



MORPHOLOGICAL CHARACTERISTICS OF URBAN CENTRES: A CASE STUDY OF BELAGAVI DISTRICT OF KARNATAKA STATE

Dr.(Smt). Sunanda I. Kittali

Abstract:

The morphological characteristics of a particular city, influences on the regional location and arrangement of land use although the economic determinants. Although both kind of influences interact with each other and it is difficult to differentiate the effects, social scientists in order to provide a coherent framework for interpreting the urban land use structure are increasingly directing their attention to the role that social values and ideals play in determining the land use patterns of urban centers of Belagavi district. The main objective of this paper is to analyze the general characteristics of urban centers of Belagavi district. The necessary data (published and unpublished) is collected from various government and semi-government offices and applied the appropriate research technique for analyse the morphological characteristics of urban centers of Belagavi district.

In the analysis part The study of general morphological characteristics of urban centers of Belagavi district, explains the external form, landuse pattern and it appear to have been influenced by multiple factors which may broadly be differentiated as natural and cultural. Among the natural factors rivers and other features like ridge, flat plateau, extensive plain, mineral resources and land resources area influenced. Apart from the physical condition of the towns / cities, the existence of cultural features (Like Forts and temple) have also influenced the development of urban structures. The historical background of some of the urban centers of Belagavi district have played important role in their regional setup. Such centers grew as socio-politico-economic centers of kingdoms or principalities of local chiefs different urban centers of Belagavi district. For strategic reasons they had commanding situation. Houses were huddled together in a compact manner and in some cases the towns were fortified with walls resulting in greater compactness. Their original function was to control neighboring territory but due to the obvious advantages other functions like handicrafts, trade and commerce were attracted by this urban centers.

Key Words: Morphological characteristics, Influence, Land use change, Development.

Introduction:

The study of morphology of urban settlements as primarily concerned with the ground plan. The ground plan consists of an external outline and internal arrangement of streets, forms and materials of buildings and the functional structure of town. Taneja's work demonstrates the morphological setup of the various functions that differ from place to place and time to time. It varies because it is the outcome of human creative instincts projected through the total setting of resources and cultures within the limits of time and space. The rationale behind the economic explanations of the urban landuse pattern is based on the assumption that economics acts beyond the immediate environs of any particular urban center which involves consideration of the structure and functioning of the urban economy as it fits into the larger economy of the region and the nation. Both regional and localized forces interact to shape the landuse patterns. The social action in a particular city influences the location and arrangement of landuse although they are less understood frequently confused with the economic determinants. Although both kind of influences interact with each other and it is difficult to differentiate the effects, social scientists in order to provide a coherent framework for interpreting the urban landuse structure, are increasingly directing their attention to the role that social values and ideals play in determining the landuse patterns of cities. In essence, the behavior patterns of individuals, institutions and forms which occur in the spatial patterns largely determine the physical

structure of urban centers. The urban land use patterns as the aggregate product of many individual and group actions in occupying and improving the land, we may view those actions as a form of human behavior activated by certain human needs and wants.

