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SPATIAL PATTERNS OF HIERARCHY OF SERVICE CENTERS IN HAVERI DISTRICT, KARNATAKA

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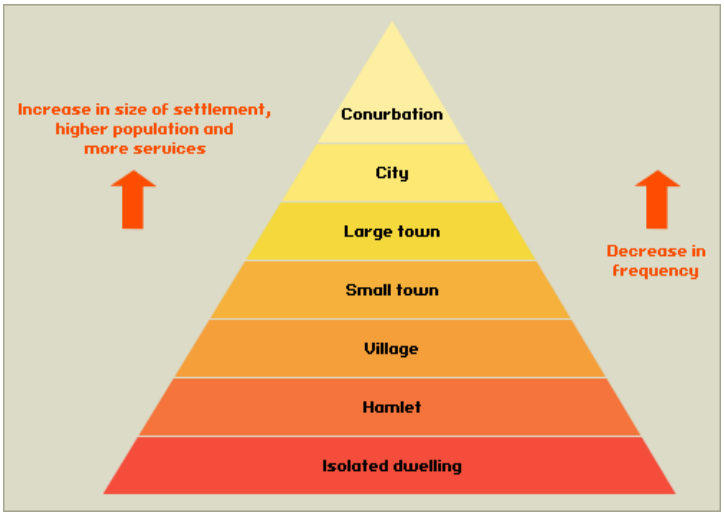
ABSTRACT

Introduction: Growth Centres in Spatial Planning examines the role of growth centers in spatial planning in terms of achieving the intended objectives. Intended objectives include improving a regions potential for adopting innovations, a saving in public investment on infrastructure, a more efficient pattern of service provision, a dissemination of growth impulses throughout the problem region, and the interception of would-be migrants from the region. More specifically, the extent to which growth-center policies are likely to attain these objectives and how such policies might be modified accordingly.

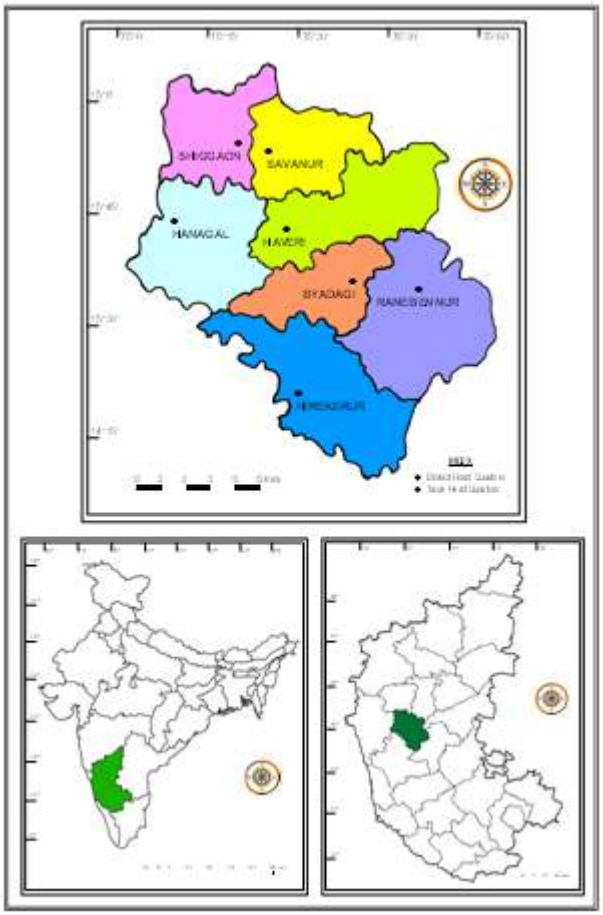


This is an appraisal of growth-center theory and growth-center policy, along with the fundamental issues that are involved in putting such policies into practice.

STUDY AREA

Haveri district is situated in the western sector of the Karnataka state. The district encompasses an area 485156 hectares laying between the latitudinal parallels of $14^{0}19^{0}$ North and $15^{0}09^{0}$ North and the longitudes of $75^{0}01^{0}$ East to $75^{0}50^{0}$ East. In its shape the district may be regarded as roughly resembling an inverted square shape as per Peter Hagget's method shape index. Its greatest length from north to south is about 111 kms and its great growth from east to west is about 87 km. The district is bounded on the North by the districts of Dharwad and Gadag; on the south by the district of Chitradurga and Shimoga and the west by the district of North Kanara.

Location of Hanagal taluk in the Haveri District



OBJECTIVES OF THE STUDY:

1.To identify the various levels of hierarchy of service centers in the study area.
2. To propose new service centers to minimize imbalance in the development of the Haveri District.

METHODOLOGY AND DATA BASE

Though all settlements are not at all the favorable locations for making specific investments for socio-economic development of region, all the settlements have been examined for identification of growth centers .It is found that settlement below the average size do not function as an important settlement in this district. Therefore, we have examined thoroughly 208 settlements which have population of more than 2000, for this purpose. Therefore, the study is selective in nature for the purpose of putting investment for developmental activities. In all 5 basic determinants along with their hierarchical order and basic amenities and general facilities have been considered for this purpose .

IDENTIFICATION OF SERVICE CENTERS

One can visualize multi-level hierarchy among the functions (Table-1).It can be illustrated in case of educational function which has hierarchy like Primary school, High school, PU Colleges, ITI, Diploma and Technical institutions. The area covered and population served by these sub functions vary greatly. Therefore internal hierarchy of each basic function was fixed first for majority of the functions and the weightages were given on the basis of their relative relations. This can be explained

by taking educational functions. As it is assumed that all the settlement should have a minimum of primary education as a minimum need facility, it was given a weightage of '1 '. There are 1293 primary schools, 375 High schools, 86, PU Colleges, 16, ITI, 16 Diploma Colleges and 2 Technical Institutions etc in the district. A relative weightage for primary school is given 1:1 ratio like that high school was weighted by 1:2 ratio PU college by 1:3 ratio, ITI by1:3 ratio, Diploma by 1:3 and Technical Institution by 1:5 ratio. Like this we have given relative weightages to all sub functions on the basis of their relative strength. (Table 1)

Table 1: Major functions, sub functions and their relative weightage

Sl/No	Educational Facilities	Weightage
1	Primary School	1
2	High School	2
3	PUC	3
4	ITI	3
5	Diploma	3
6	Technical Institutions	5

Sl/No	Medical Facilities	Weightage
1	Sub Center	1
2	PHC	3
3	CHC	4
4	General Hospital	5

