

**STATISTICAL TREND AND SPATIAL PATTERNS OF URBANIZATION IN NEPAL**

**Basanta Dhakal**

Associate Professor

Tribhuvan University, Nepal Commerce Campus, Kathmandu, Nepal

**ABSTRACT**

*Urbanization is going to be a significant in the years to come in Nepal. The rapid increase in number of economically active population in the rural area, their improved literacy status and aspiration for employment in the non-agricultural sector will induce urbanization. The main aim of this paper is to study the urbanization trend in Nepal and to find out the current status of urban population on the basis of development and ecological region. It is found that 54% of total urban people reside in hilly region and 50.24% of them in central development region and the urban population is increased by 7, 10,300 per census year. This study expects that the findings of this paper may facilitate planners and decision makers for formulating policy regarding economic, social and political decision.*

**Keywords:** *Population Density, Post Hoc Analysis, Statistical Trend.*

**Introduction**

Urbanization is the process by which large numbers of people become permanently concentrated in relatively small areas for searching opportunities and facilities. It began during the industrial revolution (1760-1840) when workers moved towards manufacturing hubs in cities to obtain jobs in factories as agricultural jobs became less common. The rural to urban migration also means people moving from rural to urban areas. In this process, the number of people living in cities increase compared with the number of people living in rural areas. Natural increase of urbanization can occur if the natural population growth in the cities is higher than in the rural

areas. This scenario, however, rarely occurs. A country is considered to be urbanized when over 50 percent of its population lives in the urban areas.

An Urban area is spatial concentration of people who are in non-agricultural activities. The essential characteristic is that urban means non-agricultural. Urban can also be defined as a fairly complex concept. Criteria used to define to urban can include population size, space, density, and economic organization. Usually, urban is simply defined by some base line- size, like 20,000 people; facilities of communication, transport, health, playground etc. Anyway, this definition varies between regions and cities. The term ‘urban’ relates to towns and cities, while urbanization refers to the process of becoming urban. In general usage, the term urbanization refers to the relative concentration of a territory’s population in town and cities. It is expressed as the proportion of population living within designated urban areas of a specified territory.

Urbanization, however, is not a recent phenomenon. It dates to long time back in the past- ‘Kautilya Arthashastra’ , a fourth century BC document etc are full of dos and don’ts about the cities. The more striking is the suggestion to create a new satellite city once the population of the mother city exceeds around 10,000. Much of our current city problems have surfaced because of the disregard shown to this age old principle. We entertain massive influx pouring into the cities, and the problems arise after the infrastructure cannot cater to the rise in population (Pokharel, 2013).

There is no universal agreement on definition of urban place. Despite various cut-off points, there is a general practice that statements of 20,000 or more people are usually considered as urban places. It is a function of (i) population size,(ii) space (land area),(iii) ratio of population to space, and economic and social organization (Subedi,2010:12). The analysis of urbanization and urban growth in Nepal is confounded by definitional inconsistencies both over the time and space. Nepal’s level of urbanization is low and the country falls among one of the least urbanized countries of the world. In Nepal, usually, the population censuses report population living in designated urban area as urban population and those living in rural area as rural population.

The latest legal instruments i.e. Local Self-Governance Act 1999 and Municipality Act 1992, categorized the urban area on the basis of geographical structure, population size, annual revenue and level of infrastructure facilities. According to it, more than 300,000 population and NRs 400 million annual revenue must be necessary for metropolitan city; more than 100,000 population and NRs 100 million annual revenue must be necessary for sub-metropolitan city and more than 10 thousand population and NRs 500,000 annual revenue must be necessary for municipality in the mountainous and hilly regions, but it must be more than 20 thousand and NRs 5 million annual revenue for terai region. The requirements for hill and mountain are lower than that of terai. On the basis of Local Self- Governance Act 1999, there is 1 metropolitan city-Kathmandu; sub-metropolitan cities- Lalitpur, Biratnagar, Birgunj and Pokhara ; and others 53 municipalities are distributed in different parts of the country. People move to the cities for better facilities but overpopulated urban settlements have created their own problems.