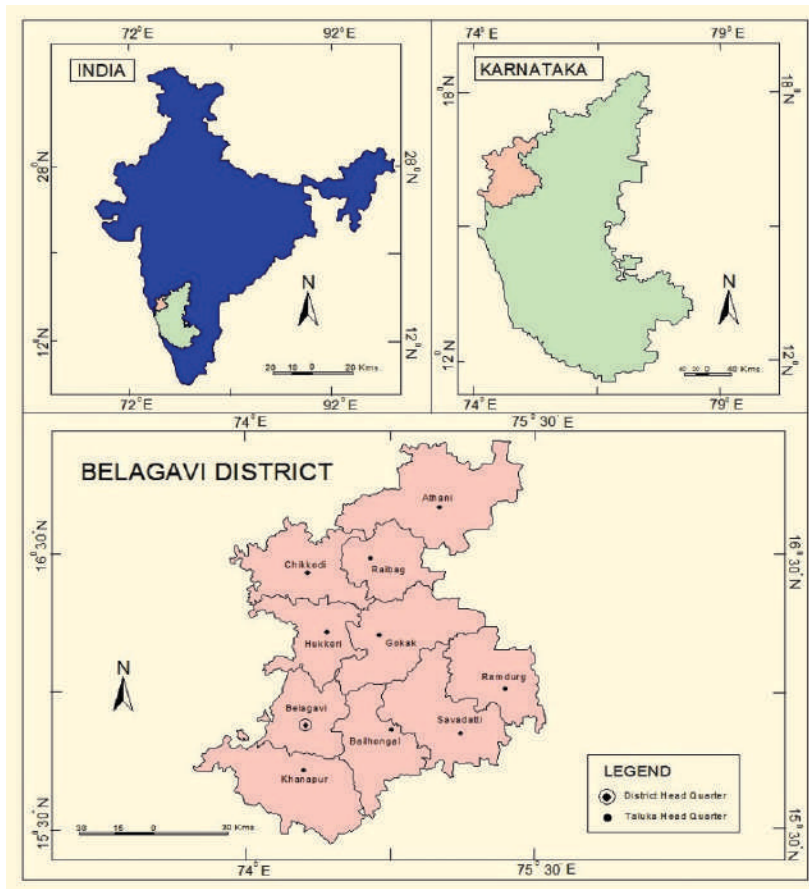
Land use refers to the physical and functional structure of land occupancy of towns / cities involves the study of layout pattern of internal structure, street pattern, alignment and architecture of buildings, densities and the different functions of the cities. Cities are always developed and transformed through the interaction between the different socio-cultural, political, economic and technological forces. Hence, these forces create the urban land use and its pattern. The pattern of urban land use in different urban centers reveals the land under different functions which indicate the level of development. It reflects the existing disparities in level of development of different functions on intra-urban level.

In this paper an attempt has been made to analyse the general morphological characteristics of urban centers of Belagavi district.

Study Area:

The Belagavi district is located in the north-western part of the Karnataka state and falls within the northern plain region. The district is of an irregular shape and its maximum length from north to south is 168 km, and 80 to 138 km east to west.

BELAGAVI DISTRICT LOCATION MAP



The total geographical area of the district is 13,454 sq. km which is 6.99 per cent of the total geographical area of the state. As per the 2011 Census Belagavi district population is about 47,79,661 persons and it ranks 2nd in population and 5th place in the areal extent. For administrative convenience, Belagavi District has been divided into 10 tahsils. Out of these Chikkodi tahsil is the largest in geographical area (1,995.70 sq. km) and Raibag tahsil is the smallest in geographical area (958.80 sq.kms). The Belagavi District consists of ten tahsils namely: Athani, Bailhongal, Belagavi, Chikkodi, Hukkeri, Khanapur, Gokak, Raibag, Ramdurg and Savadatti. The district comprises three revenue sub-divisions and six police sub-divisions. Apart from the Belagavi City Corporation, there are 17 Municipal towns, 13 Town Panchayats (Statutory towns- 18 and Census towns-13), 485 Gram panchayats, 1,275 villages. Belagavi is a divisional head quarter. For the administrative purpose the district is divided into three sub-divisions, such as Belagavi, Bailhongal and Chikkodi. The climatic conditions in Belagavi District are generally good. The conditions are by and large healthy and pleasant and characterized by general dryness except during monsoon season. The economic dominant feature of Belagavi district is agriculture, which is the chief occupation of the people. Nearly 75 per cent of people in the study area derives their livelihood directly or indirectly from agriculture. But the main problem it faces is erratic rainfall and inadequate irrigation facilities.

Data Base and Methodology:

The necessary secondary data is collected from various offices like: city corporation / town municipality and town planning of Belagavi district. Based on available data appropriate methodology is adopted for delineate the profile of the urban land use characteristics of Belagavi district.

