# RESEARCH ARTICLE

## ANALYSIS OF URBANIZATION TREND AND ITS IMPACTS ON PABNA MUNICIPALITY

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| ARTICLE INFO | ABSTRACT |
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| | Urbanization refers to the population shift from rural areas to urban areas, the gradual increase in the proportion of people living in urban areas, and the ways in which each society adapts to this change. The urban population of Bangladesh was only 6.27 million in 1974 but grew to over 39 million in 2011. The urbanization level has jumped from 8.78 percent to 27.66 percent in this period. The long run exponential growth rate of urban population over the period 1974-2011 has been 5.18 per cent, as against only 1.36 per cent of the rural population. From the statistics, it is easily understood, the level of urbanization in Bangladesh in the recent years has been increased rapidly. The study focuses on the trend of urban growth in Pabna municipality from the year 2001 to 2051. The urbanization level of Pabnamunicipality has also been calculated. The urban growth in Pabnamunicipality was 1.2 in 2001, was 2.19 in 2011 and projected urban growth has been calculated as 2.44 for the year 2051. In the study, incremental increase method is used for population projection. Urbanization level has been found as 23.69 for the year 2051. Ward wise urban growth has also been calculated in the study. From the calculation, the highest urban growth rate has been found as 6.86 in ward no 8. The study also focuses on the impacts of high urban growth rate on Pabnamunicipality. The major problems for rapid urban growth have been identified as traffic congestion, urban density, pressure on service facilities, centralization of resources etc. |

## INTRODUCTION

Bangladesh is one of the highly populated countries in the world where urban population has been rising over time due to the migration from rural sector to industrial or service sector in searching for employment opportunities and leading qualified living status. By no criterion, Bangladesh can be called an 'urban nation'; with only 28.4 per cent of the population lived in cities in Bangladesh in 2011 while 52.1 percent was the world's urbanization (Zaman *et al.,* 2010). Like many other Asian developing countries, an increasing share of population of Bangladesh migrates to urban centers in search for employment opportunities outside agriculture and into industrial enterprises or the services sector. A historical transition has been taking place during the decade 2000-2010 for low income countries like Bangladesh, since for the first time in history the urban population in this group of countries is growing faster than rural population (Khan, 2008).

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### Objectives of the Study

This study focuses on the trend and impacts of urbanization in Pabna municipality. The major objectives of this study are as follows:

- To examine the trend of urbanization from the year 2001 to 2051 in Pabna municipality.
- To identify the negative impacts of urbanization in Pabna municipality.

**Study Area:** Pabna is one of the oldest and historical districts of Bangladesh. Pabna municipality was established as Paurashava in 1876 by the British governor and renamed as Pabna Paurashava in 1972. It has an area of 29.02 sq. kilometers with having 15 wards, 46 mahallas and 29,928 holding members.

### LITERATURE REVIEW

Bangladesh has already experienced a rapid urbanization growth, while the rural population was peak at 110.48 million

in 2011. In Bangladesh, approximately 76.7% of the total population lived in rural areas in 2011. However, due to internal rural to urban migration, movement of people from rural areas to urban areas, the number of people living in urban areas has increased and the number of people living in rural areas has decreased (BBS, 2015). According to the census on population distribution and internal migration in Bangladesh (2015), the urban population of Bangladesh soared up from only 0.54 million in 1891 to 33.56 million in 2011. Although a rapid growth of urban population observed after 1941, the percentage of urban population was very low in the earlier part of the century. In 1961, the urban population was only 5.19% which surged to 8.78% in 1974. Since then, the country was undergone steady urban growth and the level of urbanization was 23.53% and 23.30% in 2001 and 2011 respectively. Additionally, urban population increased from 2.18% in 1891 to 2.43% in 1901. The most plausible reason for the low level of urbanization during the period might be the profit motive policy of the British Colonial Government to abolish aboriginal industries and to build up industrial-commercial accumulation around Calcutta that effectively turned the area which is today Bangladesh into its rural locality. Besides, there was gross under enumeration in the census of 1921 because of the refusing of the enumeration for political reasons (UN/ESCAP, 1981).