Most of the people have been residing in rural areas of Nepal, but its history of urbanization is too long. The urbanization process of Nepal started before the unification of Nepal, especially in the Kathmandu valley. At that time, Kathmandu Valley became a transit point of Indo-china trade. In the decade of 1960s, India expanded the transport facilities inside the country near the border area of Nepal; it affected the settlements of Nepalese villages like Biratnagar, Birgunj, Nepalgunj, Mahendranagar etc. Nowadays, these places are main city centers of Nepal. After the completion of East-West Highway, people were migrated from hill regions to road-side areas of country which played the effective role in the development process of urbanization of Nepal; it affected the Nepalese villages like Itahari, Hetauda, Bharatpur, Butwal etc. Similarly the Maoist Insurgency and Madesh Movement also affected the process of urbanization. Due to these facts, the elites moved nearby cities and head quarters leading to the urbanization process to some extent.

In this respect, it needs to study the present urbanization trend of Nepal, which may help to planners for making policies regarding economic, social and political decision. In this context, this paper attempts to investigate the urbanization trend of Nepal on the basis of development zone and ecological belt. It also tries to analyze the current scenario of Nepalese urbanization.

### **Materials and Methods**

All analysis and discussion have been based on published sources of secondary data such as National Population and Housing Census 2011, Population Census 2001, Population Monograph 1995 & 2003, Statistical Pocket Book 2002, Nepal in Figure 2012, National Demographic Health Survey 2011, and Preliminary Results of National Population Census 2011. Urban population is the main variable of this study. Some descriptive Statistics such as mean, standard deviation, coefficient of variation, percentage, bar diagram and pie diagram are used to analyze trend and pattern of urbanization of Nepal. The inferential statistics like One Way Analysis of Variance and Post Hoc Analysis are used to test whether the mean urban population differs among the five development regions or three ecological belts. Trend analysis by least square method is used to analyze the trend of urban population and centers.

### **Results and Discussions**

Nepal government started to take statistics of urban population from the census year 1952/54 and defined the urban area where as more than 5000 population are residing and the facilities like transport, road, communication, school, college, factory, market, court, administrative office etc provided to the people. The following table shows the urban population, percentage change of urban population and number of urban areas from census year 1952/54 to 2011.

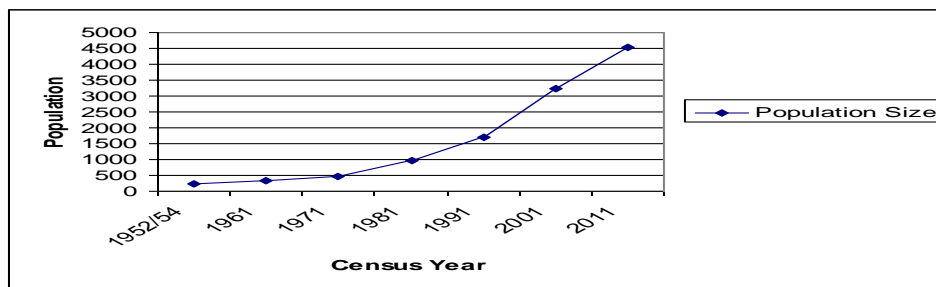
Table 1: Urban Population in Nepal

Census Year	Number of urban center	Urban population (000)	Percentage change	Share of urban population (%)
1952/54	10	238,275	-	2.9
1961	16	336,222	42.5	3.6
1971	16	461,938	37.4	4.0
1981	23	956,721	107.1	6.4
1991	33	1,695,719	77.2	9.2
2001	58	3,227,879	90.4	13.9
2011	58	4,523,820	40.18	17

Source: CBS (1995), CBS (2001), CBS (2003), CBS (2011).