Sl/No	Industrial Facilities	Weightage
1	Small	1
2	Medium	3
3	Large	5

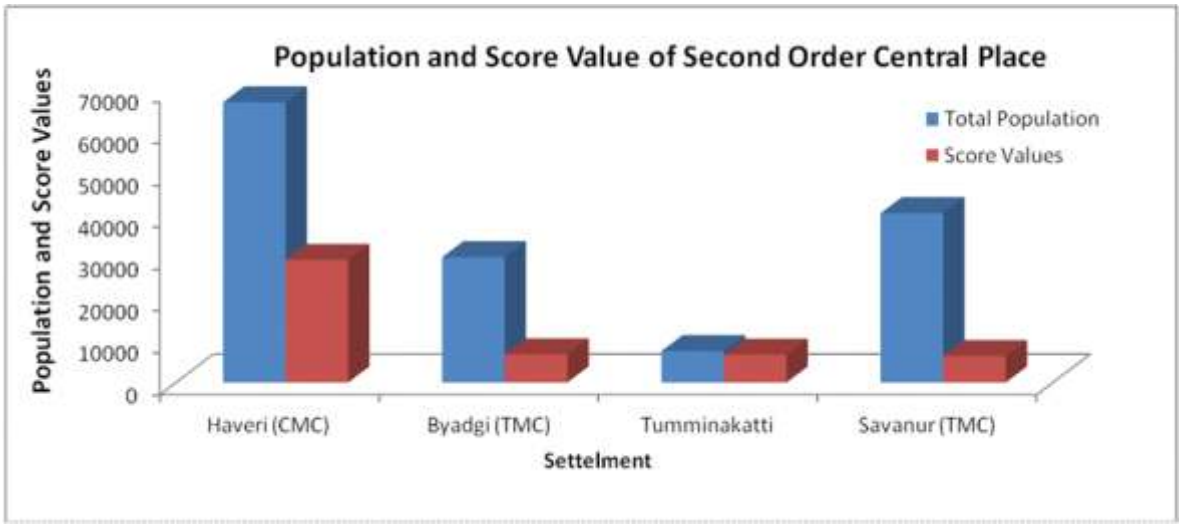
Sl/No	General Facilities	Weightage
1	Drinking water	1
2	Market	1
3	Road	1

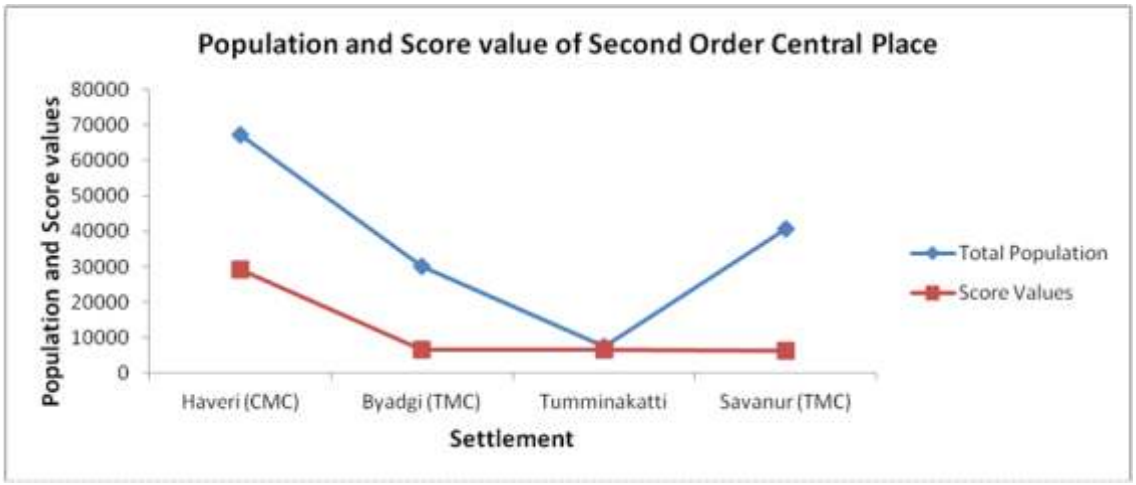
Table 2: Hierarchical nature of Central Functions

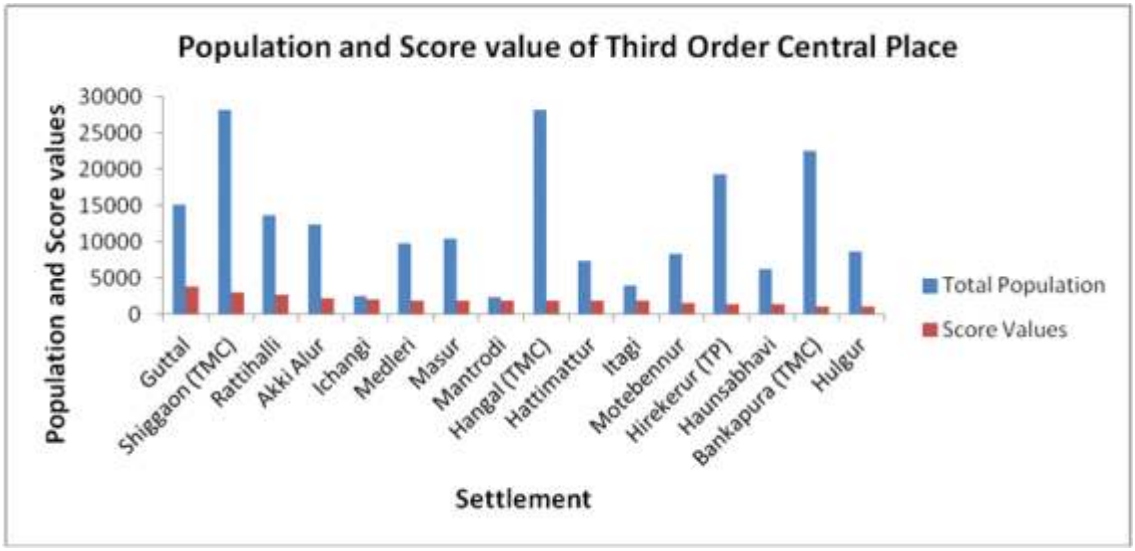
Education	Primary	High School	PUC	ITI	Diploma	Technical
Medical	Sub Centers	PHC	CHC	General	-	-
Industries	Small	Medium	Large	-	-	-
General	Drinking water	Market	Road	-	-	-

