

# **Urban Agglomeration: A Geographical Analysis of India**

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## **Abstract**

Urbanization refers to the population shift from rural to urban residency, the gradual increase in the proportion of people living in the urban areas and the way in which each society adapts to this changes. Urbanization is a process whereby population move from rural to urban area. Urbanization closely linked to modernization, industrialization and the sociological process of rationalization. It is modern phenomena rapid transformation of human social roots on a global scale. Rural culture is being rapidly replaced by urban center. People moving to improve opportunities for job, education, housing and transportation.

Urban agglomeration is the population contained within the contour of a contiguous territory inhabited at urban density levels without regard to administrative boundaries. During the time of political unrest to their village and migrate to urban area in search of shelter, food and employment. Large no of peoples are migrated. Better employment, job opportunities and education people are also migrated towards urban center. Opportunities of education at university level and technical colleges draw young people to the urban center. Increase population due to the medical care, immunization program better sanitation and wide spread education are the natural population increase causes. Young people are migrated such as life style changes, club since in large cities are social causes of urbanization. The main causes of urbanization in India are-expansion of government services, migration of the people , the industrialization and economic development etc.

**Key words:** Urbanization, Agglomeration-

## **Introduction:**

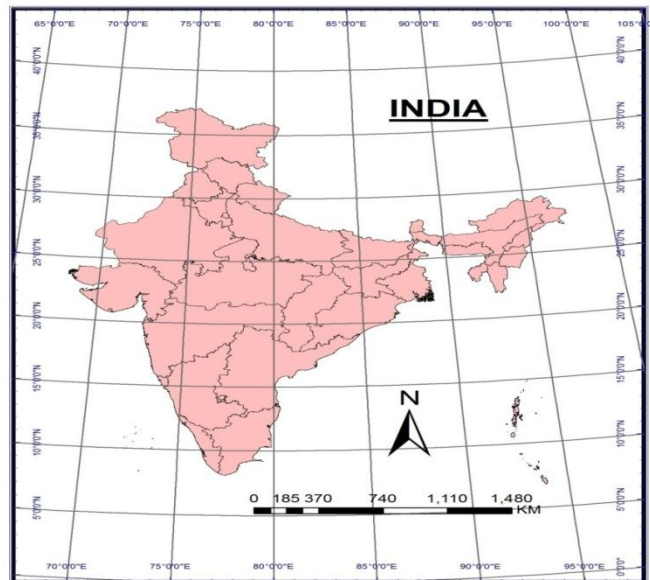
Urban areas have been recognized as, “engines of inclusive economic growth”. Of the 121 crore Indians 83.3 crore stay in urban areas, i.e. approx. 32% of the population. Statutory

town and census town are the two urban categories. Minimum 5000 population, 75% male main working population engaged in non-agriculture sector and density of population of at least 400 person per sq km. in 1687 first Munsipal corporation in India was setup in Madras. In 11<sup>th</sup> plan (2012) introduced some innovative changes through capacity building, increasing the efficiency and productivity of cities, dismantling the monopoly of public sector over urban infrastructure, using technology as a tool for rapid urbanization. Urbanization in India has shown significant inverse in the past two decades and there has been a considerable change in the people and way to look at social and global issues. (Mane, 2020)According to 2011 census there were 27 million plus cities in India with Mumbai, Delhi and Kolkata having population over 10 million. There are 53 urban agglomeration in India with the population of 1 million or more as of 2011.

### **The Study Area:**

The map 1.1 reveals the absolute location of India. India lies in Southern part of Asia. Absolute location of country is 8<sup>o</sup> 42' 08" to 37<sup>o</sup> 65' 03" North latitude and 68<sup>o</sup> 73' 33" to 97<sup>o</sup> 25' 47" East longitudes. The geographical area of the country is 3287540 square kilometer and population is 1189172906 as per census 2011. India is second largest nation in population and seventh largest in area. The country has Monsoonal type of climate, with an average annual rainfall 110cm. The average monthly minimum and maximum temperature is 14<sup>o</sup>c (January) and 35<sup>o</sup>c (June) respectively.

**Map No-1.1 Location of India**



Geographically, the high altitude and younger landscape of Himalaya lies in Northern part of Country, Which present snow-clad peaks, deep gorges, waterfall, along with dense forest

and mountainous soil. There are flattopped summits, residual ranges and broad valleys with regur soil on Deccan plateau. The plain region with alluvial soils lies in between Himalaya and Deccan plateau. It has 56.6 per cent of total workers engaged in agriculture and allied activity and 13.4 per cent in manufacturing.