Table 1 shows that the pattern of growth of urban places along with population since 1952/54 population census. Number of urban places has increased from 10 in 1952/54 to 58 in 2011. Increase in urban population between censuses has been different over the years. Increase was the highest (107%) during the period of 1971 and 1981, which decreased 77% during the period 1981 to 1991. In other words, tempo of urbanization slowed down during the period between 1981 and 1991 but this tempo again rose to 90 % during the period 1991 to 2001. The total population living in ten urban areas was only 238,275 by then which means only 2.9 percent population in the country were in urban areas. By 2011, the proportion living in designated urban areas reached 17 percent. Between 1952/54 and 2011, the urban population size has increased by 19.17 times where in terms of urban population as percent of total population increased by nearly sixth fold. Similarly, the total population size of urban population has reached 4.5 million. The trend line equation is  $Y_c = 1634.014 + 710.3X$ , which the line of best fit of the data for urban population. So the urban population is increased by 710.3(000) per census year. The line of best fit for trend of urban center is  $Y_c = 30.57 + 8.75X$ , so that the urban center is increased within the limit of 8 to 9 during a census year.

Figure 1: Trend of Urban Population



The trend of urban population has taken high tempo from the census 1971. In 1980, Nepal government divided whole Nepal into 5 development administrative regions like eastern, central, western, mid-western and far-western regions. The following table shows the trend of urban population on the basis of development region from the census 1981 to 2011.

Table 2: Urban Population by Development Region (%)

Census Year	Eastern	Central	Western	Mid-western	Far-western
1981	6.3	9.6	3.6	3.5	3.4

1991	7.8	14.9	5.6	4.1	7.1
2001	11.7	20.4	11.4	7.7	11.2
2011	14.3	23.5	15.5	9.0	13.0
Mean	10.03	17.10	9.03	6.08	8.68
S.D.	3.65	6.14	5.44	2.70	4.30
C.V.(%)	36.4	35.90	60.28	44.45	49.57

Source: CBS (2003), CBS (2011).

Table 2 shows that central development region has the highest population growth in comparison to that of other regions. Similarly it has greater consistency of growth of urban population while western development region has greater variability of it, which demonstrates the regional inequality of growth of urban centers in Nepal. There is enough evidence to infer that means of urban population differ among the five development regions (One way ANOVA,  $p$ -value (0.043)  $< \alpha$  (0.05), thus rejecting  $H_0$ ). Post Hoc analysis clearly shows that there is significant difference of average value of population between central development region and mid-western development region ( $p=0.041$ ).

Figure 2: Urban Population by Development Region

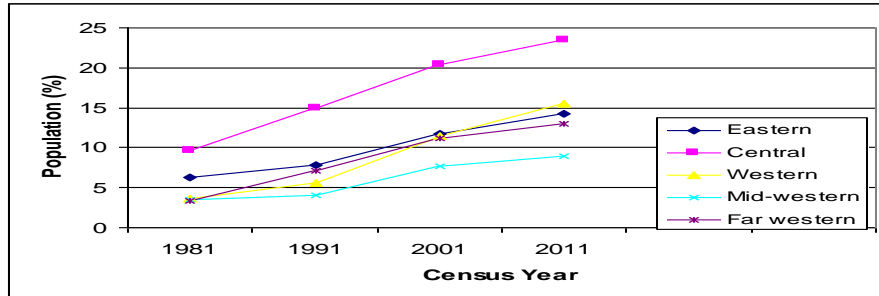


Figure 2 shows that the increasing trend of urban population is the highest in central development region and lowest in mid-western region.

Ecologically, Nepal is divided into three regions, running east to west. They are the Mountain, the Hill and the Terai. The following table shows the trend of urban population on the basis of ecological belts from the census 1981 to 2011.

Table 3: Urban population by Ecological Region (%)

Census Year	Mountain	Hill	Terai
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1981	-	6.9	7.0
1991	-	10.3	9.6
2001	2.6	16.7	13.1
2011	2.8	21.7	15.0
Mean	2.7	13.9	11.75
S.D.	0.14	6.60	3.57
C.V.	5.19	47.48	30.38

Source: CBS (2003), CBS (2011).