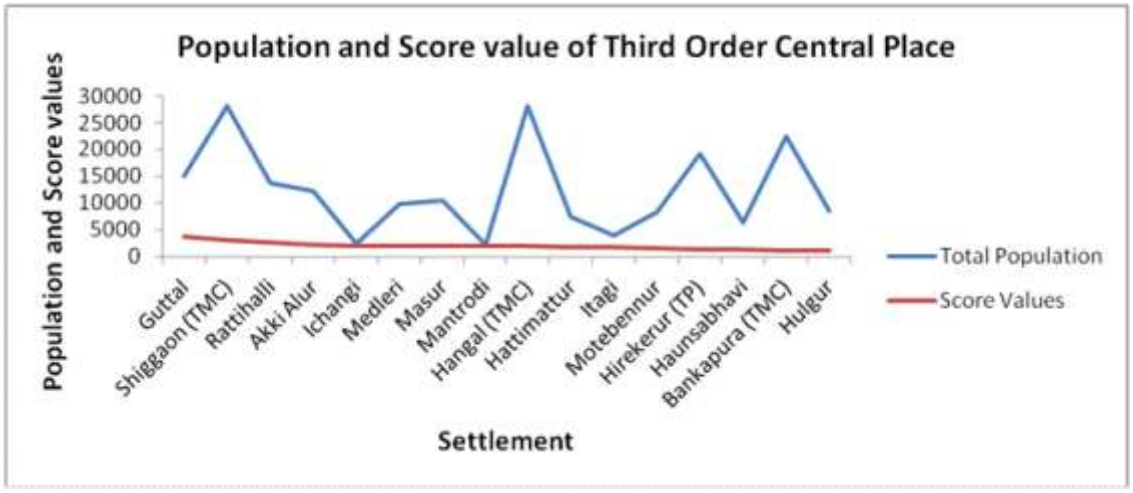
The total volume of the settlement was worked out by totaling all such score values given to each sub function and multiplied by the number of such sub functions existing in study area. A high school was given a weightage 2, if there are two high school in the same settlement then its weightage was 4 , like that weightage of all sub functions were multiplied by the number of same sub function existing in the village. There are some sub functions were it was not possible to give relative weightage.

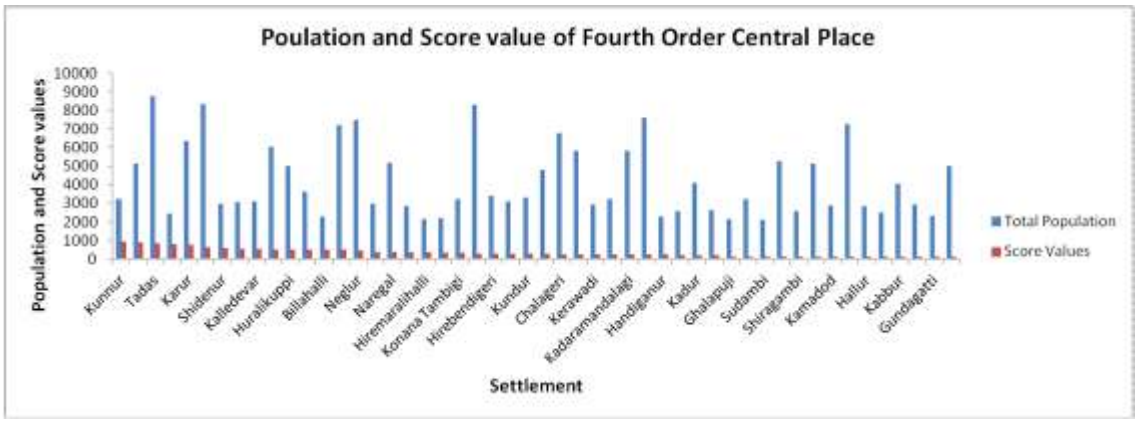
In such case a minimum of 1 weightage was given, if that function exists in that village. There are drinking water facility, road facility etc. Like this all sub functions of 16 basic variables listed in the table 1. All these weightages were added to get a summed up centrality score values for 208 settlements having population more than 2000. As our purpose is to identified the hierarchic nature of growth centres and plan for rural development, summed up centrality scores have been arranged in descending order for all 208 settlement in the District. Both, size (Population) and centrality score values of 208 settlements were ploted on the line graph to examine hierarchic nature of settlement or there exist a step like hierarchy (graph1).