### **Objectives:**

The main objective of this paper is

- 1) To study the urban accessibility in study region
- 2) To analyze the readies of urban influence in study region
- 3) To study urban agglomeration in study region

### **Data collection and Methodology:**

In order to meet these objectives the relevant information and data regarding urban population, urban area and number of urban centers in each state of India is collected from the Secondary Sources. Information and Data was collected from census of India 2011. Collected rough data are processed. To analyze urban agglomeration following formula can be used.

$$\text{Index of Accessibility} = \frac{\text{no of urban center in } j\text{th tahsil}}{\text{Area of the } j\text{th tahsil}} \times 100 \dots$$

The index of accessibility of the state may be determined after the calculation of the zone of Influence of the town which can be obtain by using the following formula given by V. L. S. Prakash Rao.

$$R = \frac{\sqrt{TP \times A}}{TUP}$$

R- The radius of urban influence

TP- Population of the town

A- Total area of the tehsil

TUP- Total urban Population of the district

After the calculation of statistical data the spatial distribution of urban agglomeration is calculated.

### **\*Spatial Distribution of Urban Centers in Study Region:**

Nation has a whole has 94.44 urban centers but the spatial distribution is varies from state to state. High number of urban center i.e. >190 is found in Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra and Uttar Pradesh. In Andhra Pradesh due to long costal region leads trade. Shrikakulam, Vishakhapatnam, Machalipatnm, Nellor these are the costal urban centers. Beside these Guntur, Vijaywada, Anandpur, Kaddappa, Tirupati, Chitur, Wellur these are located in southern part. Kazipeth, Verngal, Sikandrabad, Hyderabad as a capital city to expand surrounding area. Eastern part of Karnatka is plane region and western part is hilly region. Bither, Gulbarga, Vijapur, Dharwar, Raichur, Bellari, Karnul, Chitradurg, Maisur and Bengaluru is capital city which is located southern part of Karnatka. Due to high industrialization in Mumbai and suberb area, it self as a capital center , costal location leads trade, Pimprichinwad MIDC area in Pune leads urban agglomeration. In Uttar Pradesh due to plan region, river basin, both side of Ganga river historical urban centers are developed i.e. Varanashi, Kashi, Ilahabad, Kanpur, Lakhanaw as capital center. These are the places having high agriculture development leads agro based industries such as sugar factories.

Low urban centers i.e. <95 is found in Sikkim, Tripura, Meghalaya, Mizoram, Nagaland, Manipur, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Assam, Zarkhand, Manipur, Jharkhand. Due to mountain region, undulating surface, low transport and communication resulted low urban centers. Table 1 shows distribution of urban centers, urban population, and geographical area.etc.

**Table No-1- Distribution of Urban Agglomeration Aspects in Study Region-**

Sr. No	state name	No of Urban Centers	Population of the State	Urban Population of the state	Geographical Area of the state
1	Andhra Pradesh	242	847	283.53	162.97
2	Arunachal Pradesh	43	14	3.13	83.74
3	Assam	57	312	43.88	78.44
4	Bihar	115	144	117.29	94.16
5	Chandigarh	2	11	10.25	0.114
6	Chhhttisgarh	119	255	59.36	135.19
7	Goa	14	15	9.06	3.7
8	Gujrat	170	604	257.12	196.24
9	Hariyana	58	254	88.27	44.21
10	Himachal Pradesh	36	69	6.88	55.67
11	J&k	37	125	34.14	222.23
12	Jharkhand	77	330	79.29	79.71
13	Karnatka	191	611	235.78	191.79
14	Kerala	73	334	159.32	38.85
15	MP	252	726	200.59	308.25

16	Maharashtra	302	1124	508.27	307.71
17	Manipur	22	27	8.22	22.32
18	Meghalaya	18	30	5.95	22.42
19	Mizoram	9	11	5.61	21.08
20	Nagaland	10	20	5.73	16.58
21	Orissa	132	419	69.96	155.7
22	Punjab	59	277	103.87	50.36
23	Rajasthan	178	686	170.8	342.24
24	Sikkim	46	6	1.51	8.25
25	Tamil Nadu	140	721	340.49	130.06
26	Tripura	13	38	9.6	10.49
27	UP	211	998	444.7	240.93
28	Uttarakhand	34	101	30.91	53.48
29	W Bengal	79	913	291.34	88.75
india		2739	10022	3584.85	3165.634
	Mean				
	SD				

