

PATTERN OF PERCEPTION OF CITIZENS' CHOICES FOR THE DEVELOPMENT OF URBAN WATER SUPPLY SERVICE: A CASE STUDY OF BERHAMPORE TOWN OF MURSHIDABAD DISTRICT OF WEST BENGAL.

Iftikar Alam*

Abstract

Rapid urbanization processes in the developing countries have its strong negative impacts on the levels of living and life of the communities living in the towns and cities. It is evinced that there is a wide gap between minimum entitlement of the service provisions they are getting and the supply constraints faced by the authorities. Berhampore town of Murshidabad is no exception. There is an urgent need of reconsideration of remedial measures for the development of urban services. In view of the above situation the study has endeavoured to analyse the cognitive pattern of stakeholders on choices of suggestions for the development of urban water supply facilities in Berhampore town of Murshidabad district of West Bengal. Perception patterns are analysed through the basic understanding of the people in terms of their choices of suggestions for the development of urban water supply facilities of the Berhampore town. This parameters are taken as proxy elements as of sign, signals and their expressions as to how they are thinking about the development of urban water supply facilities. The perceptual data are obtained from survey of opinions of the respondents through structured questionnaire covering all the wards of the Berhampore town. It also aim to develop an interval scale from the paired comparison ordinal data using composite standard method and finally tries to find out the most popular suggestion by comparing total number of preferences from interval scale.

Keywords: Perception, Water supply, Urban infrastructure, Suggestions, Paired comparison, Z matrix,

Introduction

Geography in the 1970's and afterward underwent a revolution and it is called "the revolution against positivism" and that phase is labeled as "critical geography". Two broad avenues of enquiry appear to have opened up as a result of this revolution. One, carrying on from the prior quantitative revolution, has led to studies of human spatial behaviour and attempted explanations of the patterns by models and theories derived from physics and mathematics (Abler, Adams, and Gould 1971; Chorley and Haggett 1967). The other avenue has led to studies of human perception of the environment (Bookfield 1969, Searinen 1974). To replace positivism of spatial sciences, a variety of humanistic approaches have been proposed, presenting a focus on the decision makers and their perceived world and denying the existence of an objective world which can be studied by positivist method. Thus behavioural geography has come up as one of the humanistic approaches. William Kirk (1963) introduced the concept of "Perception". Kirk looked to make the distinction between the objective (real) and behavioural environments, he believed that it was the latter not the objective environment that provided the basis for human behaviour and decision making. This is contrary to the idea that people make decisions based upon what their environment actually is, instead it looked at how people make decisions based upon how they perceive their environment to be (Kirk, 1963).

It is clear from the above analysis that it is very important to know about the behavioural environment of the citizens of micro level like Berhampore town in Murshidabad district regarding the issues of urban water supply. It is because of that not the objective environment but the behavioural environment provides basis for human behaviour and decision making. Form this background, it is necessary to study the people's perception or their perceived world on choices of various suggestions for the development of urban water supply. The inadequacy of infrastructure restricts the mission of sustainability of town and cities consequently experiences inferior quality of life. Population pressure has far exceeded the facilities like sanitation sewerage, drainage, drinking water supply, garbage disposal, electricity, schooling facilities, hospitals etc. In view of the above situation, a study of citizen's perception for the development urban water supply facilities of Berhampore town of Murshidabad district is considered timely.

Study area

Berhampore is the head quarter as well as the core town of the district of Murshidabad, West Bengal, situated between 24°38' N Latitude and 88°16' E longitude. It is a class-1 municipal town with an area of 16.67 Km². The town is primarily a service town, as well as the core centre of the district. The town has a population of 1, 60,163 as per 2001 census, with an overall density of 9891 person per square Kilometers. Berhampore, the only class-1 town in the district contributes about 22 percent of the total urban population of the district. It is clear from the Figure 1 that over the last three decades the town evinced a phenomenal growth in population size.