Objectives:

The main objectives of this paper are:

- to analyse the general morphological appearance of towns and cities of Belagavi district.
- to analyse the classification of urban land-use of towns and cities of Belagavi district.

General Morphological Appearance of Towns And Cities of Belagavi District:

The general appearance of the urban centres is represented by a consolidated arrangement of roads and streets, buildings and building materials, plans of houses, open spaces, etc. Many of the urban centres have developed from villages and present unplanned features. Roads of such towns are still zig-zag with narrow bends and houses differently piled with a closed frontage. But some localities which have developed in a more or less planned manner have good houses such as new extensions of Belagavi, Gokak, Chikkodi, Nippani etc. The main roads are generally mettled, cemented or pitched and often broad but as we proceed outward from the business center to the residential areas the streets become narrow, unmettled and crooked though paved with stones in most cases. This road again becomes wider at the end of the town and on the peripheral parts of the town. The streets of the small towns usually consist of unmettled path.

Dwellings of the urban centres of Belagavi district are also influenced by town size and their functional type and structure. Large number of towns in the study area have majority of houses built by masonry and bricks. But during recent years concrete houses are being constructed rapidly in the urban areas. The older Mohall's of the urban centres still have traditional mud wall and roof houses. In the smaller towns, there is still predominance of mud wall and roofs. The masonry house decrease in number and size in the urban centres. In newer urban centres whose origin is linked with particular industry the buildings are generally pacca and are constructed in planned way. Sometimes urban centres experience several additions of various historical phases, such type of urban centres may have some old buildings, and these buildings fully or partially concerted by some businessman and government offices to various purposes.

In many towns of the Belagavi district the streets are not so wide as to not permit two-ways traffic. In some towns, like Belagavi, Chikkodi, and Gokak the fragmentary remains of past culture

and partial superimposition of modern aspects are also seen. Most of the smaller towns are situated only on one main road with streets on both sides. These towns are predominantly rural in character with mud wall and mud roof. Several urban features like parks and playground may not be present.

Building: The Building is the important component of the town/city and it becomes a significant aspect of morphological studies. The dimension of the building, the plan of the building, the nature of the door, the number of storeys, building materials of the roof and slope of the roof are worthy of study. Buildings have to be studied from the point of view of age, architectural style, functions, building materials, standard of the house, scope of ventilation and sun-light, open space, etc.

Except the planned sections of few towns like Belagavi, Chikkodi and Gokak, the urban centres of Belagavi district are mostly unplanned. Consequently most of the urban houses consist of traditional designs having still mud and stone wall, mud and wooden roofs. Brick houses predominate in extension parts of all urban centres of the region. The difference arises only in their size and structure. About 70 percent of the urban houses of Belagavi district are constructed by burnt bricks, cement plastering with concrete and 40 per cent of houses are constructed with mud with stone wall and wooden roofs. Majority of buildings are constructed by burnt bricks with R.C.C. roofs. More than 40 percent of the households in urban areas of the Belagavi district live in one roomed house and average number of people living per room is 4 persons. The share of two roomed households is usually between 20 to 30 percent and that of three roomed households between 10 to 20 percent. Similarly the percentage of households living in four or more rooms is high in larger towns like Belagavi, Gokak, Chikkodi and Nippani, but in smaller towns these households are also less in number as compared to big towns.

CLASSIFICATION OF URBAN LAND-USE:

Classification is most significant to the study of urban land-use, because it provides an easy key to understand the complex character of the city structure. The classificatory scheme points out that groupings or classes of landuse are not arbitrary, they are rational and empirical, and have some basis for their development and have some measure of extended applicability. As a matter of fact, it is realized that no single landuse classification can cater to all needs of all cities, but in general there should be some basic structure of the classification which is applicable to many if not most cities.