Table 3 shows that hilly region has the highest population growth in comparison to other regions. Similarly, it has greater variability of growth of urban population while mountain region has lower variability of it. There is enough evidence to infer that means of urban population differ among the three ecological regions (One way ANOVA, p-value (0.007) <  $\alpha_{(0.05)}$ , thus rejecting  $H_0$ ). Post Hoc analysis clearly shows that there is significant difference of average population in mountain and hilly region (p=0.009) and between mountain and terai region (p=0.036).

Figure 3: Urban Population by Geographical Region (%)

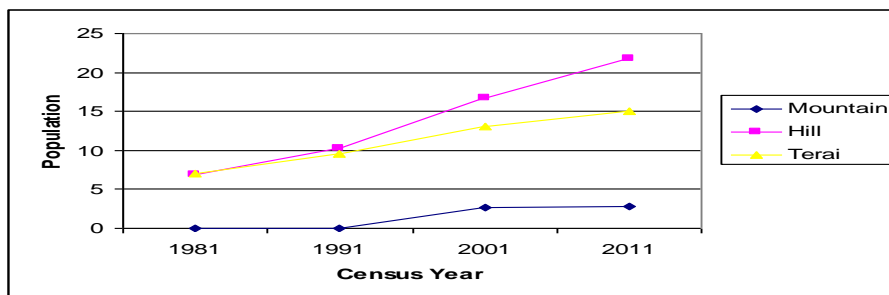


Figure 3 shows that the increasing trend of urban population is the highest in hilly region and the lowest in mountain region.

### Current Scenario

There are 14 (24.14%) urban centers in eastern development region, 20 (34.48%) in central region, 12(20.69%) in western region and 6 (10.34 %) in each mid-western and far western region. The following table shows the current population, area and population density of urban centers on the basis of development region.

Table 4: Current Urban Population by Development Zone

Development	Urban population	Area of Urban center	Population
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Region	Number	Percent	Square km	Percent	density per sq.km
Eastern	829,807	18.34	905	27.63	917
Central	2,272,826	50.24	810	24.73	2,807
Western	764,841	16.90	575	17.55	1,330
Mid western	322,474	7.13	376	11.47	857
Far western	333,872	7.38	610	18.62	547
Nepal	4,523,820	100	3,276	100	1,381

Source: Statistical Bulletin 2011/12, Vol.105, No.1

Table 4 shows that 50.24 % of total urban people live in central region; similarly the figures followed as 18.34% in eastern region, 16.90 % in western region, 7.13 % in mid-western region and 7.38 % in far western region. The area of urban center of eastern, central, western, mid-western and far- western are 27.63%, 24.73%, 17.55 %, 11.47 % and 18.62 % respectively of the total urban area of Nepal. The population density of eastern, central, western, mid-western and far-western are 917/ sq.km, 2807/ sq.km, 1330/ sq.km, 857/ sq. km, 547/ sq.km respectively. The area of urban center is the maximum in eastern development region and least in mid-western region but population density is the maximum in central region and least in far-western region. The population density of central region and western development region is greater than the eastern region.

Figure 4: Current Urban Population by Development Zone

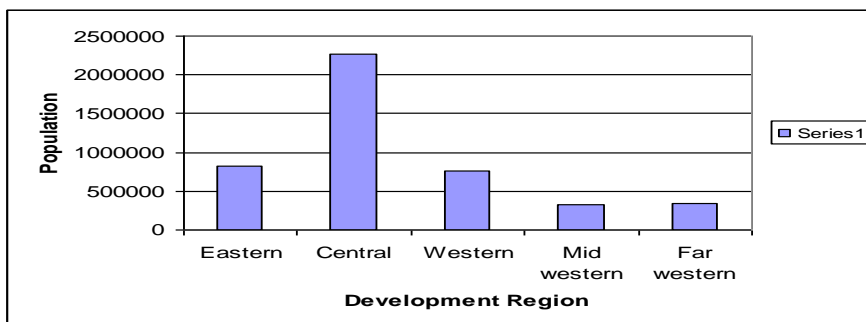


Figure 4 shows that amongst the five development regions, the maximum urban people reside in central development region and minimum urban people reside in mid-western development region.



