

The Pattern of Population Density in Dhaka Megacity

Quor Aisha Begum*

Abstract : Bangladesh is a developing country with a very high population density. The country has 160 million population with a small area of only 147, 570 km². Currently, the population density is around 1200 persons per km² which is 50 times higher than the global average density of population. The density in urban areas, particularly within Dhaka Megacity (DMC) remains very high. The average density within the 1500 km² DMC region was over 10,000 persons per km². in 2011 Census. However, within the urban built up area the density mostly varied from 20,000 to 75,000 persons per km². In some parts of the city, mostly at the older part, the density was found as high as over 200,000 inhabitants per km². and in slum areas of the city it was well over 200,000 people per km². This study mainly deals with the population density of Dhaka Megacity (DMC).

Introduction

Dhaka Megacity is the capital of Bangladesh and located in the center of the country. It is the number one hub of administration, commerce, education, industry, employment, culture, etc. of the country. Given these agglomerations DMC becomes the country's most highly populated urban region. Dhaka is a vital town because of its sprawling nature and vastness. As this city is connected with all the districts in a well manner, people from all over the country can migrate here. Given this situation. Every year more than 5 *laks* people come to Dhaka as migrants. Population growth in Dhaka City during the period 2001 to 2011 was 3.96% per year. During this period natural increase i.e. natural growth rate was 1.47% and migration rate was (3.96%–1.47%) 2.49% per year. So the majority of the people live in this capital city are migrants coming from the vast rural areas.

Aims and Objectives of the Study

The specific objectives of this study are-

- To analyze the spatial population density of Dhaka Megacity from 2001-2011 census periods;
- To recommend relevant policies that may be implemented so that the migration of people towards Dhaka can be reduced based on the analysis and results of this study.

*Quor Aisha Begum, Professor, Dept. of Geography and Environment, Eden Mohila College, Dhaka

