Qualitative assessment of performance of ULBs in Rourkela Town

DebaduttaParida[1]&V.Devadas[2]

Abstract

Rourkela is one of few industrial towns established in the Post-Colonial era as part of industrialization during the 1950s. This paper attempts to access the performance of the Urban Local Body (Rourkela Municipality) in carrying out developmental works in Rourkela Municipal areas through qualitative analysis. In doing so, it also aims at identifying issues and providing possible and plausible solutions and strategies to deal with the same.

Keywords

Industrial town, Post-Colonial, Qualitative Analysis, Urban Local Body

[1] Final Year, Master of Urban and Rural Planning, Department of Architecture and Planning, IIT Roorkee, India
[2] Professor, Department of Architecture and Planning, IIT Roorkee, Idnia

Introduction

When India obtained independence, one of the main priorities of the government then was the industrialization of the country. Various towns were identified for setting up of large scale industries viz. Rourkela, Durgapur, Bokaro, Bhilai etc. Rourkela was established in the late 1950s with the help of the then German government and the companies Krupp &Demag and Siemens. It was a highly ambitious vision to achieve a fine balance between modernity, cosmopolitan character and contribution to economic growth of the country in the long run. Over the years, Rourkela has evolved from an industrial township into an Urban Agglomeration. However, currently itis characterized by tension between planned development in the Steel Township areas and recently developed unplanned and organic growth in the Municipal Town. The paper is divided into two sections. Firstly, it aims to document issues identified in the study area. Secondly, it aims to qualitatively analyse public opinion regarding the current performance of the Municipality as well as their choice regarding future decisions related to developmental works in the town.

Study Area Profile

Rourkela is situated in the NW part of Odisha state in the district of Sundergarh. The town is located at the heart of a mineral rich belt and is strategically located on the Kolkata-Mumbai rail route. The town is surrounded by the three rivers
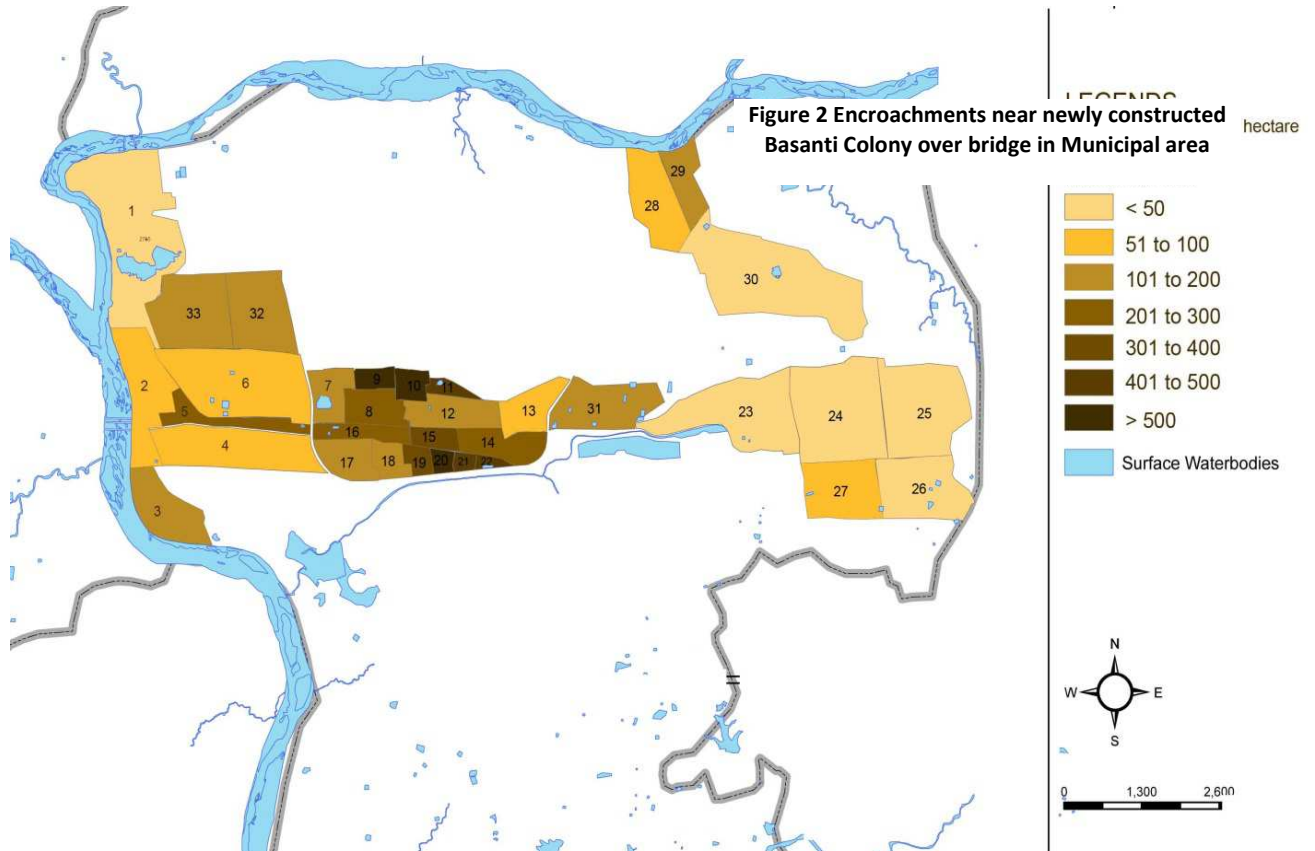