Since most of the land use classifications have been formulated by urban planners hence they are generally accepted as formulized land-use classification. However, more recently, an attempt has been made by professional planners and organizations, which focused on land-use characteristic alone as a basis for classification. This classification is well formulated and is applicable to most of the towns/cities. The land use pattern of any urban area is a reflection not of the immediate and current space requirements of a community but grater of their cumulative needs over a period of years. The urban areas are complex systems which have created myriads of problems and they need adjustment and modification in the physical form of the urban environment. This physical form is called morphology of the towns. As a matter of fact many diverse forces are consistently reacting upon urban society, creating pressures for growth and renewal in the physical form of the urban environment.

By considering the above said land-use classification and land-use characteristics of towns, here an attempt has been made to analyse the land-use classification of all thirty one towns of the Belagavi district (see Table-1).

RESIDENTIAL USE:

It is most important land-use characteristics of urban areas. In Belagavi district out of the total developed area of each town the highest percentage (59.88%) of land used for residential purpose is recorded in Khanapur town, but lowest is recorded in Sambra census town (13.47 %). Out of 31 towns, twelve towns have more than 40 per cent of developed area used for residential purpose (Khanapur, Mouje-Nandagad, Benaknalli, Yellur, Bailhongal, Kangrali-KH, Athani, Mutga, Kakati,

Savadatti, Kangrali-BK and Sulebavi). Whereas in fifteen towns (Peeranwadi, Sadalgi, Nippani, Konnur, Chikkodi, Gokak, Mache, Belagavi(MC), Raibag, Hukkeri, Londa, Sankeshwar, Ramdurg, Mudalgi and Kudchi,) land for residential use ranges between 30.00 to 40.00 per cent of their developed area. The remaining four towns namely, Belagavi- CB, Gokak Falls, Hindalga and Sambra have used less than 30.00 per cent of land under residential purpose. Hence, one keen observation is noted here that the class-I and class-II towns have utilized their land for residential purpose at lesser extent, but in case of lower order centres (class-III, IV and V) this situation is vis-a-versa because of the lesser intensity of other urban functions besides lesser density of population.

COMMERCIAL USE:

It is basic economic function of every town and is very revealing that the percentage of area under commercial use (trade and commercial) is not much higher in the towns of the study area compared to other urban functions. Only three urban centres like, Khanapur (21.61%), Belagavi (18.98%) and Mouje-Nandgad (17.98%) were highest commercial land is used. In seven urban centres noticed that more than 10.00 per cent of land is used for different commercial activities (Gokak Falls, Savadatti, Chikkodi, Kakati, Athani, Londa and Mutga) and in fifteen towns the land is used for commercial activities is 5.00 per cent to 10.00 per cent of the developed area.. The remaining six towns have less than 5.00 per cent of land under commercial use.

INDUSTRIAL USE:

In Belagavi district many urban centres have noticed large and medium scale industries, they are particularly found in western and central part of the district. Hindalga, Nippani, Gokak Falls, Belagavi and Gokak towns have some important industries. Among these in Hindalga (Census town) 177.61 hectares of land is used for industrial purpose (58.44 per cent of total developed area). Maximum industrial units are located in and around this small town. Nippani town is the second important industrial center, where 15.42 per cent of developed area (103.07 hectare) is used for industry, two sugar industries are located near the town vicinity. Gokak Falls is one of the most important and oldest manufacturing cotton ginning mills and oil mills are located in this town. In recent years KIADB has developed an industrial layout by setting up major industries like Riddhi-Siddhi, Gluco Boils Limited etc have been started.. KSSIDC has also developed one industrial layout, in which the small industries like Yes Milk Dairy and its allied industries are located near Vivekananda Nagar. Belagavi town has 12.63 per cent of area under industrial category. At present there are three defined industrial complexes mainly Aluminum factory, which is situated in the north eastern part, Kanabargi, and Autonagar, industrial area and some other Industrial Estate situated at the extreme South-Western part of the city. Other industrial units are located in scattered manner in the city. Gokak town has 10.70 per cent of land is utilized for many medium and small scale industrial units. The remaining all towns (twenty seven) have less than 10.00 per cent of land under industrial growth.