* Assistant Teacher, Cossimbazar MS High School, Berhampore, Murshidabad

FIGURE 2: LOCATION MAP OF BERHAMPORE TOWN

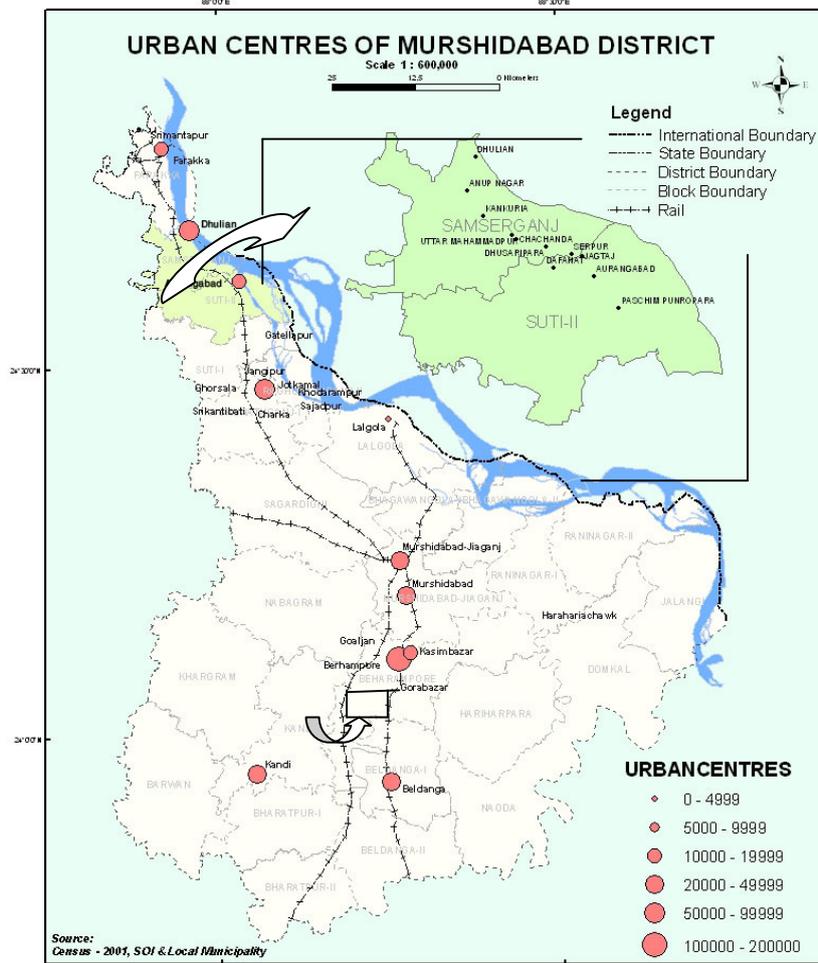
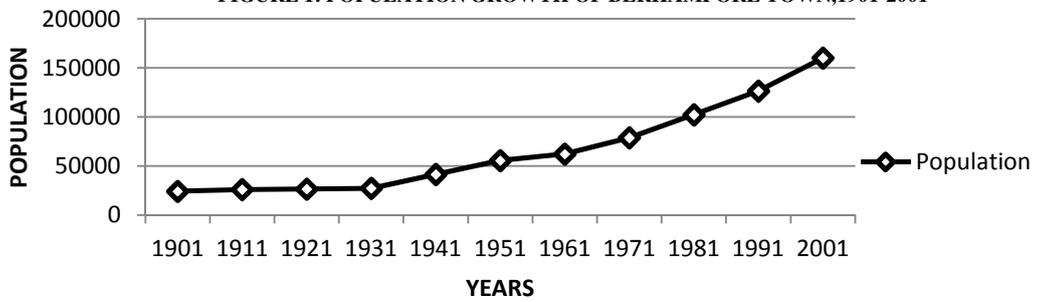


FIGURE 1: POPULATION GROWTH OF BERHAMPORE TOWN, 1901-2001



Source: Compiled by the author from District Census Hand Book, 1991 and Census of India 2001

TABLE-1 SHOWING THE DECADAL GROWTH RATE (PERCENTAGE) OF POPULATION IN BERHAMPORE TOWN, 1901-2001

Year	1901	1911	1921	1931	1941	1951	1961	1971	1981	1991	2001
Total person	24397	26141	26670	27403	41558	55613	62317	78909	102311	126400	160163
Growth rate		+07.16	+2.02	+2.75	+5.65	+33.82	+12.05	+26.63	+29.66	+23.54	+26.71

Source: Compiled by the author from District Census Hand Book, 1991 and Census of India 2001,

The decadal growth rate (Table-1) over the last three decades varies from 23.54 percent to 29.66 percent. This high population growth rate has negative impacts on the basic service provision of the town. Thus, the demand and supply sides of the infrastructure provision are rather mismatched and authorities are facing multifaceted obstacles in tackling the situation.