There are 3 (5.17 %) urban centers in mountain, 23 (39.66 %) in hills, 25 (43.10 %) in terai and 7 (12.07 %) in inner terai. The following table gives the current population, area and population density of urban centers on the basis of ecological belt.

Table 5: Current Urban Population by Ecological Belt

Ecological Belt	Urban population		Area of urban center		Population density per sq.km
	Number	Percent	Square km	percent	
Mountain	49,995	1.10	156	4.76	320
Hill	2,468,110	54.56	1,598	48.78	1,544
Terai	2,005,715	44.34	1,522	46.46	1,318
Total	4,523,820	100	3,276	100	1,381

Source: Statistical Bulletin 2011/12, Vol.105, No.1

Table 5 shows that 54.56 % of urban people reside in hilly region; it is followed by 1.10% in mountain region and 44.34 % in terai region. The area of urban center of mountain, hill and terai are 4.76%, 48.78% and 46.46% respectively of total urban area of Nepal. The population density of mountain, hill and terai are 320/sq.km, 1544/sq.km and 1318/sq.km respectively. It indicates that mountain region is still too far from the urban facilities in comparison to hill and terai.

Figure 5: Current Urban Population in Ecological Belt

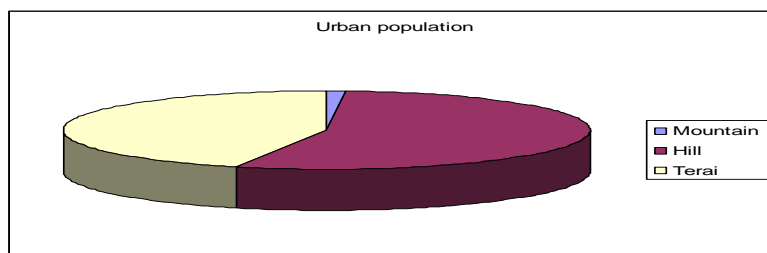


Figure 5 shows that amongst the three ecological regions, the maximum urban people reside in hilly region and minimum urban people reside in mountain region. The top ten populated urban centers of Nepal are Kathamandu, Pokhara, Lalitpur, Biratnagar, Bharatpur, Birgunj, Butwal, Dharan, Bhimdutta and Dhangadhi respectively in descending order. According to National Population and Housing Census 2011, there are 4 urban centers which have less than 20 thousand populations, the population of 28 urban centers lies between 20 to 50 thousand,

population of 16 urban centers lies 50 to 100 thousand and 10 urban centers having more than 100 thousand populations. Mean urban population is 75,161, median urban population is 42,826 and modal urban population is 28,422. It indicates that the population of maximum urban centers is less than the average population of urban center. Coefficient of variation (172.04%) signifies the maximum variability of urban population within the 58 urban centers.

There is 1 metropolitan city, 4 sub-metropolitan city 53 municipalities in Nepal. The following table shows the name of urban centers according to ecological and development region.

Table 6: Name of Urban Centers on the basis of Ecological and Development Region

Development Region	Ecological Belt				Total
	Mountain	Hill	Inner Terai	Terai	
Eastern	khandabari	Ilam, Dhankuta	Triyuga	Mechinagar, Bhadrapur, Damak, Dharan, Ithari, Inruwa, Biratnagar(SMC), Lahan, Rajbiraj, Siraha	14
Central	Bhimeshwor	Kathmandu(MC), Lalitpur(SMC), Thimi, Bhaktapur, Banepa, Dhulikhel, Panuti, Kiitipur, Bidur	Bharatpur, Ratnanagar Kamalamai Hetauda	Janakpur, Jaleshwar, Malangwa, Gaur, Birgunj(SMC.) Kalaiya	20
Western	Gorkha	Pokhara(SMC), Byas, Lekhnath, Tansen, Putalibajar, Walling, Baglung	-	Butwal, Sidharthanagar, Kapilbastu, Ramgram	12
Mid-western	-	Birendranagar, Narayan	Ghorahi, Tulsipur	Nepalgunj, Gulariya	6
Far-western	-	Dipayal, Amargadhi, Dasharathachand	-	Dhangadhi, Tikapur, Bhimdatta	6
Total	3	23	7	25	58

Source: NPHC 2011, Vol.02.