PUBLIC AND SEMI-PUBLIC USE:

In Belagavi district maximum number of towns have received the land for public activities, like all types of offices, school and colleges and other public buildings. This land varies from town to town. In Belagavi district six towns (Sambra, Belagavi-CB, Mudalgi, Konnur, Gokak Falls and Raibag) have devoted more than 20.00 per cent of their developed land for public and semi-public use. More than seventeen towns have utilized 10.00 to 20.00 per cent of land used for public buildings and remaining eight towns have including Belagavi city (5.12%) lesser extent of land is used for public and semi-public uses.

**TABLE -1 :
EXISTING LAND-USE PATTERN OF URBAN CENTRES OF BELAGAVI DISTRICT (2011)**

Size Class of Town	Nos	Name of the Town	Developed Area							Non-Developed Area		Total Municipal Area (in hectares)
			Residential	Commercial	Industrial	Public and Semi-public	Parks, Playground and Open Space	Transport and Communication	Total Developed Area	Vacant and Water Covered Area	Agricultural Land	
Class- I 100,000 and Above	1	1. Belagavi (MC)	1366.72 (32.29) [14.12]	756.16 (18.98) [7.81]	503.02 (12.63) [5.20]	204.49 (5.12) [2.11]	191.25 (4.80) [1.97]	962.25 (24.15) [9.94]	3983.89 (100.00) [41.15]	1062.13 (10.97)	4635.98 (47.88)	9682 (100.00)
Class- II 50,000 to 99,999	2	2. Gokak	185.22 (33.58) [8.40]	47.48 (8.71) [2.16]	58.43 (10.70) [2.67]	60.13 (10.87) [2.72]	68.83 (12.50) [3.12]	130.89 (23.75) [5.95]	550.98 (100.00) [25.01]	73.15 (3.36)	1578.87 (71.67)	2203 (100.00)
		3. Nippani	258.69 (38.62) [12.77]	64.26 (9.58) [3.17]	103.07 (15.42) [5.10]	48.91 (7.19) [2.38]	104.28 (15.57) [5.15]	88.91 (13.17) [4.35]	668.12 (100.00) [33.06]	79.02 (3.91)	1273.86 (63.03)	2021 (100.00)
Class- III 20,000 to 49,999	10	4. Bailhongal	143.00 (46.82) [11.21]	25.80 (8.19) [1.96]	20.25 (6.55) [1.57]	41.35 (13.42) [3.21]	29.45 (9.50) [2.27]	45.60 (14.73) [3.53]	305.45 (100.00) [23.94]	24.43 (2.86)	946.12 (74.14)	1276 (100.00)
		5. Athani	130.59 (41.97) [14.28]	37.40 (11.95) [4.07]	15.83 (4.85) [1.65]	47.59 (15.17) [5.16]	33.49 (10.66) [3.62]	44.86 (14.22) [4.83]	309.76 (100.00) [34.04]	32.03 (3.52)	658.21 (62.44)	910 (100.00)
		6. Savadatti	250.08 (40.52) [15.63]	84.00 (13.61) [5.25]	30.40 (4.86) [1.87]	111.36 (17.99) [6.94]	72.32 (11.67) [4.50]	68.80 (10.02) [4.25]	616.96 (100.00) [38.56]	77.60 (4.85)	905.44 (56.59)	1600 (100.00)