*Source-Census of India-2011*

### **Spatial Distribution of Urban Population in Study Region**

Nation has a whole as 142 lakh urban population but the spatial distribution is varies from state to state. Very high urban population i.e. > 366 lakh is found in Maharashtra and Uttar Pradesh. Due to high surface irrigation, plane surface leads high agriculture development which leads agro base industries in Uttar Pradesh. In Maharashtra it is very high due to Konken costal plan, trade, transport and communication due to Mumbai as capital and industrialization center. High urban population i.e. 244-366 lakh is recorded in Andhra Pradesh, Gujrat, Tamilnadu and West Bengal. Due to Godawari and Krushna basin region in eastern part of Andhra pradesh leads high urbanization. Mining in Nothern part of Telengana leads industrial development leads mining which leads industrial development. Eastern part of Gujarat is plan region due to Narmada and Tapti River resulted agriculture and industrial development. Gandhi nagar as capital center, Ahmadbad, Vadodara, Bhavnagar, Suratthese urban center are located in eastern plain region of Gujarat. But the western part Kaccha and Sourashtra region it is not sutiable for the concentration of population. West Bengal due to Ganga basin area and its delta region leads high plane surface which resulted agriculture development. Urban Population is low i.e. <122 lakh is recorded in Uttarkhand, Manipur, Mizoram, Nagaland, Sikkim, Tripura, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu Kashmir and Jharkahnd due to mountain region, steep slope, dense forest area low communication and transport leads low urban centers.

### **Spatial Distribution of Urban Agglomeration in Study Region**

By using the above formula calculate the index of accessibility the radius of urban influence. The following table shows the spatial distribution of urban agglomeration in study region.

**Table No-II-Spatial Distribution urban Accessibility and Area of Urban influence.**

Sr. No	state name	Index of Accessibility	THE RADIES OF URBAN INFLUENCE
1	Andhra Pradesh	148.49	7.38
2	Arunachal Pradesh	51.35	4.32
3	Assam	72.67	3.32
4	Bihar	122.13	8.75
5	Chandigarh	1754.39	0.33
6	Chhattisgarh	88.02	5.6
7	Goa	378.38	1.49
8	Gujrat	86.63	9.14
9	Hariyana	131.19	3.91
10	Himachal Pradesh	64.67	2.35
11	J&k	16.65	7.79
12	Jharkhand	96.60	4.37
13	Karnatka	99.59	8.6
14	Kerala	187.90	4.3
15	MP	81.75	9.22
16	Maharashtra	98.14	11.79
17	Manipur	98.57	2.6
18	Meghalaya	80.29	2.1
19	Mizoram	42.69	3.27
20	Nagaland	60.31	2.17
21	Orissa	84.78	5.09
22	Punjab	117.16	4.34
23	Rajastan	52.01	9.23
24	Sikkim	557.58	1.44
25	Tamil Nadu	107.64	7.83
26	Tripura	123.93	1.62
27	UP	87.58	10.36
28	Uttarakhand	63.58	4.04
29	W Bengal	89.01	5.32
india		86.52	

*Complied by researcher*

### **Distribution of Urban Accessibility in Study Region**

State has a whole as 86.52 sq km urban accessibility, but the spatial distribution is varies from state to state. Very high urban accessibility i.e.>240 km is found in Goa, Sikkim and Chandigarh. In Chandigarh low geographical area, Shiwalik hills are located eastern part of Chandigarh. Plane surface, high irrigated area leads to develop Amritsar, Ludhiana, Chandigarh as a capital city expanded in both side due to Amritsar as a religious center. Very high accessibility is also found in Goa-due to coastal region leads transport, development of tourism industry, Panaji as a capital city largely expanded. Whereas Sikkim-due to mountain region tourism leads expansion of Darjiling and Gangtok urban center. High urban accessibility i.e. 160-240 km in Kerala due to long coastal region, high plain region leads urban chain on coastal region. Kollam, Trishur, Kochi, Yernakulam, Kolem, Tiruванantpuram and Kanyakumari. There are opportunities to develop the cities towards eastward.