Data Sources

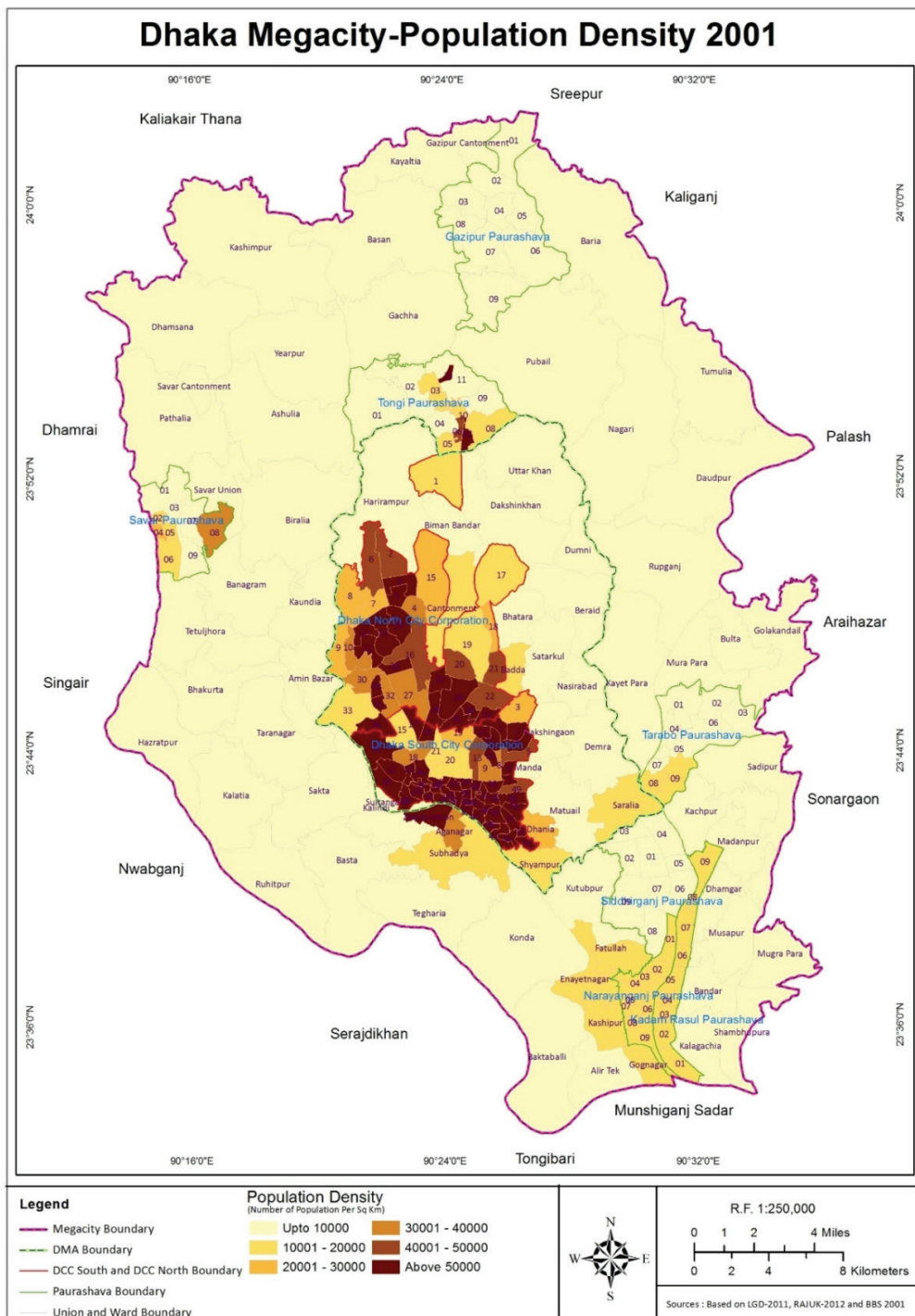
The study is mainly based on secondary data collected by Bangladesh Bureau of Statistics during census survey. In this research 2001 and 2011 census data (ward, union, *thana* and *paurashava* basis) were compiled, processed and then analyzed using standard statistical techniques and GIS software. The base shape files for GIS data entry are collected from CUS (Centre for Urban Studies, Dhaka) and RAJUK (Rajdhani Unnayan Kartripakkha).