Research Objectives

The main objective of the study is to bring out the patterns of citizen's perception for the development of urban water supply in Berhampore town. The views on the pattern and magnitude of perception of the citizens are also cross checked against income. Finally, researcher intends to formulate the ways by which resulting data base are to be used for future infrastructure planning.

Research methodology and survey design

In order to trace the response pattern or how individuals have expressed their choices between pair of suggestions for the improvement of the existing urban water service the researcher has followed the method of paired comparison. Here, it should be kept in mind that the paired comparison provides ordinal data, so it has been converted it into interval scale by the method of Composite Standard Method given by J.P. Guilford 1954. This technique involves the conversion of frequencies of preferences into a table of proportions which are then transformed into Z matrix by referring the table of area under the normal curve.

The following steps have been followed in developing interval scale from the paired comparison ordinal data,

- i) Column mean have been worked out using the following formula.

$$M_p = \frac{C + .5(N)}{nN}$$

Where,

M_p = The mean proportion of columns

C = The total number of choices for a given suggestion.

n = Number of stimuli

N = Number of item in the sample

- ii) The Z values for M_p are secured from the table giving the area under normal curve. When the M_p value is less than .5, the Z value is negative, and for all M_p values higher than .5 the values are positive.
- iii) As the Z_j values represent an interval scale, zero is an arbitrary value. Hence, one can eliminate negative values by giving the value of zero to the lowest scale value and then adding the absolute value of this lowest scale value to all other scale items. This scale has been shown in R_j row in the Table-3.

In this way, finally interval scale has been derived from paired comparison data using Composite Standard Method. A survey form has been used in the study to determine the perception and attitude towards urban water supply service of Berhampore town of Murshidabad district. Alternative suggestions have been asked in the survey form.

The survey has been conducted in Berhampore town of Murshidabad district. For primary source of information individual respondents have been surveyed in the study areas selecting five respondents from each ward of the town covering all the 23 wards. For the selecting of individual, purposive stratified sampling method has been adopted.

The respondents of the survey are selected using the demographic variables of gender, income, and age. Care is taken to ensure that respondents were fairly represented across major demographic groups. All the respondents are above 18 years in age. The questionnaires were administered in geographical localities across the city. On the basis of per capita income of the state (West Bengal Economic Review, 2008) three income group (Monthly income) of people have been taken into consideration namely Lower income group (<Rs.3500), Middle income group (Rs.3500 – Rs. 29999), and Higher income group (>Rs.30000).

Survey result and discussion

Survey results have been divided into two sections. In the first section, the researcher has analyzed how the respondents of Berhampore town have expressed their attitude in making choice between pair of suggestions i.e. suggestion between number one and two or one and four. In the second section, total numbers of preferences for each of the five suggestions have been taken into consideration in order of their preferences and finally the most popular suggestion has been derived.

If one closely follows the Table-2 then it will be clear that 757 respondents preferred the suggestion in serial number two that is “the involvement of private sector, NGO’s, user group in urban services through management contact under the exclusive purview of the public sector to improve urban service delivery” to the suggestion in serial number one which states that “public sector has very limited capacity to improve urban water service provision and so it will be better to transfer the task of urban water service provision to private sector”.