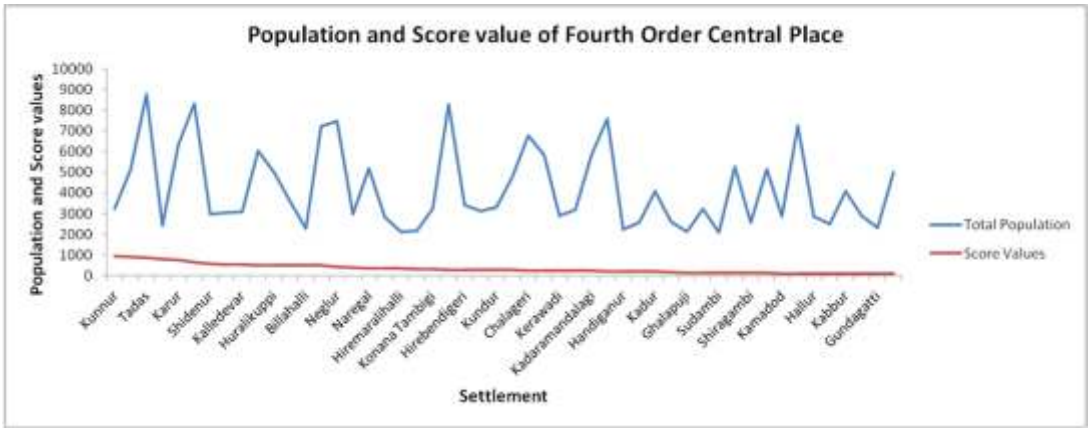


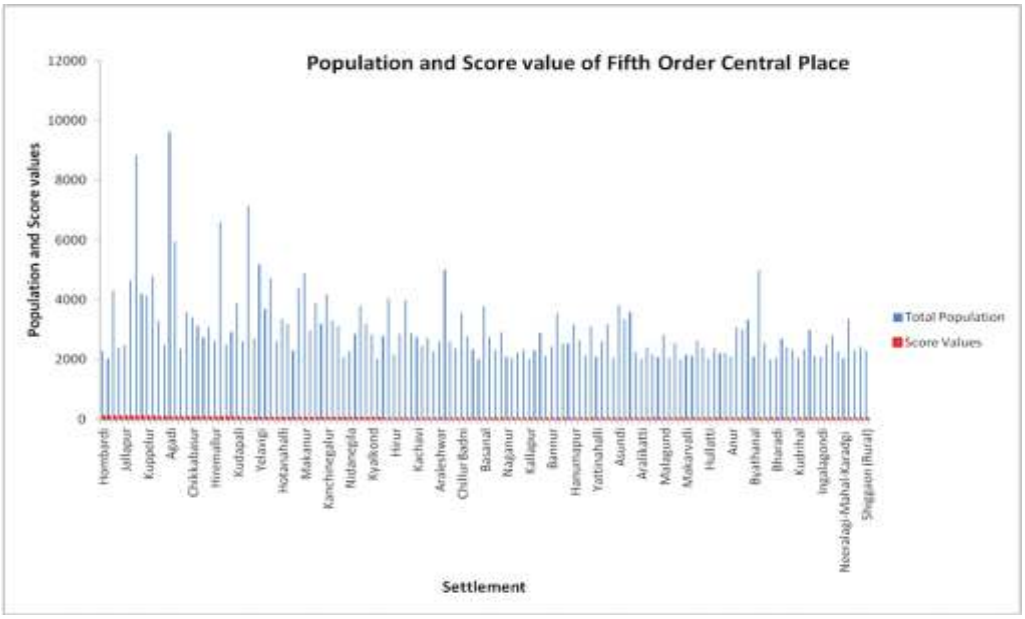


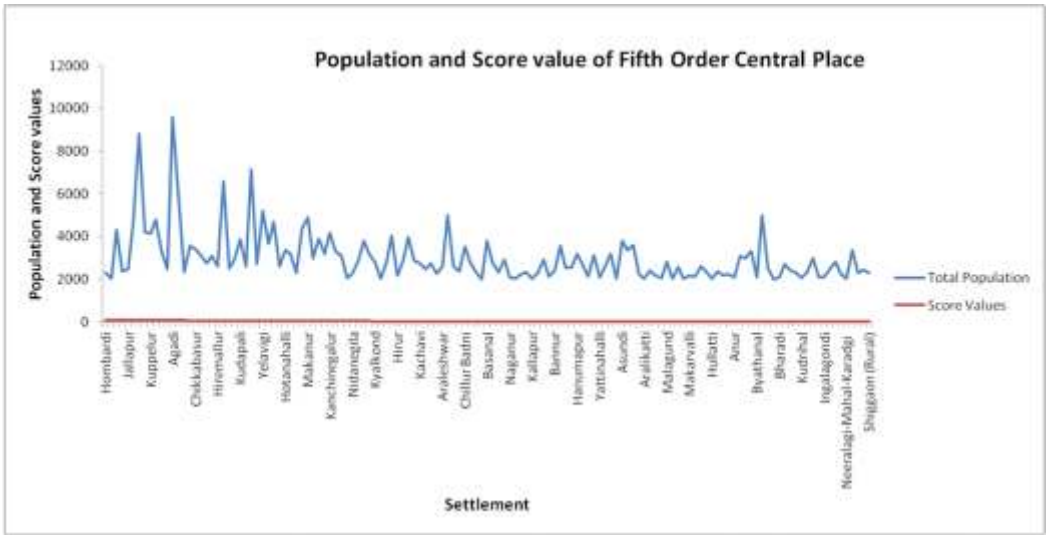

Population and Score value of Third Order Central Place
Population and Score values
30000
25000
20000
15000
10000
5000
0
Guttal
Shiggaon (TMC)
Rattihalli
Akki Alur
Ichangi
Medleri
Masur
Mantrodi
Hangal (TMC)
Hattimattur
Itagi
Motebennur
Hirekerur (TP)
Haunsabhavi
Bankapura (TMC)
Hulgur
Settlement
Total Population
Score Values


Population and Score value of Third Order Central Place
Population and Score values
30000
25000
20000
15000
10000
5000
0
Guttal
Shiggaon (TMC)
Rattihalli
Akki Alur
Ichangi
Medleri
Masur
Mantrodi
Hangal (TMC)
Hattimattur
Itagi
Motebennur
Hirekerur (TP)
Haunsabhavi
Bankapura (TMC)
Hulgur
Settlement
Total Population
Score Values


Poulation and Score value of Fourth Order Central Place
Population and Score values
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Kunnur
Tadas
Karur
Shidenur
Kalledevar
Huralikuppi
Billahalli
Neglur
Naregal
Hiremaralihalli
Konana Tambigi
Hirebendigeri
Kundur
Chalageri
Kerawadi
Kadaramandalagi
Handiganur
Kadur
Ghalapuji
Sudambi
Shiragambi
Kamadod
Hallur
Kabbur
Gundagatti
Settlement
Total Population
Score Values