There are three municipalities in three districts like: Jhapa (Mechinagar, Bhadrapur & Damak);Sunsary (Dharan, Itahari & Inruwa) and Kavre (Banepa , Dhulikhel & Panauti). Similarly there are 2 municipalities in the 9 districts like: Siraha (Lahan & Siraha),Kathmandu (Kritipur & Ktm.M.C.), Bhaktapur (Thimi & Bhaktapur), Chitwan (Bharatpur & Ratnanagar),Syangja( Putalibajar & Waling),Kaski ( Lekhnath, Pokhara S.M.C), Rupandehi (Butwal & Siddharthanagar), Dang (Tulsipur & Ghorahi) and Kailali (Dhangadhi and Tikapur) . There are 31 districts which have one municipality like Ilam (Ilam Municipality), Morang (Biratnagar S.M.C.), Dhankuta (Dhankuta Municipality), Sankhuwasawa (Khandbari), Udayapur (Triyuga), Saptari (Rajbiraj), Dhanusa (Janakpur), Mahottari (Jaleswor), Sarlahi (Malangwa), Sindhuli (Kamalamai), Dolakha (Bhimeshwor), Lalitpur (Lalitpur S.M.C.), Nuwakot (Bidur), Makwanpur (Hetauda), Rautahat (Gaur), Bara (Kalaiya), Parsa (Birgunj S.M.C.), Gorkha (Gorkha Municipality), Tanahu (Byas), Baglung (Baglung Municipality), Palpa (Tansen), Nawalparasi (Ramgram), Kapilvastu (Kapilvastu Municipality), Banke (Nepalgunj), Bardiya (Gularia),Surkhet (Birendranagar), Dailekh (Narayan), Doti (Dipayal), Kanchanpur (Bhimdatta), Dadeldhura (Amargadhi), Baitadi (Dasharathchanda). Among 75 districts of the country, only 43 districts have designated urban areas i.e. there are still 32 districts which are far from the urban facilities. Although Nepal government has given the clear-cut definition of urban center, it has not implemented in the real ground because some urban places like Bharatpur, Butwal, Dharan, Bhimdutta etc have sufficient criteria for sub-metropolitan city but they are still conducting under the criteria of municipality.

### **Conclusion**

Amongst the five development regions, the central development region has the largest share of urban population as well as largest number of urban places. Among ecological regions, the hill and terai are the most urbanized regions while the mountain region is the least urbanized. The south-bound and Kathmandu valley centered urbanization demonstrates the regional inequality in distribution and growth of urban centers. Similarly, significant proportions of its population are living in the urban area of Morang, Sunsari, Kathmandu, Lalitpur, Bhaktapur, Parsa, Kaski, Chitwan, Rupandehi, Kailali and Kanchanpur. Urbanization is not a problem itself; it is the strong index of human development process. Nevertheless, unmanageable and uncontrolled

urbanization definitely creates the problem on regional imbalance of population, regional harmony and peoples' dissatisfaction. Nepal requires strong policies for addressing the rising problems of urbanization. The new policies should be executed to stop the increasing migration of rural people to the urban areas like youth from village to the district headquarters, and district headquarters to the capital city, which is creating pressure in the cities, towns and capital. The high consumption habit of the urban residents needs more resources, which ultimately degrade environment. So, Nepal government needs to bring suitable solution to control negative impact of urbanization for sustainable development of the nation.

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