		7. Chikkodi	255.21 (38.23) [13.80]	84.08 (12.59) [4.54]	29.94 (4.35) [1.57]	106.07 (15.89) [5.73]	115.87 (17.24) [6.22]	75.77 (11.25) [4.06]	666.94 (100.00) [36.09]	98.87 (5.35)	1082.19 (58.62)	1848 (100.00)
		8. Ramdurg	33.75 (31.79) [9.25]	8.21 (7.71) [2.24]	5.82 (4.82) [1.40]	17.17 (16.38) [4.76]	25.45 (24.08) [7.00]	13.42 (12.52) [3.64]	103.82 (100.00) [29.08]	16.35 (4.58)	236.83 (66.34)	357 (100.00)
		9. Sankeshwar	82.23 (32.45) [11.25]	24.93 (9.50) [3.29]	23.04 (9.10) [3.15]	38.64 (15.04) [5.21]	49.79 (19.40) [6.72]	34.04 (13.46) [4.66]	252.67 (100.00) [34.66]	30.25 (4.15)	446.08 (61.19)	729 (100.00)
		10. Mudalgi	114.62 (31.21) [9.90]	28.34 (7.67) [2.43]	32.83 (8.76) [2.78]	87.32 (23.82) [7.55]	60.14 (16.42) [5.21]	42.05 (11.50) [3.65]	365.30 (100.00) [31.71]	95.85 (8.32)	690.85 (59.97)	1152 (100.00)
		11. Sadalgi	151.39 (39.24) [10.29]	18.78 (4.68) [1.23]	12.18 (3.12) [0.82]	71.15 (18.45) [4.84]	89.48 (23.13) [6.07]	41.81 (10.66) [2.80]	384.79 (100.00) [26.23]	91.54 (6.24)	990.67 (67.53)	1467 (100.00)
		12. Kudchi	47.97 (30.89) [9.61]	7.48 (4.60) [1.43]	5.43 (3.29) [1.02]	27.48 (17.74) [5.52]	43.77 (28.26) [8.80]	20.05 (13.14) [4.10]	152.18 (100.00) [31.12]	51.10 (10.45)	285.72 (58.430)	489 (100.00)
		13. Hukkeri	76.94 (32.55) [12.20]	19.00 (8.14) [3.05]	16.82 (6.86) [2.57]	40.19 (17.13) [6.42]	47.53 (20.13) [7.54]	33.02 (14.13) [5.30]	233.50 (100.00) [37.48]	29.96 (8.50)	336.54 (54.02)	623 (100.00)
Class- IV 10,000 to 19,999	12	14. Belagavi (CB)	56.74 (20.80) [7.88]	9.50 (3.34) [1.32]	6.48 (2.23) [0.90]	74.45 (27.48) [10.34]	99.07 (36.76) [13.76]	23.04 (8.54) [3.20]	269.28 (100.00) [37.40]	109.80 (15.25)	340.92 (47.35)	720 (100.00)
		15. Khanapur	97.20 (59.88) [27.40]	35.64 (21.61) [9.89]	8.10 (4.94) [2.26]	8.10 (4.94) [2.26]	7.50 (4.32) [1.98]	5.46 (3.09) [1.41]	162.00 (45.76) [100.00]	76.80 (21.47)	115.20 (32.49)	354 (100.00)
		16. Konnur	285.73 (38.07) [8.56]	60.75 (8.01) [1.82]	43.39 (5.74) [1.30]	171.91 (22.84) [5.15]	118.17 (15.76) [3.54]	68.77 (9.09) [2.06]	748.72 (100.00) [22.43]	523.06 (15.67)	2066.22 (61.90)	3338 (100.00)
		17. Raibag	66.87 (34.17) [9.82]	14.64 (7.65) [2.15]	18.79 (9.69) [2.76]	41.68 (21.42) [6.12]	29.56 (15.30) [4.34]	24.52 (12.24) [3.60]	196.06 (100.00) [28.79]	77.09 (11.31)	407.85 (59.89)	681 (100.00)
		18. Mache	99.43 (35.44)	13.03 (4.65)	16.05 (5.73)	31.40 (11.100)	79.32 (28.28)	40.12 (14.32)	279.35 (100.00)	120.49 (10.36)	763.16 (65.62)	1163 (100.00)