However, the definition of urban area has been changed in 2011. The concept of Statistical Metropolitan Area (SMA), urban agglomerations adjacent to large cities (i.e., city corporations), growth center and some other urban areas has been abandoned and the urban areas included only city corporations, paurashavas, upazila headquarters and cantonment area. Therefore, the percentage of urban population has declined to 23.30% in 2011 as against 23.53% in 2001 (BBS, 2014). According to the Population and Housing Census of 2011, there were only 506 urban centers, included six city corporations and 37 class 1 cities, which had population of 100000 and above. The cities like Barisal, Brahmanbaria, Comilla Adarsha Sadar, Dinajpur, Jamalpur, Jessore, Mymenshing, Naogaon, Narshingdi, Pabna, Sirajganj and Tangail experienced decreasing urban rate from 2001 to 2011. However, Bogra was the only city which could hold the constant rate of urbanization for both 2001 and 2011. It was also found that round 38.70% of total urban population of the country lived in those 506 urban centers which indicated that the urban population is highly concentrated in few big cities (61.30%). Again, it was estimated that one third of the urban population (i.e. 34.19%) lived only in 6 city corporations.

Apart from the above, urbanization changes the social and economic aspects and also effects on population migration towards urban areas (Dociu and Dunarintu, 2012). Moreover, uncontrolled urbanization could hamper the ecosystem, atmosphere and climate, lithosphere and land resources, hydrosphere and water resources and biosphere of the metropolitan cities (Uttara *et al.,* 2012).

## RESEARCH METHODS

The study is mainly based on secondary data. Data have been collected from different published materials like the publication of World Bank, Bangladesh Bureau of Statistics, relevant writings of some scholars. The data from the year 1991 to 2011 have been analyzed to evaluate the urbanization

process in Pabna municipality. Population projection by incremental increase method has been used to estimate the population from 2021 to 2051. In this method, population after $n^{th}$ decade is calculated by the following equation

Where, Population after $n^{th}$ decade, Current or base year population (population of 2011 is considered as base year population in this study), Average increase, Incremental increase (Badry, 2016). Level of Urbanization or simply Urbanization refers to the portion of population living in the urban areas. The level of urbanization may be denoted as-

Where, level of urbanization, total urban population, total population (BBS, 2015). Urban Growth rate refers to an increase in total urban population, whereas urbanization refers to the percentage increase in urban population. Therefore, occasionally urban growth may take place without urbanization (BBS, 2015). Urban growth may be calculated by the following equation-

Where, annual urban growth rate, current population, previous population, time period between the preceding and the subsequent (Parker, 2002 and BBS 2011 National Volume-3: Urban Area Report, 2014).
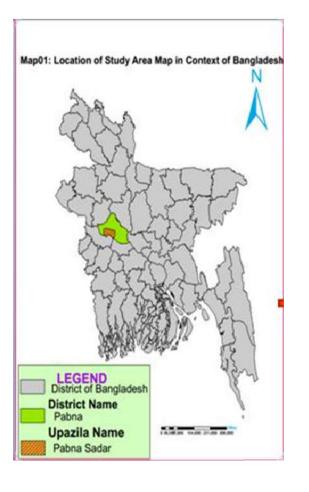
**Urbanization Trend Analysis of Pabna Municipality:** For estimating urban growth from the year 2001 to 2051, population projection has been performed by incremental increase method. The population of the year 1991, 2001 and 2011 of Pabna municipality has been taken from BBS. Result of population projection is shown in the below table (Table 1).