Population Density of Dhaka Megacity

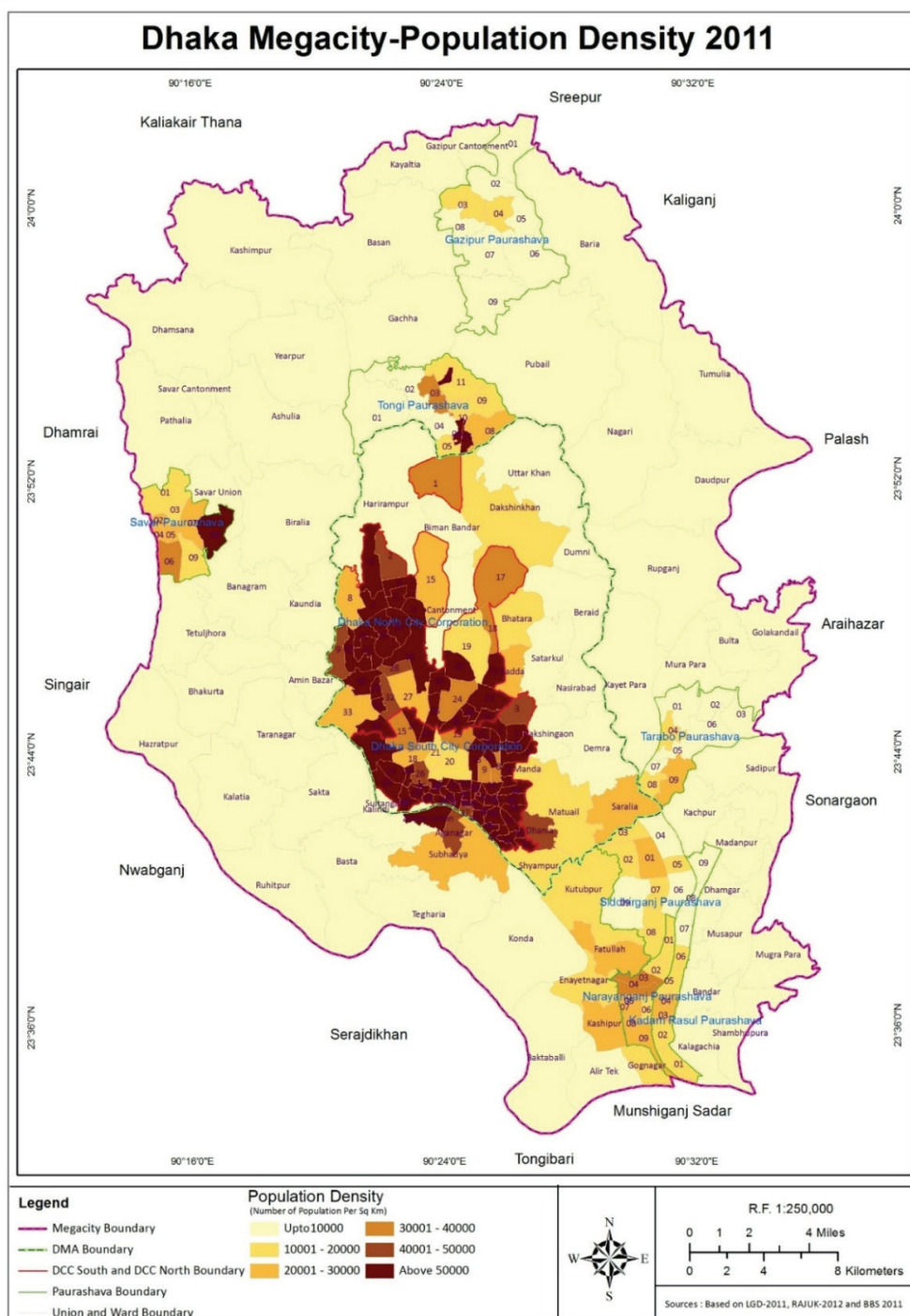
As stated earlier that within DMC, there are two administrations- urban consisting *thanas* and wards and rural consisting *upazilas* and unions. The density of population within Dhaka Megacity varies greatly from the core of the city to its periphery. Using shed method Maps 1 and 2 clearly displayed these more closely. Areas under urban administration (i.e. ward, *Paurashava*, City Corporation etc.) exhibited a high density as compared with rural administrative areas like unions which mostly located at the peripheries of the main/core urban areas (Maps 1 and 2). Besides urban and rural administration, the reasons for differential density between urban and rural regions of the megacity can also be explained by physiographic conditions of the respective areas as well as economic and socio-cultural background of the regions.

A close look into the Map 1 and Table 1 shows that 16 wards out of 160 exhibited a super high density (more than 100,000 person's km²). Almost all of these wards (15 out of 16) are located within the DSCC (Dhaka South City Corporation) and only remaining one ward (ward 12 see Map 1) is located at Tongi *Paurashava* in DNCC (Dhaka North City Corporation). Among these 16 wards, ward no 12 of Tongi *Paurashava* recorded the highest density (4.6 *lakhs* people km²) in 2001 Census (Table 2). The reason behind this hyper density in this small ward (ward 12) is the extremely high concentration of slums and low class residence areas along with very high concentration of industrial laborers who usually work nearby the Tongi industrial zone.

