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Research Paper Economics



Liveability in Guwahati: A Factor Analytic Approach

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ABSTRACT

Liveability is an all inclusive term to represent various qualities needed by human being. In this study liveability is related to the condition of living in the urban physical environment and the problems related to it. The present study wants to assess liveability in the urban environment of Guwahati as the city has been experiencing several environment related problems. There is congestion, overcrowding and conflicting demand for space and utility services. The study finds that quality of air, quality of water, level of noise, availability of water and solid waste disposal system are some of the important dimensions of living in the city. At the same time respondents have not been found to be satisfied with traffic, availability of parks and green area and environmental pollution. The study recommends multidimensional strategic urban management approach.

Keywords : living environment, factor analysis, life quality

Introduction

Liveability is an umbrella term for various qualities of the environment, which seems relevant for meeting human needs. Ecologists see liveability in the natural environment and describe it in terms of pollution, global warming and degradation of nature. Currently they associate liveability typically with environmental preservation. City planners see liveability in the built environment and associate it with sewer systems, traffic jams and ghetto formation. Here good life is seen as a fruit of human intervention (Veenhoven, 2000). In the present study liveability is related to the condition of living in the urban physical environment and the problems related to it.

The process of urbanization in Assam was initiated with shifting of the capital of Assam from Shillong to Guwahati in 1972. Guwahati is the main urban centre in the entire north eastern part of India. Since then Guwahati has been experiencing both horizontal and vertical growth. Guwahati has experienced tremendous growth of population over the last two decades. The population of Guwahati has increased manifold from 1,23,785 persons in 1971. Such exponential increases in population and unplanned growth of settlements over the years have created enormous pressure on existing land and infrastructural facilities. The rapid expansion of the city has led to haphazard growth of buildings on plains and on the hills (Pathak, 2005). Such growth of buildings and houses has destroyed the natural water bodies often leading to water logging. Another major problem in the city is congestion of traffic (Bez, 2001). There is dearth of open space for citizen and decline in greenery in and around the city (Thakur, 2005). As a result of increase in trade & commerce activities along with growth of vehicular population and rapid urbanization, level of pollution has also increased in Guwahati (Pollution Control Board, Assam [PCBA], 2009). Slums have grown up in and around the city. Increase in solid wastes is another major problem in Guwahati (Sharma & Rahman, 2001). There is deterioration of ground water quality also (Barman, 2005). Besides all these, lack of adequate urban services such as water supply, sanitation, sewerage, lighting and transport are some major problems along with deficient recreational and welfare facilities in the city. The incommensurability between urbanization and development process has led to an uneven distribution of population and concentration of different kinds of activities. Such high increase in population coupled with inequitable growth of amenity and infrastructural facilities in the city have resulted in congestion, overcrowding and conflicting demand for space and utility services. Such dilapidated environmental condition undermines life quality (Ng, 2005). Therefore, this study has been conducted to assess living condition in Guwahati

Objectives

Keeping in view such haphazard condition of living, the paper tries

- To study how people perceive their liveability in Guwahati. It attempts to explore the underlying dimension of living condition
- To find the most troubling problems of living environment

Methodology

Factor analysis is used to establish more reliable factorial solution and eliminate items of less significance. Number of factor is determined by using Scree test. Items having loadings less than 0.3 has been eliminated.

Purposive sampling technique has been used in this study. Out of 60 wards under Guwahati Municipal Corporation, 10 percent of the total wards i.e 6 wards have been considered for survey. The three characteristics considered while selecting wards are -traditional (old) residential area, commercial area and newly established residential area. To represent each characteristic two wards have been taken at a time. Thus, six wards have been taken for survey altogether. Keeping in view time and resource constraints, 5 percent of the total households from each ward i.e 379 households has been surveyed. Except the three basic characteristics considered here, the wards are more or less homogenous facing common problems. This ensures that smaller size of 5 percent sample can be better representative of the population. Households are selected purposively so that various income strata have been adequately represented.

Results and discussion

The survey shows that 40 percent of the people are living in rented house. Approximately 28 percent of them have studied up to graduate level, 26 percent have studied up to

matriculate level and 45 percent have studied above degree level. This shows preference for higher studies in the city. The main occupation has been found to be service (46 percent) followed by business (26 percent). Families having members between1 to 3 is 28 percent and percentage of medium size family (having members between 4 and 6) is 39.

It has been already mentioned that residents have been suffering from several types of problems.

Table 2: Percentage of people suffering from problems

Types of problems	Percentage of people
Percentage of people having problems with water used for domestic purpose	37
Percentage of people who don't have proper drainage system for disposing waste water	43
Percentage of people who don't have sanitary toilets	44
Percentage of people suffering from water logging	54
Percentage of people affected by noise	66
Percentage of people suffering from problems of air	50
Percentage of people using regularly cleared dustbin	31
Percentage of people suffering from traffic problem	67

Source: calculated by authors from survey

Table 2 shows that most of the people i.e. 67 percent have been suffering from traffic related problems. When respondents were asked if they were satisfied with condition of traffic, 76 percent of people replied that they were dissatisfied with the condition of traffic in the city (table 3). Only 3.1 percent are satisfied with traffic condition. People having own vehicle and those who travel by city transport system-both categories reported dissatisfaction. Thus, it is a problem for both high and low income category people.

