of the Swedish word “Omland” (Swedish “Om”=around). Mr. E. V. Cleef also tried to discuss the origin and meaning of the term “Um-land” and tried to distinguish between the Hinterland and Um-land. (E. V. Cleef was of the opinion that to limit the hinterland only to the port cities is really untenable and hence distinguished both the terms very clearly). In his opinion Hinterland means the area adjacent to a trade centre (extending to and including its satellites) within which economic and some cultural activities are focused largely on the primary centre whereas “um-land” means the area contiguous to a trade centre (extending to and including its suburbs or “Urblets”) whose total economic and cultural activities are essentially one with those of the primary centre.

Importance of Umland:

The study of Um-land constitutes an important aspect of urban geography. It helps to understand the complexities of the real world. It also helps to realize the unbalanced economic growth in the region, is rightly pointed out by K. V. Sundaram. He further stated that, “Once we observe the unbalanced economic growth in the Um-land of any centre; one can promote the growth of other centre in Um-land so as to remove this unbalanced economic growth”. Thus the study helps in town and country planning. P.S. Hudson in his book, “Geography of Settlement”, argued that, “When undertaking market-research or planning industrial development and effective local government areas, planners should take in to account the size, shape and character of urban fields”. He further added that, “even the population of a town and its sphere of influence is an important consideration in market research”. As a service centre a town has both short comings and advantages. The study of Um-land helps to find out these short comings in order to prepare the development plan of the city. Town and um-land are the aspects of one and the same coherent whole and hence should be taken as one unit for Town-Planning in perspective of an urban Eco-System.

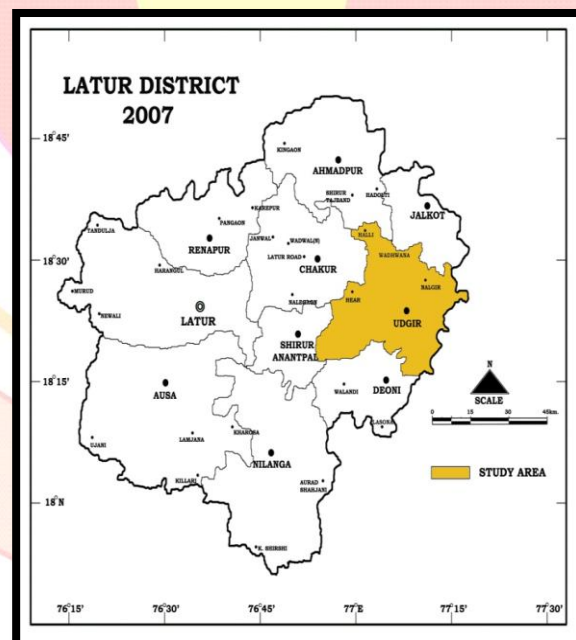


Fig.1 Location of study area

Objectives of the Study:

- 1) To analyze the countryside goods and services provided to Udgir and vice versa
- 2) To delineate the spheres of influence of Udgir using GIS technique

I. Countryside Services to Udgir

1. Vegetable Zone

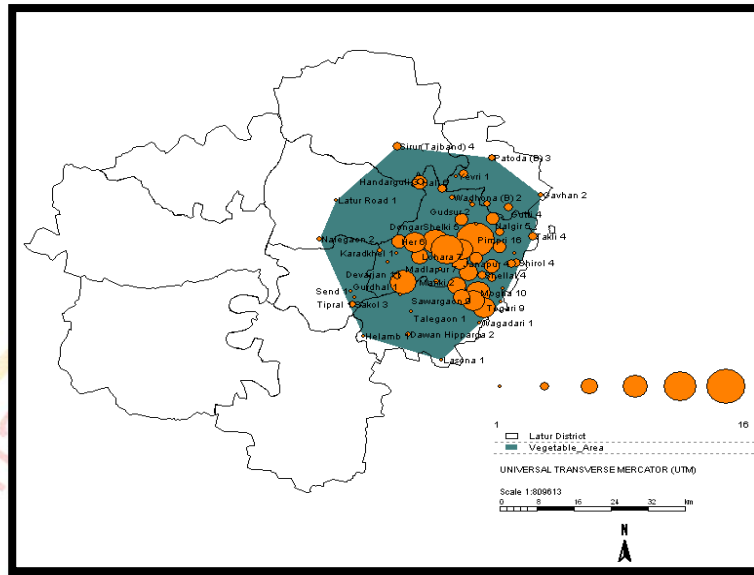


Fig. 2 Vegetable zone of Udgir

Udgir is class II urban centre located in Latur district of Marathwada with a total population of 1,69,588 and is main consuming centre of vegetables. The shape of the zone though irregular, but appears like triangle elongated in three directions i.e. North-east (towards Pimpri, Manjri, Awalkonda, etc.), South-east (towards Togri, Moga, etc.) and east (towards Shallal, Mallapur, Nagalgaon, Tondchir, Kawalkhed, etc.) The distance for head-loads is three to four km. 5 to 10 km, for bullock-carts and more than 8 km. for buses, railway, tempo, trucks, etc. The area of vegetable zone of Udgir is 1734.71 Sq. km.