Brahmani and Sankh on the west and river Koel on the north.The whole region is an Urban Agglomeration, which comprises the Steel Plant, Steel Township and the Block Areas. The study area for this investigation is the Municipal Township area which is mentioned in this paper as Rourkela Town. As of now, the study area comprises of 33 wards with a total area of 31.60 sq. kms. The population of the study area is 2,73,040 in 2011. Fig. 1.2 below shows the map of Rourkela Town with the residential densities of all thirty-three wards.

Figure 1.2 Map showing wards and residential densities in Rourkela Municipal area

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Key Issues

Some of the issues currently affecting the study area are:

- Obsolete Master Plan and Development Control rules and regulations not up to date.

- Increase in slums(according to Census report in 2011, around 43% of the population in Municipal Areas was in slums)

- Tension between Steel Township areas and Municipal areas in terms of infrastructure level.

- Increasing water and atmospheric pollution

Figure 2 Encroachments near newly constructed Basanti Colony over bridge in Municipal area

LEGENDS

hectare

- < 50
- 51 to 100
- 101 to 200
- 201 to 300
- 301 to 400
- 401 to 500
- > 500
- Surface Waterbodies

- Lack of quality healthcare facilities
- Lack of open spaces in the high density residential colonies

Methodology

Survey Research methodology was adopted for this qualitative assessment of performance of the Municipality through preparation of an online questionnaire mailed to potential respondents. Ten indicators were identified after much discussions with the local authorities after which questions were asked regarding the present performance of the Municipality and public opinion regarding future growth of the town. The online questionnaire was mailed to 150 respondents between November 2013 and March 2014. Results and discussions are done based on statistical analysis of the responses of the primary survey.

Sample Size Adequacy

One of the most significant steps in a survey researchis to collect data which is representative of a population. Various scholars have put forward methods to calculate the adequate sample size required to generalize findings within the limits of a random error. It was imperative for this investigation that the sample size is considered judiciously.This study involves the determination of sample size for a research survey whose population size is large. The population looked at during the course of this study includes population in the Municipal Town of 2,73,040 comprising 33 wards.(Cochran, 1963) developed an equation to yield a representative sample for proportions, illustrated as below:

$$n_o = \frac{Z^2 pq}{e^2}$$

where no is the sample size, Z^2 is the abscissa of the normal curve that cuts an area α at the tails, e is the desired level of precision, p is the estimated proportion of an attribute that is present in the population and q is 1-p.

(Yamane, 1967) provides a simplified formula to calculate sample sizes. A 95% confidence level and P = .5 are assumed. The use of the level of maximum variability (P=.5) in the calculation of the sample size for the proportion generally will produce a more conservative sample size (i.e., a larger one) than will be calculated by the sample size of the mean.

$$n = \frac{N}{1 + N (e)^2}$$

where n is the

sample size, N is the population size, and e is the level of precision.

For the course of this research work and the dissertation, the formula employed for determining the sample size is that one proposed by (Yamane, 1967)

$$n = \frac{N}{1 + N\,(e)^2}$$ where n is the sample size, N is the population size, and e is the level of precision.

For this study, the adequacy of the sample size is determined as follows:

Confidence Interval = 95%

Degree of Variability = 0.5

The population size, according to Census 2011 of the Municipal Town is 2,73,040, which is used for the study. Therefore,

Population Size, N = 2,73,040

The next criterion to be established is the required level of precision, e. The usual values of the level of precision range from 0.05 to 0.1 depend on the study concerned. For a research study at the academic level, lower values of precision are generally tolerable, if it is difficult to obtain higher levels of precision(Bartlett, Kotrlik, & Higgins, 2001). For this study, the value of the level of precision is taken as 0.09, which is found to be within the specified ranges.

Thus,

Level of Precision, e = 0.09

According to the formula designed by (Yamane, 1967), the optimal number of samples required for the study will be

$$n = \frac{N}{1 + N\,(e)^2}$$

Thus, **n = 123 responses**

The formulation above suggests that the optimum sample size necessary is 123 responses. The current survey conducted as part of the study for the dissertation obtained 134 responses, which is more than 123 as suggested.

Rating Scheme

In order to get to know about the public opinion regarding the existing conditions in the town as well as performance of the Municipality and other authorities, respondents were asked to rate on a scale of 1 to 5 various attributes according to their satisfaction levels and personal opinions.