Moderate urban accessibility ranging from 80-160 km is found in Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, MP, Orissa, Punjab, Tamilnadu, Uttar Pradesh and West Bengal. Whereas low urban accessibility i.e. <80 km is recorded in Arunachal Pradesh, Assam, Himachal Pradesh, Jammu Kashmir, Nagaland, Uttarakhand and Rajasthan. Arunachal Pradesh, Himachal Pradesh, Jammu Kashmir, Uttarakhand Mizoram. These states come under Himalaya mountain region. High altitude, steep slope, dense forest, Heavy rainfall, absence of plane region leads low transport and communication facilities, adversely effect on urban accessibility like Kargil, Leh, Shrinagar in Jammu Kashmir, Yemunotri, Gangotri, Badrinath, Deharadun, Nainital urban center are located. In eastern Himalaya due to mountain region adversely effect on urban accessibility. Where as in Rajasthan western part is desert. High temperature, low rain, low irrigation leads desert.

### **Spatial Distribution of Urban Area of Influence in Study Region**

Nation as a whole has average 5.24 km area of influence. But it is varies from state to state. But it is varies from state to state. Very high i.e. >8.5 Km. is recorded in Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra and Uttar Pradesh. Plane surface, fertile soil, irrigation leads high number of population concentration. Both side of Ganga river industrial and religious centers are developed i.e. Varanashi, Kashi, Kanpur, Lakhnow and Agra in Uttar Pradesh and Bihar Motihari, Patna as a capital city, Gaya all these cities locate in plane region which leads

high urban area, cities area of influence is very high in Bihar and Uttar Pradesh. While it is very high in Gujrat due to eastern part of Gujarat plane region. Due to Narmada dam lead high agriculture and Industrial development. Gandhi Nagar, Ahmadbad, Vadodara, Bhavnagar and Surat these urban places are lacated in eastern part of Gujarat plane region. Palne region lead chances to expand the subarb region.

High urban area of influence i.e. 6.5 - 8.5 km is found in Andhara Pradesh and Tamil Nadu state. It is high in Andhra Pradesh due to eastern part of AP is costal region leads chance to develop the urban center towards west. Shrikakulam, Vishakhapatnm, Vijaywada, Machalipatnm are located eastern coast. Costal location of Tamilnade leads to develop transport and connunication facilities, plane region in eastern part due to Kaweririver. The area of influence is moderate ranging from 4.5 to 6.5 km is recorded in Chattisgarh, Orissa and West Bengal. While it is low i.e. < 4.5 km. In these state the town area are not develop. Sill these urban centers are small in size. Low geographical area, hilly region, low population, low accessibility and communication, undulating surface, adversely effect on the expunctions of town therefore these urban centers are small in size. In this region cities are not big they are small in size due to Himalaya Mountain, treble population and low communication leads small cities.

## **Conclusion**

1.High number of urban center is found in Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra and Uttar Pradesh. While Low urban centers is found in Sikkim, Tripura, Meghalaya, Mizoram, Nagaland, Manipur, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Assam, Zarkhand, Manipur, Jharkhand.

2.Very high urban population found in Maharashtra and Uttar Pradesh and High urban population is recorded in Andhra Pradesh, Gujrat, Tamilnadu and West Bengol. Urban Population is low is recorded in Uttarkhand, Manipur, Mizoram, Nagaland, Sikkim, Tripura, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu Kashmir and Jharkahnd due to mountain region, steep slope, dense forest area low communication and transport leads low urban centers.

3. Very high urban accessibility is found in Goa, Sikkim and Chandigarh. High urban accessibility in Kerala due to long costal region, high plain region leads urban chain on coastal region. Kolikod, Trishur, Kochi, Yernakulum, Kolem, Tiruanantpuram and Kanyakumari. There are opportunities to develop the cities towards eastward.



4. Whereas low urban accessibility is recorded in Arunachal Pradesh, Assam, Himachal Pradesh, Jammu Kashir, Nagaland, Uttarakhand and Rajasthan. Aruchanal Pradesh, Himachal Pradesh, Jammu Kashmir, Uttarakhand Mizoram. Kashmir, Yemunotri, Gangotri, Badrinath, Deharadun, Nainital urban center are located. In eastern Himalaya due to mountain region adversely effect on urban accessibility. Where as in Rajasthan western part is desert. High temperature, low rain, low irrigation leads desert.

5. .Nation as a whole has average 5.24 km area of influence. Very high is recorded in Bihar, Gujarat, Karnatka, Madhya Pradesh, Maharashtra and Uttar Pradesh. High urban area of influence is found in Andhara Pradesh and Tamil Nadu state. Low geographical area, hilly region, low population, low accessibility and communication, undulating surface, adversely effect on the expunctions of town therefore these urban centers are small in size. In this region cities are not big they are small in size due to Himalaya Mountain, treble population and low communication leads small cities.

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