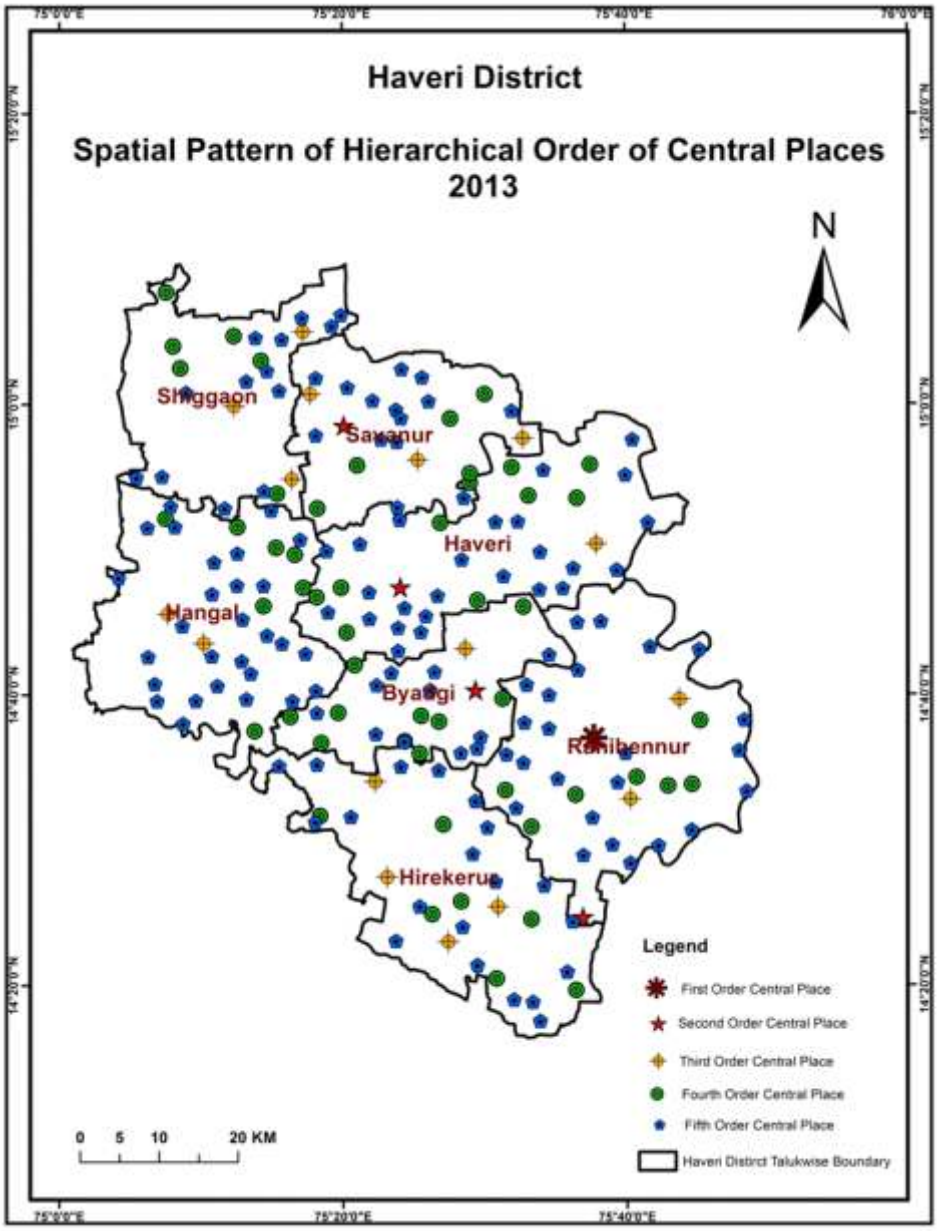

Population and Score value of Fourth Order Central Place
Population and Score values
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Kunnur
Tadas
Karur
Shidenur
Kalledevar
Huralikuppi
Billahalli
Negilur
Naregal
Hiremaralihalli
Konana Tambigi
Hirebendigeri
Kundur
Chalageri
Kerawadi
Kadaramandalagi
Handiganur
Kadur
Ghalapuji
Sudambi
Shiragambi
Kamadod
Hailur
Kabbur
Gundagatti
Settlement
Total Population
Score Values


Population and Score value of Fifth Order Central Place
Population and Score values
12000
10000
8000
6000
4000
2000
0
Hombardi
Jallapur
Kuppelur
Agadi
Chikkabasur
Hiremallur
Kudapali
Yelavigi
Hotanahalli
Makanur
Kanchinegalur
Nidaneigila
Kyalkond
Hirur
Kachavi
Araleshwar
Chillur Badni
Basanal
Najjanur
Kallapur
Bannur
Hanumapur
Yattinahalli
Asundi
Aralikatti
Malagund
Makarvalli
Hullatti
Anur
Byathanal
Bharadi
Kudrihal
Ingalagondi
Neeralagi-Mahal-Karadgi
Shigaon (Rural)
Settlement
Total Population
Score Values


Population and Score value of Fifth Order Central Place
Population and Score values
12000
10000
8000
6000
4000
2000
0
Hombardi
Jallapur
Kuppelur
Agadi
Chikkabasur
Hiremallur
Kudapali
Yelavigi
Hotanahalli
Makanur
Kanchinegalur
Nidaneigila
Kyalkond
Hirur
Kachavi
Araleshwar
Chillur Badni
Basanal
Najjanur
Kallapur
Bannur
Hanumapur
Yattinahalli
Asundi
Aralikatti
Malagund
Makarvalli
Hullatti
Anur
Byathanal
Bharadi
Kudrihal
Ingalagondi
Neeralagi-Mahal-Karadgi
Shigaon (Rural)
Settlement
Total Population
Score Values

Hierarchic Order of Central Places in Study Area

	1st Order Central Place	1
	2nd Order Central Place	4
	3rd Order Central Place	16
	4th Order Central Place	50
	5th Order Central Place	137
	Dependent Village	499
	Total	707



It is asumed that the higher order central places should provide the higher level functions along with those of the lower level functions provided by lower order central places.Thus there exists a relationship between the order of settlements and level of functions(Table-2 Excel sheet)

Charateristics of Central Places

1.Central place of 1st order

There is only one center – Rannebennur which serves as Central place of highest order in Haveri District. It should have highest level functions of all the basic functions and amenities and services. It should provide the following specific functions along with the lower order functions provided by the lower order central places. It must be a city of lakhs of population, having the highest score value and shold provide the facilities to all of the District.

2.Central place of 2nd order

These centres should have Senion Colleges of all categories, Medical facilities, Industries, Market facilities, Highways etc. The second order central places having average score value of 12254 and average population around 36295.

3.Central place of 3rd order

These centre should provide Senior colleges, Technical institutions, Community Health Centres, Small scale industrial centres, regulated market centres etc. The 3rd order central places having average score values of 1927 and average population around 12407.

4.Central place of 4th order

PU Colleges, Primary health centres, diploma collwges, market sub centres, small scale and house hold industries etc. The 4th order central place having average score value of 343 and average population around 4206.