Source: Town Planning Offices, computed by researcher

PARKS, PLAYGROUND AND OPEN SPACE:

Recreational point of view this category is most important land use characteristics of urban areas. In Belagavi district very limited space is utilized for under this category. The highest percentage of land is used for parks, playground and open space in Belagavi-CB town with 36.76 per cent of the developed area, because of maximum extent of area is under defense authority and it is also restriction of built houses in the cantonment area. Nine town like, Sulebavi (28.40%), Mache (28.28%), Kudchi (28.26%), Ramdurg (24.08%), Sadalagi (23.13%), Kangrali-KH (22.80%), Yellur (21.69%), Hukkeri (20.13%) and Peeranwadi (20.07%) have parks, playground and open space in wide range. Remaining twenty one towns have lesser extent of land (below 20.00 %) is used for parks, playground and open space located in outer part of town area. The school, colleges and government offices etc. have been reserved for public uses.

TRANSPORT AND COMMUNICATION:

The town economic development depends on wide transportation and communication system. In Belagavi district many urban centres have good network system, namely, Belagavi-MC (24.15%) and Gokak (23.75%) towns have utilized more land for transportation and communication purpose. Whereas in eighteen towns have medium (10.00 to 20.00%) extent of land is used for this category, remaining eleven towns have lesser per cent (below 10.00%) of land is used for transport and communication activities.

NON-DEVELOPED AREA:

This category includes vacant land, water bodies and agricultural land. Compared to other uses of urban land, this category area is very high innine towns. These towns have more than 10.00 per cent of land kept as vacant and water covered area, Mouje-Nandagad town is very high (49.55%) in this category and followed by Gokak Falls (21.52%), Khanapur (21.47%), Konnur (15.67%), Belagavi-CB (15.25%), Raibag (11.31%), Belagavi-MC (10.97%), Kudchi (10.45%) and Mache (10.36%). Remaining (twenty tow) towns have below 5.00 per cent of land is vacant and water covered area. But this vacant land will be of immense use for the future urban development activities. Another main feature is that agricultural activities it is very common feature at the outer fringe of most of the towns in the district. More than 60.00 per cent of the towns have above 60.00 per cent of land utilized for agriculture. These fields are used for growing vegetables and other food grains.

Recently with the establishment of several industries on the periphery and the extension of the municipal limits of the town/cities, there has been developed urban fringe along the main through fares even beyond the corporation limits. The rural-urban fringe, and extension of the urban center both actual and potential, is an area where most of the land-uses are in a state of flux. This area as a whole is being urbanized with incoming of electricity, running water, mettled roads and other such urban amenities.

Conclusion:

The morphological characteristics based on land use and their service functions and population dynamics of urban centers in Belagavi district. The study has emphasized the importance of the urban centers as local nodal service centers based on urban land use characteristics. Each urban centers link many villages and therefore integrate them into the national economic system through commodity exchange, information flow and innovation spread. They are the “drivers of the urbanization process” in the region. Indeed, the urban geography and economic history of the Belagavi district cannot be understood without reference to the land use dynamics and their diversity character. For improve the functional varieties towards to improve the quality of life in urban centres of Belagavi district priority should be given to the existing urban functional structure. Therefore, the towns of Belagavi district especially those which have below 50,000 populations should exhibit basic functions rather than primary and service / non-basic functions. This expected scenario maybe changed if special

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programmes laid in our newly introduced “Smart City” programmes in five years plans to develop small and medium towns towards to grow in terms of functional dynamism. Once the district continues its trend towards development facing all the odds which are prevalent in the study region and it leads to change the characteristics of urban centres.

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* Dr.(Smt). Sunanda. I. Kittali,
Assistant Professor,
Dept. of Geography, R.P.D. College
of Arts and Commerce,
BELAGAVI – 590 011 Karnataka State,