In 2011 Census the density of inhabitants within the DMC region increased further and the patterns of population concentration remains almost the same as stated in 2001 Census. However, in 2011 Census there were 17 wards mostly within DSCC are termed as super high density (Map 2). Ward no 12 of Tongi *Paurashava* again ranked the highest density which exceeded over 5 *lakhs* persons km² (Table 2). Low density areas within DMC are mostly seen in fringe areas. In 2001, 96 ward/union had density less than 10000; in 2011, this number reduced to 80 (Maps 1, 2, Fig 1). Lowest density is observed in the Biman Bandar *thana* in both the decades (Table 3). In this *thana* residential area is scarce; density is very low because of custom house, *godown* and empty space etc.



Map 1: Population Density of Dhaka Megacity in 2001



Map 2: Population Density of Dhaka Megacity in 2011

Table 1: Population Density of Dhaka Megacity by Ward and Union in 2001 and 2011

Density Classes	2001		2011	
	Number of Ward	Number of Union	Number of Ward	Number of Union
Up to 10000	34	62	24	56
10000-20000	34	9	26	8
20000-30000	8	1	18	5
30000-40000	9	1	12	
40000-50000	10		7	2
Above 50000	63	1	73	1
Total ward/union	158	74	160	72

It has been observed that in most cases, high density areas were located within urban wards and rural unions were found to have lesser density of people in both censuses (Table 1). Over the period of time, the density of population in wards/unions of DMC has been increasing and this has been clearly demonstrated in Table 1, Fig 1 and 2. In these illustrations the patterns of density variations between two censuses i.e. 2001 Census and 2011 Census are closely examined with a view to finding out the spatial or zonal patterns of population concentration over the DMC area. It is also observed that most of the super high densely inhabited wards/unions are located within DSCC and DNCC (Map 1 and 2).

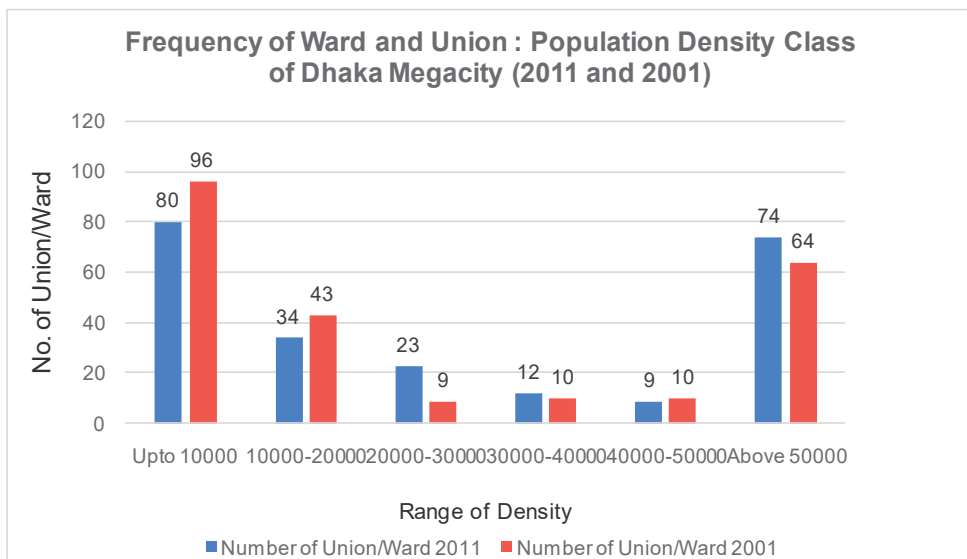


Figure 1: Population Density by Ward and Union of DMC in 2001 and 2011

Table 2: Top five Ward or Union having High Population Density in DMC, 2001 and 2011

Thana Name	Ward/ Union as 2011	Rank 2011	Density 2011	Thana Name	Ward/ Union as 2001	Density 2001	Rank 2001
Tongi	Tongi Psa-Ward 12	1	588580	Tongi	Tongi Psa-Ward 12	460189	1
Bangshal	DSCC-33	2	210610	Kotwali (Dhaka)	DSCC-36	204679	2
Kotwali/ Bangshal	DSCC-35	3	200529	Kotwali/ Bangshal	DSCC-35	203293	3
Kotwali (Dhaka)	DSCC-36	4	187136	Bangshal	DSCC-33	200126	4
Kotwali/ Bangshal	DSCC-32	5	164305	Kotwali/ Bangshal	DSCC-32	177195	5