5.Central place of 5th order

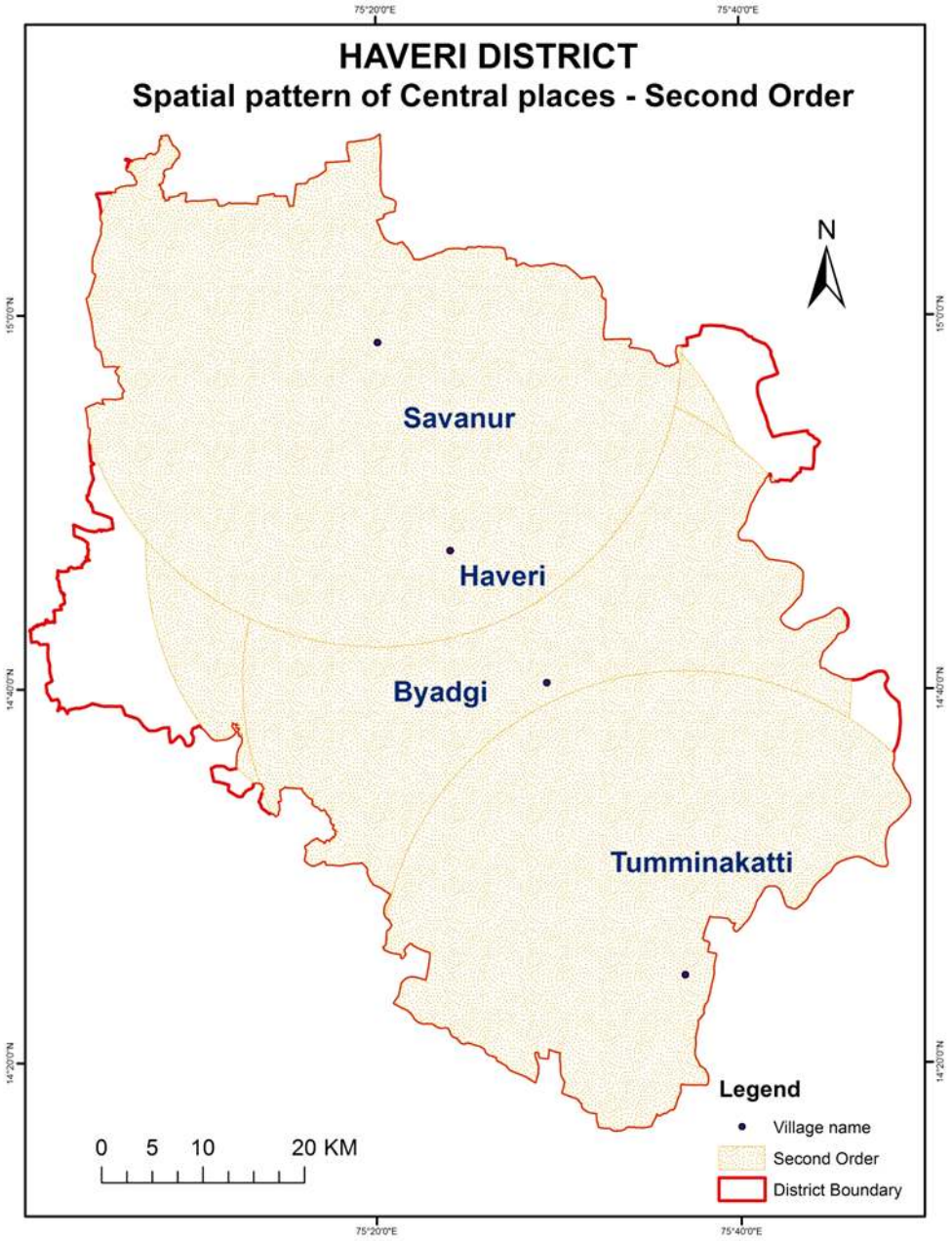
These may be defined as service centres which will provide the high school facility, PHC, weekly markets, Medical shops etc. The 5th order central place having average score value of 33 and average population around 3007.

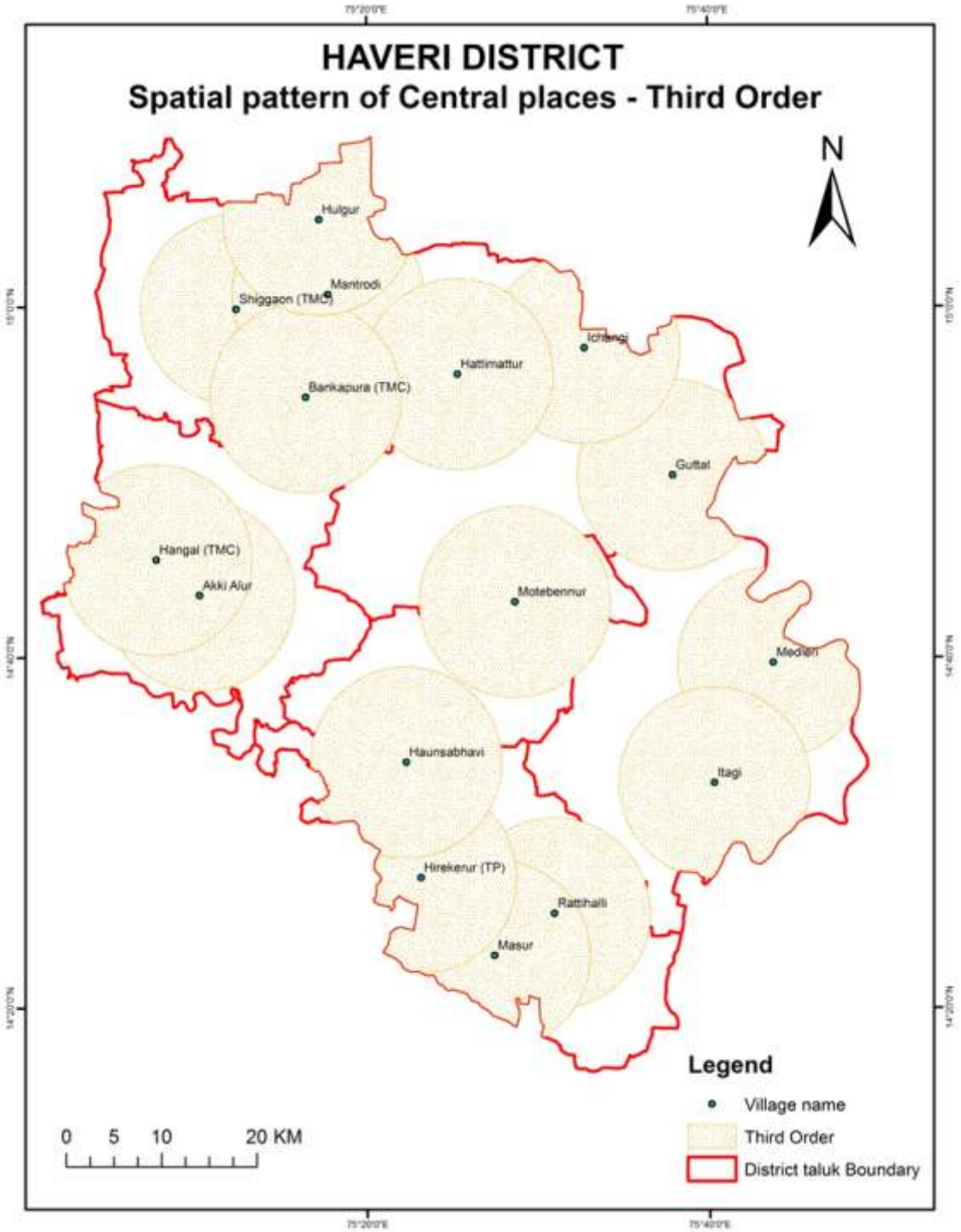
The Growth Centres are the places of growth generation and provide base for planning integrated area development of the District. In nutshell one can say that Central places.