2. Milk supply zone

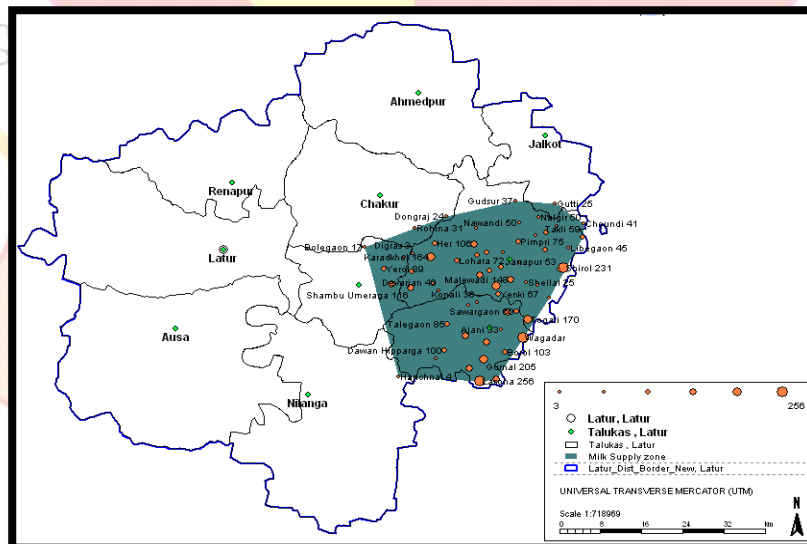


Fig. 3 Milk Zone of Udgir

Milk is the important and essential commodity which is needed by the urban community for which the centre is largely dependent upon the surrounding rural areas. The demand for milk and milk products has increased considerably. Therefore it has promoted dairy industry around the study area. The total shape of the milk Umland is irregular. It is extended in the

northeast and occupies the southern part of Nalgir. The physiography seems to have played a vital part in deciding the milk zone of study region.

The position is more favorable for dairy farming particularly in the southern part of study region. The tahasil of Deoni have more bovine population than other tahasils. The tributaries of local rivers, percolation tanks, major tanks, medium tanks, bandharas, drinking water tanks and small ponds etc. provide drinking water to the cattle. The southwest of study region is occupied by low hills, the slopes of which are covered by grasses and shrubs, while the Southeast part comprised by Deoni taluka and Karnatak area is agriculturally rich from where waste material from food grains are used as cattle feed. In addition to this, milk being perishable product requires quick means of transportation. Bus routes and railway lines have large bearings upon the milk zone of Udgir. Milk transported from Karnatak to Udgir comes by Hyderabad-Parli railway line and road transportation. The area under milk zone is 1138.38 Sq. km.

II. Service to Countryside by Udgir:

1. Educational facility Zone

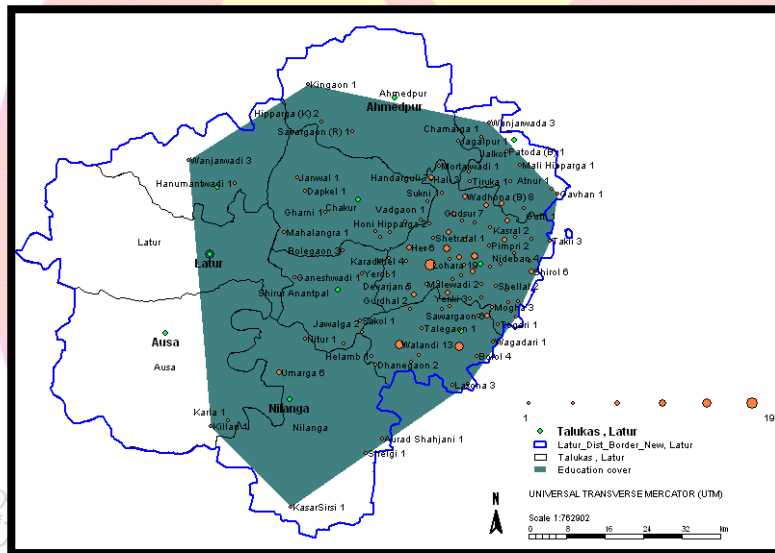


Fig. 4 Education zone of Udgir

Education is one of the prime functions of every urban entity. The urban centre generally provides educational facilities to the surrounding people and the people of Udgir city itself. Udgir is a famous taluka in Marathwada for education. There are more than 24 high-schools in Udgir. There are three main graduate and post graduate colleges, where PG courses in Marathi, Hindi, English, Urdu, Geography, History, Commerce and sciences are taught. Research facilities are also available in the above colleges. There is one Ayurvedic and engineering college each, two B.Ed. and two D.Ed. colleges, one B.P.Ed., one journalism and fine art college each. There is University sub centre of Nagpur Veterinary University, and a separate veterinary and fisheries college of Government of Maharashtra.

Apart from this there is a law and I.T.I college in Udgir. The modern education i.e. computer technology facility is also available in Udgir. The education zone of Udgir is 4699.20 Sq. km.

Conclusion:

GIS is highly useful tool to study, analyze, interpret and predict various geo-physical and human attributes. In this paper an attempt has been made to study few variables of countryside services like vegetable, milk and central service to countryside like education. The shape of the vegetable supply zone is roughly irregular and elongated in three directions. Vegetables are supplied more from neighbouring villages. Due to the development of transportation facilities vegetables are also supplied from longer distances even from Karnataka and AndhraPradesh. This is due to regular demand for vegetables at the market of Udgir. Milk supply zone is relatively small and includes villages from Udgir and Deoni tahsils. It is supplied more from hilly area where irrigation facilities are not available. Education umland of Udgir is very large which covers more than 50% settlements of Latur district. It is extended in neighbouring districts and in Karnataka and AndhraPradesh. As it is the centre of post graduate education in Arts, Science and Commerce and a centre of Medical and Engineering education, students are coming from distant places for education at Udgir.

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