ANALYSIS OF POPULATION GROWTH DYNAMICS – SITUATION AND TREND: A STUDY ON BARDDHAMAN PLANNING AREA (BPA), WEST BENGAL, INDIA

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INTRODUCTION

In India, after independence, population increase rapidly, but growth rate shows declining trend, specially for those region wherein city population precedes towards saturation level (Guchhait, Dasgupta, 2012). The space saturation with population of cities and towns, later on associated with spillover effects towards suburb and rural area. An assessment of absolute and relative change of population growth helps to find out spatial extent of population concentration around the urban centers. In developing countries, large scale of population concentration has took place in urban area and its surroundings. Much of the growth is due to migration particularly from the countryside rural area and small towns. Rural-urban migration is caused by both push of the rural area as well as pull of the urban areas. In rural area appalling poverty, unbearable unemployment, low and uncertain wages, uneconomic land holding and poor facilities of education, recreation and other services work as push factors. By contrast, the pull of urban area may include better employment opportunities; regular and higher wages, fixed working hours, better amenities of living, facilities for education and socio-cultural activities (Chandna, 1992).

Study Area

Barddhaman Planning Area, as delineated by Barddhaman Development Authority in 2002, extended over 157.62 sq.km, accommodating about 4.70 lakh populations. It is located in southern part of Burdwan district, 107 km north-west of Kolkata Municipality Area (KMA). The area extends latitudinally from 23°10’15”N to 23°19’15”N and longitudinally from 87°48’E to 87°57’E. Barddhaman Planning Area consists of Barddhaman Municipality area and adjoining villages located in five gram panchayet in Burdwan-I CD Block and two gram panchayet in Burdwan-II CD Block. Bardhaman town being administrative center of the district to serves as the primate trading center of goods and services for surrounding hinterland (Fig: 1).

Salient feature of Population Density

The intensity of population concentration has recognized from population density. In 2001 census of India, defined urban area in terms of population density at least 400 persons per sq. km and it is continued in 2011 census of India. On the basis of population density regional and functional characteristic of an area is identified as urban or semi-urban, suburb, and rural. In 1951, only Barddhaman Municipality contained high population density (3003 persons/sq.km) and most of areas are recommended as Rural.
Table 1. Functional Characteristics of Demography

<table>
<thead>
<tr>
<th>Population Density (persons/sq.km)</th>
<th>Functional regional characteristics</th>
<th>Name of Towns and Villages</th>
</tr>
</thead>
<tbody>
<tr>
<td>High (&gt;3000)</td>
<td>Urban/Semi-urban</td>
<td>Barddhaman Municipality</td>
</tr>
</tbody>
</table>
|                                   |                                     | Barddhaman  
Municipality,Bairurbanamangla,  
Krishnapur,  
Nuri,Sadhupara |
| Medium (1000-400)                 | Rural                               | Aliya Amur,Arsathangara,  
Bairurbanamangla,  
Barddhaman,  
Kutubpur,  
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On the other hand in 2011, other four surrounding rurban, and rural areas with Barddhaman town (11378 persons/sq.km) are recorded more than 3000 population, rest of 60% of belongs to rurban characteristics and small percentage of areas are still in rural character (Table:1). The huge transformation of population density from Rural to Urban/semi urban and rurban has been seen around Barddhaman Town which indicates increasing population immigration towards urban center and urban fringe area.

**Objectives**

The major objectives of the present study are:

1. To articulate the spatio-temporal dynamics of population growth in Barddhaman Planning Area

2. To evaluate the relative concentration of population in past, present and future

3. To assess the Population influx towards Suburb and Urban fringe area of Barddhaman town and identify the major factor behind it.

**DATABASE AND METHODOLOGY**

The present study based on secondary data, collected from census of Barddhaman district for the years from 1951 to 2011. To articulate the nature and dynamics of population growth,
RESULTS AND DISCUSSION

Trends of Immigration

The trends of in-migration towards Urban center of area under BPA has increased tremendously in a two Phases, in 1973-1980 and in 2005-2012(Fig: 4). Many Geophysical and Socio-economical pull and push factors contribute present increasing population concentration in fringe area. Geospatial advantage, reliable climate, availability of water resource and large extent agricultural land in fringe area, low price of land value, education and institutional facilities are act as a pull factors. Lack of availability of suitable land and location, scarcity of drinking water, poor health and educational facilities push people towards Barddhaman Town from surrounding districts of West Bengal.

Population Growth in Absolute Term


On the other hand, population in rural area under Burdwan-I Block and Burdwan-II Block is experienced progressive growth from 1981to 2011, the reason behind this not difficult to perceive. Ultimately, as a whole absolute population growth of BPA is moderately decline but increasing trend has observed in 1991-2011(Fig: 5).

Population Growth in Relative Term

The allometric relationship may be viewed as an expression of relative competition within a given system where each component taking its share of the available resources of the total system as expressed by component. The allometric relative ‘b’ value indicates the nature and level of population concentration, unity or isometry (here considered (0.96-1.1) means balance growth. Allometric value more than one (here > 1.1) implies gaining growth and less than one (here < 0.96) indicates loosing growth with respect to system.

In the present study, system component growth has measured in a four successive years to determined spatio-temporal change of population concentration. At the initial stage (1951-1971) relative high growth (>1.1) is found both in Rural and urban area, due to natural increase of population growth i.e. high birth rate, with the passage of time population concentration has taken place along the transport line around urban center, because of better access to urban facilities, less price of land. It is quite interesting that the population concentration in Barddhaman town transformed from more

Where, Y= Component, X= System, a= Allometry, b= Threshold value in relative growth perspective.
than isometry (≥ 1.1) to less than isometry (< 0.96), due to population saturation and urban congestion. On the other hand, in the surrounding rurban and rural area system component growth has transformed from less than isometry to more than isometry, because of increasing population agglomeration by immigration. In future, it is estimated that 90% of area under BPA will be agglomerated with huge population.

Future trend of population growth

Spatio-temporal distribution of relative growth in Barddhaman town is quite different from its surrounding. As a whole population trend of BPA reach towards uniformity in terms of relative population growth. To address the uniformity of relative growth, CV is calculated as a mean value of relative concentration of population in BPA (Table: 10). High value of CV indicates inconsistency of population distribution and a lower value of CV shows higher consistency or uniformity of population distribution. After slight increase of CV value in 1961-1981, its trends towards decline that indicates the diffusion of relative growth makes the whole dynamics towards uniformity, as like as a uniform train, because around 80% of area in BAP gaining growth more than isometry (Fig.9).
Conclusion

A significant social transformation is occurred with the modernization and modern way of living causes increased concentration of population towards urban surroundings. In such situation it is very difficult to control the immigration of people towards towns and cities because it is a natural process. But the flow of population should to be checked at regular phase that help in sustainable urban planning and management. On the other hand, the extension of urban amenities in the rural area can reduced urban craze of people and population pressure towards urban fringe.

REFERENCES