Table 3: Satisfaction from Condition of Traffic

Satisfaction level	Percentage of people
Satisfied	3.1
Neutral	20.8
Dissatisfied	76.1

Source: calculated by authors from survey

The second most reported problem is the problem of noise. More than half of the people have been suffering from some or other kind of noise. The types of noise considered here are noise from shops, noise from vehicle, noise from construction activities and domestic noise. 66 percent people affected by noise and out of these, 39 percent is affected by vehicular noise.

The percentage of people who reported problems with water is 37, out of which 30 percent reported that the water they use is not clear and contains colour and odor. Surprisingly 43 percent of people do not have proper drainage system. This might be a cause of water logging also. In this context it should be mentioned that 56 percent of people have reported to have suffered from the problems of water logging. Only 44 percent of people have proper sanitary toilets. The rest use toilets other than of sanitary type say toilets having tank made of concrete ring. Such unscientific toilets on large scale may lead to both ground and surface water contamination.

Half of the respondents reported problems from air like increased problems of breathing, watering eyes, reduced visibility and increased cost of cleanliness. 36 percent of people complained of dust in the air, 4.7 percent found foul smell, 4.7 percent complained of ash and smoke and rest experienced combination of problems.

Table 4: Satisfactions from Level of Environmental Pollution

Satisfaction level	Percentage of people
Satisfied	6.3
Neutral	21.7
Dissatisfied	71

Source: calculated by authors from survey

When respondents were asked about their level of satisfaction from environmental pollution, 71 percent of people said that they were dissatisfied with pollution level. Again they were asked if they are satisfied with the availability of parks and green areas, they showed mixed reaction. Because, 30 percent were satisfied with the existing greenery, at the same time 40 percent were dissatisfied and 30 percent remained neutral. This shows indifferent attitude towards environment in the busy life schedule of the respondent.

Table 5: Satisfaction from availability of Parks and Green areas

Satisfaction level	Percentage of people
Satisfied	30
Neutral	30
Dissatisfied	40

Source: calculated by authors from survey

Factor analysis has generated four factors whose eigenvalue is greater than one. They explain 58.22 percent of the total variances all together. These factors are explained below. It has been found that the first factor explains 15.67 percent of the total variance and both second and third factor explains 12.85 and 12.68 percent of the total variance respectively. Scree plot suggested six factors but on the basis of interpretability condition suggested by literature of factor analysis, five factors have been considered instead of six.

Table 6: Factor loading matrix

Variables	Components				
Type of toilet	**.839**				
Type of residence of respondent	**.784**				
Room per person	**.718**				
Waste water disposal system	**.584**				.349
Time to reach destination	**-.336**				
Availability of water		**.913**			
Source of water		**.886**			
Quality of air			**.811**		
Problem from air			**.741**		.303
Respondent affected by noise			**.722**		
Satisfaction from level of Env Pollution in city				**.827**	
Satisfaction from condition of Traffic				**.753**	
Satisfaction from availability Parks and Green areas				**.679**	
Problem of water					**.719**
Area affected by water logging					**.547**
Solid waste disposal system					**.448**
Percentage of variance explained by the factors	15.67	12.85	12.68	10.07	6.94
Eigenvalue	2.50	2.05	2.03	1.61	1.11

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization

The first factor comprises type of toilet, type of residence, room per person and waste water disposal system and time to reach destination. The first factor may be named as residential facilities.

The Second factor consists of availability of water and source of water. That means water is a significant factor to affect liveability.

The third factor includes variables like type of air, respondent affected by noise and problems of air. They can be grouped as environmental pollution.

The fourth factor comprises satisfaction from level of environmental pollution, parks and green areas and traffic condition. Thus satisfaction from environment affects liveability in the city.

Finally the fifth factor has been found to consists of variables like area affected by water logging and solid waste disposal system, problem of water, waste water disposal system and problems from air. Waste water disposal system and problems from air have already included in factor one and three. Therefore they have not been considered again in this factor. Now it can be said that there is a relation between solid waste disposal system and water logging. It has been noticed that most of the drains are clogged by wastes thrown by people casually.

Conclusion

This study shows that urban liveability is affected by a combination of factors. Quality of air, quality of water, level of noise, availability of water and solid waste disposal system are some of the important dimensions of living in the city. At the same time respondents have not been found to be satisfied with traffic, availability of parks and green area and environmental pollution. All these problems will have impact on quality of life in the long run. Such problems need multidimensional strategic urban *management approach to fulfill the basic minimum requirement of living*.

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