**Level of Urbanization:** Level of urbanization is calculated using the urbanization formula described in research methods. Here total population of Pabna Sadar Upazila and population of Pabna municipal area have been used for calculating level of urbanization from the year 1991 to 2051. The result is shown in the below table (Table 2). From the table, it is found that level of urbanization in Pabna municipality was 23.93 in the year 1991. The current level of urbanization in Pabna municipality is almost 24.44 which is the highest level of urbanization in Pabna municipality from the year 1991 and the projected urbanization level is gradually decreased from 24.44 and eventually in 2051, the projected level of urbanization is calculated as 23.69. The gradual change of urbanization level in Pabna municipality is shown in the below chart (Figure 2).

**Urban Growth at Pabna Municipality:** Urban growth in Pabna municipality is calculated from the year 2001 to 2051 by the formula described in research method. In 2001 urban growth was 1.2 and in the year 2051, projected urban growth is calculated 2.44. The result is shown in the below table (Table 3). From the table, it is found that urban growth has been rapidly increased after the year 2001. It will gradually increase from the year 2001 to 2041.

Urban growth will be 2.44 in the year 2051. The trend of urban growth from the year 2001 to 2051 can be much clear in the below figure (Figure 3).

**Wise Urban Growth Rate:** Pabna municipality has 15 wards. Urban growth rate is also calculated ward wise. Ward wise growth rate is calculated by using the population of the year 2001 and 2011.
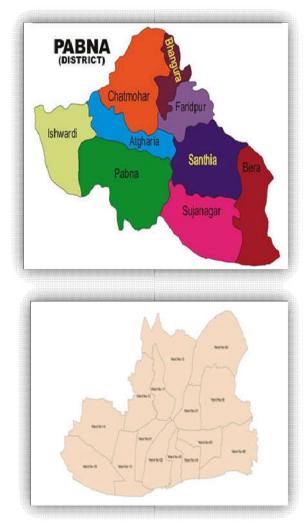
**Figure 1. Location of the Study Area**

**Table 1. Population Projection of Pabna Municipality by Incremental Increase Method**

| Area | *Census Population | | | Projected Population | | | |
|---|---|---|---|---|---|---|---|
| | 1991 | 2001 | 2011 | 2021 | 2031 | 2041 | 2051 |
| PabnaSadarUpazila | 431513 | 476932 | 590914 | 739178 | 956004 | 1241394 | 1595346 |
| Pabna City | 103277 | 116305 | 144442 | 180134 | 230934 | 296844 | 377862 |

(**\*Source:** Pabna Sadar Upazila, n.d.;City Population, n.d.; BBS 2001 Community Series: Pabna Zila and BBS 2011 Community Report: Pabna, 2013)

**Table 2. Level of Urbanization in Pabna Municipality**

| Year | Population | | Level of Urbanization |
|---|---|---|---|
| | Pabna Sadar Upazila | Pabna City | |
| 1991 | 431513 | 103277 | 23.93 |
| 2001 | 476932 | 116305 | 24.39 |
| 2011 | 590914 | 144442 | 24.44 |
| 2021 | 739178 | 180134 | 24.37 |
| 2031 | 956004 | 230934 | 24.16 |
| 2041 | 1241394 | 296844 | 23.91 |
| 2051 | 1595346 | 377862 | 23.69 |

**Table 3. Estimation of urban growth from the year 2001 to 2051**

| Year | Population in Pabna City | Urban Growth Rate (%) |
|---|---|---|
| 1991 | 103277 | - |
| 2001 | 116305 | 1.2 |
| 2011 | 144442 | 2.19 |
| 2021 | 180134 | 2.23 |
| 2031 | 230934 | 2.52 |
| 2041 | 296844 | 2.54 |
| 2051 | 377862 | 2.44 |