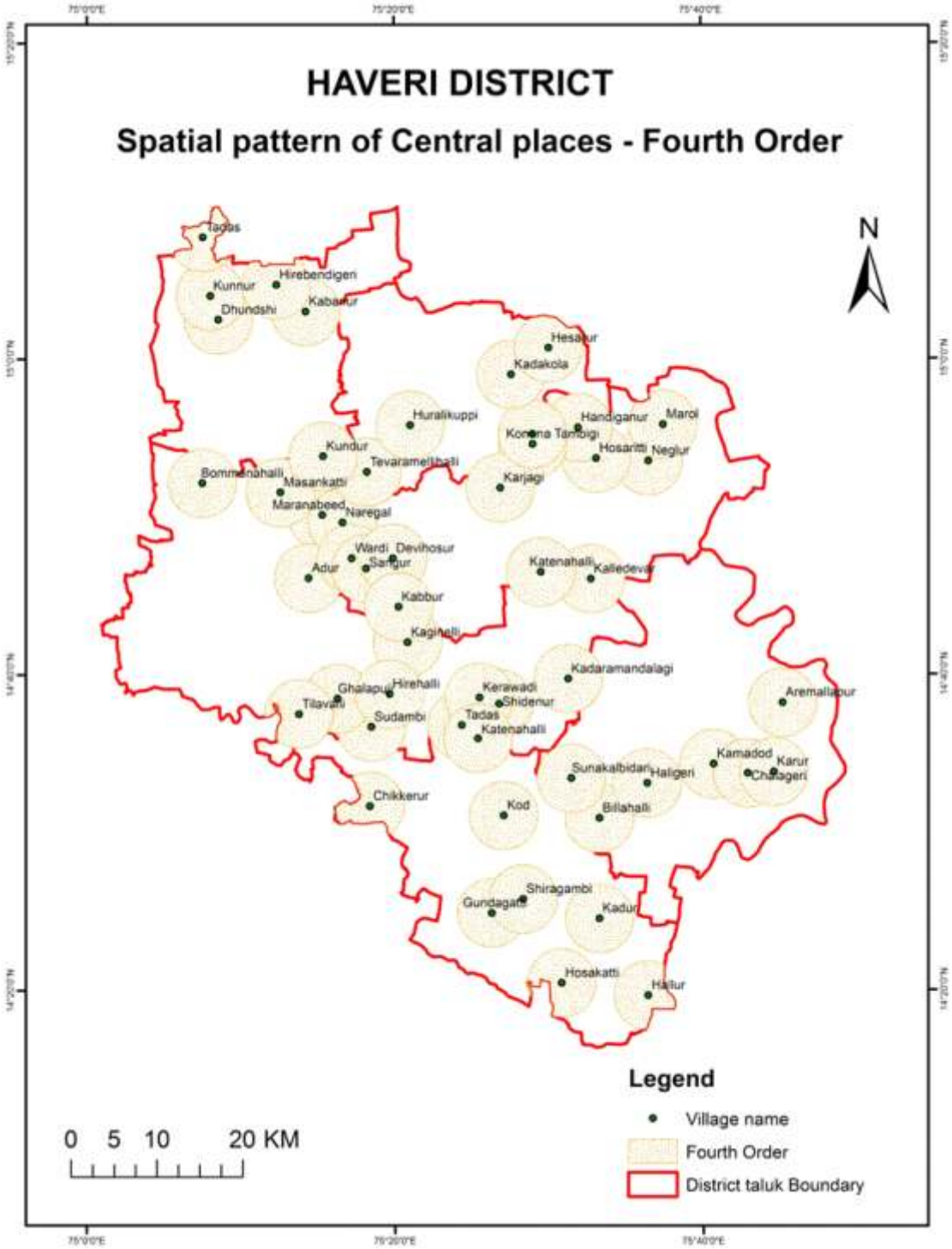
1.Play an important role in reducing spacial variations
2.Are the key centres for integrated area development plan
3.Are the best locates for specific investment in the development of the region.
4.Act as shock absobers for rural migrants.
5.Act as bottle next for trickling down process of growtg focii model.
6.Act as tranformers of socio economic change.
7.Act as collecting centres of rural products and defusing centres of urban products.
8.Act as intermitant stations between rural and urban.
9.Are the indicators of the regional development

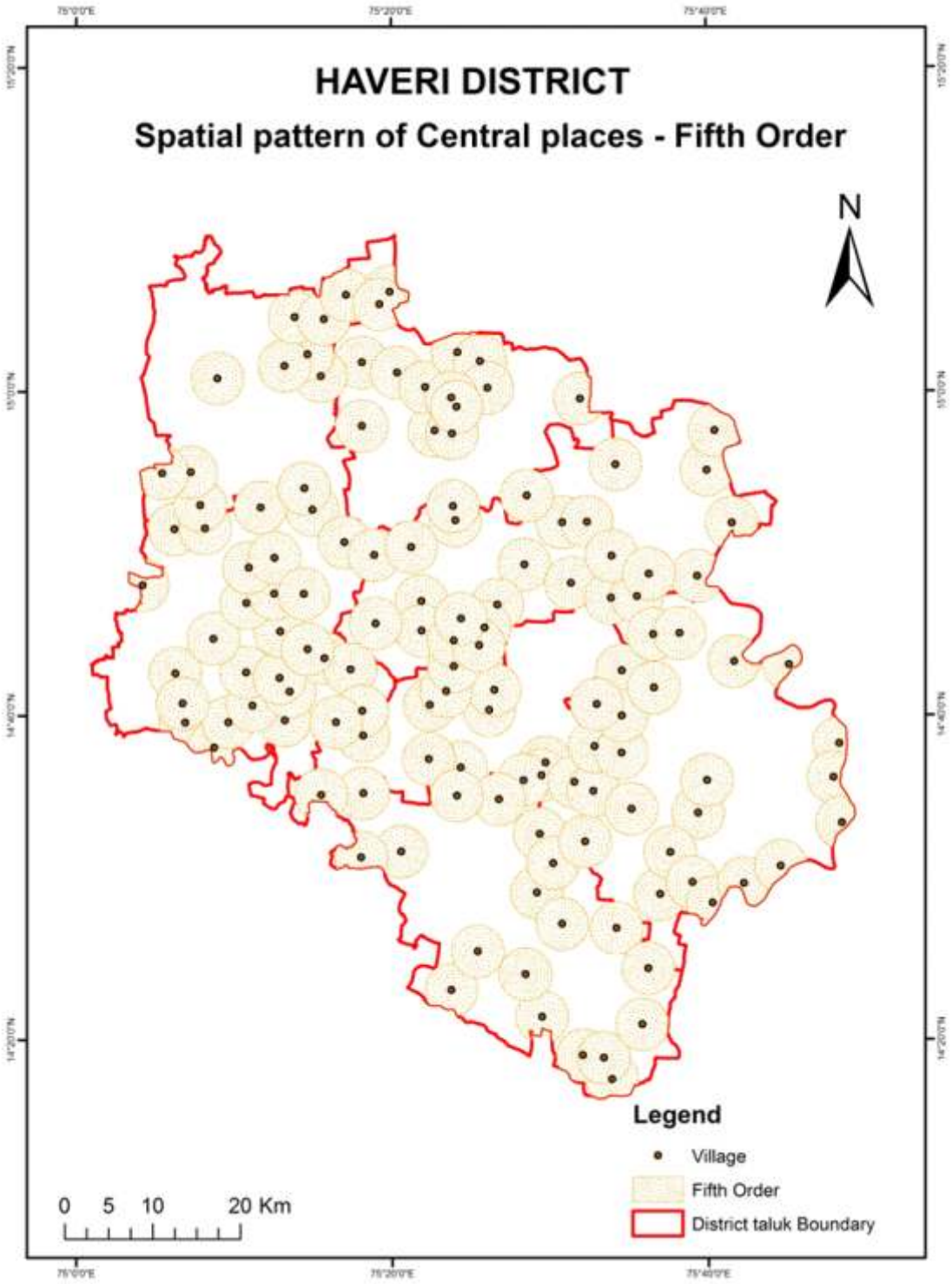
Average area , average size, average surplus population served by Centralplaces of different order