Table 2: Response pattern (frequencies) of 115 citizens’ paired comparison of 5 suggestions for development of urban water supply in Berhampore town

SL. NO.	SUGGESTIONS	SUGGESTIONS				
		1	2	3	4	5
1.	Public sector has very limited capacity to improve urban water supply service provision and so it will be better to transfer the task of urban water supply service provision to private sector.	-	75	100	86	73
2.	Involvement of the private sector, NGO’s, user group in urban services through management contact under the exclusive purview of the public sector to improve urban service delivery.	27	-	77	62	58
3.	Fixation of user charges to recover the Operation and Maintenance cost to obtain better services.	24	69	-	48	38
4.	Increasing plan allocation by state and central government for urban infrastructure development through a programme on integrated urban infrastructure development.	19	74	82	-	47
5.	Legislative and institutional reforms to remove the mismatch between range of obligatory functions of municipal bodies and their ability to generate resources.	21	74	73	82	-
TOTAL		91	292	332	278	216

Source: Compiled by the author

TABLE 3: DEVELOPMENT OF INTERVAL SCALE

SUGGESTIONS	M_p	Z_j	R_j	RANK ORDER
1.	0.323	-0.44	0.00	5
2.	0.760	0.71	1.20	2
3.	0.847	1.02	1.46	1
4.	0.29	0.61	1.05	3
5.	0.595	0.23	0.67	4

Source: Compiled by the author

Again, 100 respondents preferred suggestion three to suggestion number one. In the same way, it can be said that, 86 citizens preferred suggestion number four to suggestion one and the figure in case of suggestion five to one is 73 respondents.

A close examination of the response pattern of the citizens between suggestion two to remaining four suggestions reveals that only 27 respondent preferred suggestion one to suggestion number two for the development of water supply service in Berhampore town. On the other hand, the number of respondents preferred suggestion in serial number three, four and five to suggestion two are 77, 62 and 58 respondents respectively. In this way, one can infer

from the Table 2 about the suggestion which is more important to the citizens as compared to other suggestions. But, this description does not give us the picture about the most popular suggestion for the development of urban water supply in the study area properly. Table 3, gives us the clear and scientific picture about the most popular suggestion.

Comparing the total number of preferences in Table-2 for each of the five suggestions it is found that, the most of the respondent thought that development in the existing condition of water supply service in Berhampore can only be possible through fixation of user charges to recover the operation and maintenance cost. The second choice preferred by the citizens for the improvement of urban service water supply is that of the suggestion of involvement of private sector, NGO's, user group in urban service through management contract under the exclusive purview of the public sector. The third choice is left to the suggestion that the increasing plan allocation by central and state government for urban infrastructure development through a program on integrated urban infrastructure development. Fourth choice as perceived by the citizens is that the legislative and institutional reforms to remove the mismatch between range of obligatory functions of municipal bodies and their ability to generate resources. The least preferred suggestion is the first suggestion in the serial in Table-2, which states that public sector has very limited capacity to improve urban water supply service provision and so it will be better to transfer the task of urban water supply provision to private sector.

Conclusion

It has already been stated that the existing infrastructural arrangement for the provisions of urban services in the towns and cities of the country as well as in the study area are grossly inadequate, over strained and over structured. There is an urgent need to reconsider remedial measures. Though, there happened to exist differences in their views on choice of suggestion for development of urban water supply in Berhampore town between the respondents, most of them thought that the fixation of user charges to recover the operation and maintenance cost is the most popular measure to obtain better urban water supply service. It is also clear from the discussion that the least preferred suggestion is the transfer of the task of urban water supply service to private sector. It is very much apparent from the survey that the respondents are becoming more and more serious about the issue on urban water supply. Therefore, it is imperative for policy makers to consider people's perception regarding issues related to development of urban water supply at the time of policy making.

References

- Abler, R.; Adams, J. S.; and Gould, 1971: *Spatial organization: the geographer's view of the world.*, Prentice-Hall, Englewood Cliffs.
- Chorley, R. J. and Haggett, 1967: *Models in geography.* Methuen, London.
- Guild, J.P., 1954: *Psychometric Methods* New York, McGraw Hill, Inc, 1954
- N. J. Brookfield, H. C. 1969: On the environment as perceived. In C. Board *et al.*, eds., *Progress in geography, no. 1*, pp 51-80, Arnold, London.
- Saarinen, T. F. 1974: Environmental Perception. In I. R. Manners and M. W. Mikesell, eds., *Perspectives on environment*, pp 252-289, Assocn. Amer. Geogrs., Washington, D.C
- W. Kirk, 1963: "Problems in Geography," *Geography*, pp357-371, Vol. 48, No. 4 (1963).