**Table 3. Ward wise urban growth rate of Pabna Municipality**

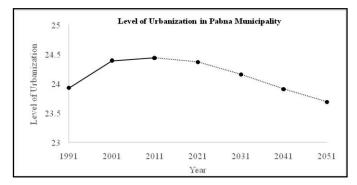| Ward No. | Population* | | Urban Growth Rate (%) |
|---|---|---|---|
| | 2001 | 2011 | |
| 1 | 7513 | 8502 | 1.24 |
| 2 | 13254 | 13661 | 0.3 |
| 3 | 5461 | 7871 | 3.72 |
| 4 | 7457 | 7505 | 0.06 |
| 5 | 6910 | 9046 | 2.73 |
| 6 | 6792 | 8283 | 2 |
| 7 | 7313 | 10374 | 3.56 |
| 8 | 3624 | 7038 | 6.86 |
| 9 | 7142 | 11492 | 4.87 |
| 10 | 10192 | 11425 | 1.15 |
| 11 | 9695 | 12880 | 2.88 |
| 12 | 8817 | 9662 | 0.92 |
| 13 | 9097 | 10920 | 1.84 |
| 14 | 5909 | 6197 | 0.48 |
| 15 | 7129 | 9586 | 3.01 |
| Total | 116305 | 144442 | 2.19 |



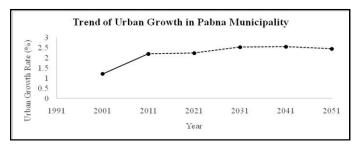**Figure 2. Trend of urbanization level in Pabna municipality**



**Figure 3. Trend line of urban growth rate in Pabna municipality**

Current urban growth rate of individual wards of Pabna municipality is shown in the below table (Table 4). From the table, it is found that highest urban growth rate is 6.86 in ward no 8, which is very high. Overall urban growth rate in Pabna municipality is 2.19. Urban growth rate in the ward 7, 8 and 15 is very high. On the other hand urban growth rate is very low in ward no 2, ward no 4, ward no 12 and ward no 14.

## IMPACTS OF URBANIZATION IN PABNA MUNICIPALITY

**Housing Problem:** The housing demand of Pabna municipality is increasing over time due to the increasing of population and migration of people from rural to urban area for which housing service is the visible phenomenon of people's living in a hygienic place. Many developer companies have been arisen to build house and hostel for urban upcoming settlements. Therefore, the housing situation becomes haphazard, erratic and unsatisfactory in the Pabna city.

**Traffic Congestion:** Due to rapid urban growth, number of vehicles is increasing significantly. There are various types of

vehicles in Pabna municipality like rickshaw, van, motorbike, autobike, taxi, CNG, truck, bus, microbus, minibus, private car, motor vehicles, three wheelers etc. Due to illegal parking and high pressure of vehicles on narrow roads are the main causes of traffic congestion in Pabna municipality.

**Migration and Population growth**: The primary reason of urbanization is the migration of population from rural to urban area. As the urban growth rate is increasing rapidly in Pabna municipality, population density is getting high also. So, high rate of urban growth is caused by the migration process and creating unplanned urbanization with haphazard development, poor waste management, lack of proper sanitation and environmental pollution.

**Pressure on service facilities:** The population of Pabna city is increasing every year. As a result, pressure on service facilities like on school, college, health facilities, bazars, religious institution and recreational facilities is also increasing immensely. The service facilities are covering much more catchment area than the standard. The population coverage of each service facilities is also very high.

**Centralization of resources:** For meeting the demand of increased urban population, more and more service facilities are growing on the city area. So the city is becoming centralized with more service facilities. Service facilities are not properly distributed in the other upazilas of Pabna districts. As a result, people are making internal migration to the urban area which is one of the main reasons of high urban growth rate.

## CONCLUSION

Urbanization level of Pabna municipality is low but the urban growth is very high. Unplanned urbanization exists in Pabna municipality which is creating so many problems. The problems associated with unplanned urbanization are making Pabna city congested, haphazard and environmentally polluted city. For preventing high urban growth or unplanned urbanization, decentralization of service facilities, sufficient income opportunity in all upazilas, proper urban planning, implementation of national poverty reduction strategies, provision of proper transportation planning with appropriate parking facilities and many more planning interventions are required to prevent rapid urban growth and to cope with the consequence of unplanned urbanization.

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