Hierarchy	No. of Centers	Average area covered	Average size of the Central place	Average Centrality Score value	Average surplus population served
1st Order	1	4823.00	106406	40968	146839.89
2nd Order	4	1205.75	36295.5	12254.25	43922.39
3rd Order	16	301.43	12407.94	1927.75	6909.55
4th Order	50	96.46	4206.82	343.14	1229.90
5th Order	137	35.20	3007.23	33.14	118.79




HAVERI DISTRICT
Spatial pattern of Central places - Third Order
N
Hulgur
Mantrodi
Shiggaon (TMC)
Ichlangi
Hattimattur
Bankapura (TMC)
Guttal
Hangal (TMC)
Akki Alur
Motebennur
Medleri
Haunsabhavi
Itagi
Hirekerur (TP)
Rattihalli
Masur
0 5 10 20 KM
Legend
Village name
Third Order
District taluk Boundary


HAVERI DISTRICT
Spatial pattern of Central places - Fourth Order
N
Tadas
Hirebendigeri
Kunnur
Dhundshi
Kabadur
Hesarur
Kadakola
Huralikuppi
Handiganur
Marol
Kundur
Hosaritti
Neglur
Bommenahalli
Masankatti
Karjagi
Maranabeed
Naregal
Wardi
Devihosur
Adur
Katenahalli
Kabbur
Kaginalli
Kadaramandalagi
Ghalapur
Hirehalli
Kerawadi
Shidenur
Aremallapur
Tilavalli
Sudambi
Tadas
Katenahalli
Kamadod
Karur
Sunakalbidari
Haligeri
Chikkerur
Kod
Billahalli
Shiragambi
Gundagatti
Kadur
Hosakatti
Hallur
Legend
Village name
Fourth Order
District taluk Boundary
0 5 10 20 KM


HAVERI DISTRICT
Spatial pattern of Central places - Fifth Order
N
Legend
Village
Fifth Order
District taluk Boundary
0 5 10 20 Km

HAVERY DISTRICT

Proposed settlements eligible to upgrade lower order to higher order – 2013

Sl/ No	No of Settlements eligible to upgrade 2nd order to 1st order				No of Settlements eligible to upgrade 3rd order to 2nd order				No of Settlements eligible to upgrade 4th order to 3rd order				No of Settlements eligible to upgrade 5th order to 4th order			
	Number of Settlements	Name	Total Population	Score Values	Number of Settlements	Name	Total Population	Score Values	Number of Settlements	Name	Total Population	Score Values	Number of Settlements	Name	Total Population	Score Values
1	1	Haveri (CMC)	67102	29353	5	Guttal	15094	3740	13	Kunnur	3245	950	14	Hombardi	2286	96
2						Shiggaon (TMC)	28207	2979		Bommanahalli	5116	911		Guddadamadapur	2023	95
3						Rattihalli	13674	2599		Tadas	8755	865		Yalagachi	4307	92
4						Akki Alur	12294	2164		Dhundshi	2444	810		Kalasur	2379	91
5						Ichangi	2464	2072		Karur	6328	773		Jallapur	2473	90
6										Devihosur	8315	648		Belagalapeth	4652	88
7										Shidenur	2977	583		Devagiri	8826	86
8										Maranabeed	3047	540		Hirebidari	4198	86
9										Kalledevar	3103	531		Kuppelur	4140	85
10										Hosaritti	6046	513		Attigeri	4793	81
11										Huralikuppi	5025	507		Kallihal	3301	73
12										Hesarur	3622	506		Madlur	2482	73
13										Billahalli	2295	505		Agadi	9610	70
14														Karadagi	5948	70

Proposed plan for Haveri District based on Population and Score Values

Based on population and score values of the Haveri District some of the villages are in the position of upgrading from Lower order central place to Higher order central place. This proposed plan will definitely reduce the spatial disparities and minimize the functional deficiencies .Then the district will be a model in the state.

Proposed plan from second order to First order: Based on population and score value Rannibennur ranks first in Central place. It should have all high level functions and services and should provide the facilities to whole part of the district. There are three taluks and one villages in the second order central place among these Haveri (TMC) shows more tendency of upgrading to first order. By this growth it will boostup all its neibouring villages to higher order and making the way for the advance development in the Haveri district.

Proposed plan from Third order to Second order: In the third order central place there are 16 villages among these there are 4 villages and one TMC shows tendency to upgrade to second order based on their score values. They are Guttal, Shiggoan (TMC),Rattihalli, Akki Allur, Ichangi . Guttal village is having more score value compared to Shiggoan (TMC).

Proposed plan from Fourth order to Third order: Among 50 villages in the fourth order 13 villages shows more tendency for upgrading to third order based on their score values.Kunnur village ranks the highest score values and the Billahalli village shows least score value.

Proposed plan from Fifth order to Fourth order: There are 137 villages in the fifth order central place, among these only 14 villlages shows the sign of upgrading to fourth order central place.Hombardi village shoots highest score value in fifth order whereas Karadagi village shows the least score value.

CONCLUSION:

The study is revels that, the first and second order service centers are performing better. But Third to fifth order service centers are not having sizable services compare to their population. Hence the study urges that, for removal of spatial gaps in the study areas it is essential to improve lower order centers in next planning processes.

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