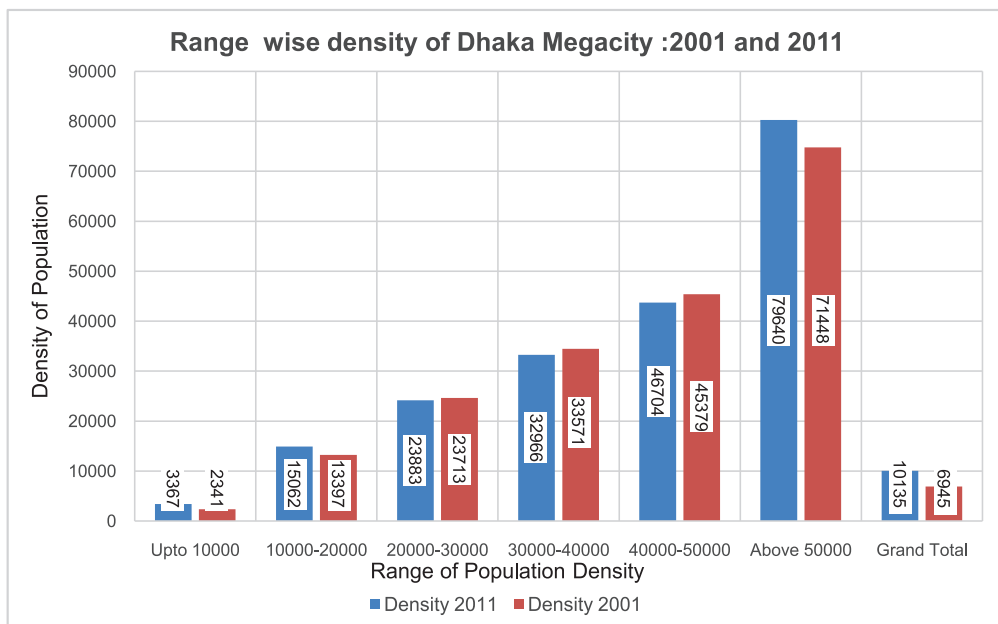
Table 3: Bottom five Ward or Union having Low Population Density in DMC, 2001 and 2011

Thana Name	Union as 2011	Rank 2011	Density 2011	Thana Name	Union as 2001	Rank 2001	Density 2001
Biman Bandar Thana	Biman Bandar (rest. Area)	1	192	Biman Bandar Thana	Biman Bandar (rest. Area)	1	69
Gazipur Sadar Upazila	Gazipur Psa- Ward 02	2	553	Gazipur Sadar Upazila	Gazipur Psa-Ward 02	2	331
Gazipur Sadar Upazila	Baria	3	734	Rupganj Upazila	Tarabo Psa-Ward-02	3	749
Kaliganj (Gazipur)	Nagari	4	1005	Gazipur Sadar Upazila	Baria	4	756
Gazipur Sadar Upazila	Gazipur Psa-Ward 06	5	1095	Savar	Biralia	5	788

Table 4 show the overall population density patterns within major six administrative zones of Dhaka Megacity (DMC). These are- DNCC, DSCC, Paurashava, DMA, unions inside and outside DMA.