For analysis, weightage was given to each response(5 to most satisfied and 1 to very poor), and a cumulative weighted mean was calculated for each attribute using the formula as below:

$$\text{Z Score} = \frac{\sum(N \times W)}{S},$$

Where, Z = weighted mean

N = Number of responses for a category

W = Weight assigned to each category

S = Total number of responses

After calculation, the mean of the dataset was calculated as 3.189, while the standard deviation was 0.38. Based on this the grading scheme was prepared linking the Z scores with Level of Service(LOS) for qualitative analysis of the data.

Table below shows the grading scheme adopted for this analysis.

Range	Level of Service(LOS)	
> 3.95	A	Highly Satisfactory
3.58 to 3.95	B	Satisfactory
3.20 to 3.57	C	Average
2.81 to 3.19	D	Not satisfactory
< 2.81	E	Poor

Table 1 Grading Scheme showing Level of Service

Results and Discussion

The results of the analysis are shown below:

Existing Situation(Peoples' opinion)

Attribute	Z Score	LOS
Road Condition and Safety	3.00	D
Access to pedestrians and cyclists	2.88	D
Street Lighting	3.52	C
Parks/Playgrounds conditions	2.63	E
Cleanliness	3.11	D
Healthcare facilities	3.11	D
Educational facilities	3.81	B
Shopping facilities	3.51	C
Conditions of drains	2.81	D
Traffic and Congestion	3.51	C

Performance of Municipality(Peoples' opinion)

Attribute	Z Score
Road Condition and Safety	3.89
Access to pedestrians and cyclists	3.55
Street Lighting	4.10
Parks/Playgrounds conditions	3.55
Cleanliness	3.78
Healthcare facilities	3.88
Educational facilities	4.48
Shopping facilities	4.04
Conditions of drains	3.41
Traffic and Congestion	3.92

Table 2 LOS and Z-Scores showing Existing Situation and Performance of Municipality

The results show that peoples' opinion regarding existing conditions of most of the attributes are fairly poor, especially in

Future Priority(Peoples' opinion)

Attribute	Z Score
Improving Road Infrastructure	4.63
Improving Healthcare facilities	4.67
Improving Educational facilities	4.63
Cleanliness	4.29
Slum upgradation	4.89
Development of parks and green spaces	4.67
Improving Road Safety	4.59
Developing Tourism	4.29

case of Parks and playgrounds which was assigned LOS E which is really poor. At the same time, the public opinion regarding performance of the Municipality in tackling these issues currently is fairly better, with opinion showing better performance levels especially in terms of Educational facilities, Street lighting and Shopping facilities. Also, the respondents were queried about what should be the priority of the Municipality in the future works undertaken by it, in which the highest Z score was shown in slum upgradation followed by fairly equal scores for road infrastructure and safety, health and parks and playgrounds.

Findings

Some of the findings of this research are:

- There is an urgent need for better schemes for slum upgradation works in
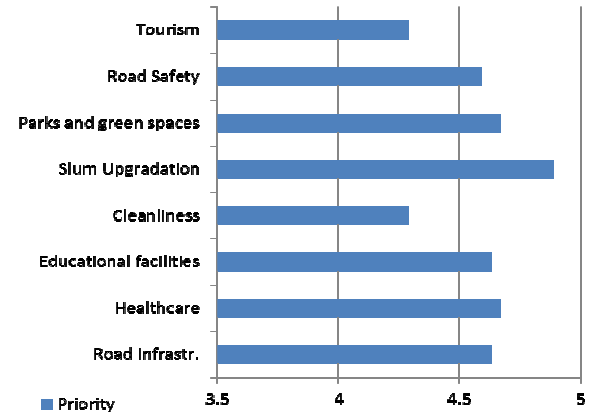
the study area to tackle the problem of such a high slum population.

- There is also need to improve the conditions of existing parks and playgrounds in the residential areas like Chhend Colony, Basanti Colony, Bondamunda etc where these are lying in neglect since almost a decade.

- There is an increased awareness regarding lack of green and open areas in the study area, there needs to be a proposal for a green corridor to balance the high density future development in the Municipal colonies.

- The access to pedestrians and cyclists is 'not satisfactory', and hence needs to be augmented in the future.

Table 3 Future Priority of Municipality according to Peoples' opinion

Recommendations

The Municipality should aim at more efficient co-ordination with other authorities in the town such as Rourkela Development Authority, PWD Department and the Rourkela Steel Plant. In high density residential developments, green belts need to be proposed to make the green and open space areas close to 10% of the whole areas. Apart from this, road widening schemes need to be carried out in the commercial areas near the Railway Station and Traffic chowk area. In new developments, it is essential to increase the F.A.R. in order to increase the height of the built form, thus resulting in wider roads and more open areas for future growth.

Conclusions and Directions for further research

The present investigation was an attempt to identify issues in the Municipal areas and adopt a qualitative methodology for assessment of the performance levels of the Municipality as well as opinion of the public in Rourkela Town. Further research work can be done by taking up a larger sample size through cluster sampling and identifying and finding the Level of Service of the Municipality and other Authorties at Ward level. In the end, the Z-scores can be mapped and analysed in relation to other thematic maps such as residential density map, land use map etc. to arrive at more plausible conclusions.

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