Table 4: Population Density of Major Administrative Regions in DMC, 2001 and 2011

Administrative Regions	Density-2011	Density-2001	Density Range-2011	Density Range-2001
North DCC	48002	34957	18553-92187	11221-81786
South DCC	68511	60292	17186-210610	18498-204679
Union Within DMA	9395	5603	192-46956	69-26220
Paurashavas	11241	6643	553-588580	331-460189
Union Outside DMA	4171	2425	734-62847	756-50613
Dhaka Megacity	10135	6945	192-588580	69-460189

**Figure 2: Range wise Density and Range of Density of DMC, 2011 and 2001**

Data analyzed in these illustrations clearly indicate that the density remains uneven within the DMC and it varied from one administrative area to another. DSCC exhibited the highest density 60292 and 68511 persons per km² in 2001 and 2011 census year respectively (Table 4) and it is followed by DNCC within which the density recorded 34957 and 48002 persons per km² in 2001 and 2011 censuses. After city corporations, *paurashava* towns recorded the second highest density as seen in Table 4. On the other hand, density remained considerable low in the periphery unions of DMC and in this case unions attached to DMA (Dhaka Metropolitan Area) recorded higher density as compared with the unions locating outside the DMA area (Table 4). The

average density of inhabitants within the entire DMC area also significantly increased to 10135 persons per km² in 2011 Census from 6945 persons per km² in 2001 Census (Table 4 and Fig 2). Dhaka Megacity experienced highest density of urban population in Bangladesh. Rapid urbanization and being a central location of country's every administrative and economic option attracts migrants from all over the country. In last twenty year the city populations become more than double.

Major Findings

Of the 32 world megacities, DMC ranked 11th and by 2030 it may be ranked 6th or even lower. At present the city has nearly 20 million inhabitants constituting 12% of the total population of Bangladesh and over 40% of total urban population of the country. The areal extent of DMC is only 1500 km² which is just one percent of the total area of Bangladesh.

In terms of density of population, DMC appeared as one of the highest densely populated megacities in the world. The average density of inhabitants recorded in 2011 Census was over 10,000 persons per km². The core areas of DMC, the average density exceeded over 50,000 persons per km². In some parts of the city, the density reached to 100 to 200 thousand persons per km². In slum areas of DMC the average density reached to a super high level (over 250,000 persons per km²). Due to shortage of space at the core areas of the city and very high land value and house rent, population density has been increasing very rapidly along the vast urban fringe areas of DMC. Currently (in 2011 Census) the average density within the fringe area varied from over 4000 to almost 10,000 persons per km².

Conclusion

The rapid growth of population along with the physical expansion of Dhaka as the country's single largest primate city can't be stopped easily unless a bunch of drastic policies some of them as recommended in this study are implemented immediately. The rapid and uncontrolled growth of people has already caused a great deal of damages to this vitally important capital city Dhaka. The city has already ranked as the second most unlivable mega urban regions in the world. Experts from home and abroad have already forecasted a catastrophic future for Dhaka Megacity due to her rapid and unhealthy growth along with fast worsening of physical environment and human health. Under these circumstances, massive population pressure to DMC should be curtailed as early as possible.

Recommendations

To turn the once traditional Dhaka City into an aesthetic, healthy and habitable modern city is indeed a demand of time. But it is the most unliveable city as well.

The root cause of unlivability in Dhaka City obviously associated with the city's huge size of population and severely compact living i.e. very high density of people. To address this vital issue, first and foremost task will be to undertake appropriate and effective policy prescriptions to divert Dhaka-bound potential migrants preferably to all regional cities and district HQs so that the rural out-migrants can have easy access and get vital services (e.g. quality school education, health services and adequate employments) to nearby cities and towns.

Population migration and urbanization has an intrinsic relationship. To implement planned migration (particularly rural to urban internal migration) planned urbanization is essential prerequisite.

To release severe population pressure from the capital city, decentralization of certain services and facilities should be undertaken by introducing innovative and lucrative policies. Some services or facilities from health, education, judicial, financial, commercial, and industrial and even some administrative services can be shifted from Dhaka to other convenient cities or places.

In order to release the pressure of over population and congestion in the inner-city areas of DMC, a policy of de-concentration should be adopted.

Under this policy existing satellite towns e.g. *Savar Paurashava* should be developed further and establishing new satellite towns should be undertaken immediately. Finally, a sustainable population density plan should be developed.

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