

User Satisfaction Level Infrastructure Service Assessment Using Indicators for EWS Housing

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Abstract: *There are many areas in many cities of India having a lack of service in infrastructure. The absence of some basic facilities like water supply, sewerage, health, transportation, electricity and solid waste directly affects the life of people. Government always attempts to improve the lives of individuals by enhancing infrastructure service. Economically weaker section citizens (resettled) also use all services. Many people of EWS housing are suffering from health related problems, transportation-related issue, and many other problems. It is important to identify and monitor the level of service of infrastructure provided by the Government in EWS housing. This paper seeks to focus on assessment of infrastructure service in EWS housing. The main objective of this research paper is to study present scenario of infrastructure service and actual requirements of service in EWS housing located in Kosad and Bhestan of Surat city (Gujarat State, India). An indicator development based analysis was performed over a pilot survey that revealed around 68% and 36% indicators have positive results regarding water quality in Kosad and Bhestan Awas respectively. The Analysis of sewerage infrastructure service and solid waste service indicates that around 88% and 96% indicators are positive regarding overall service in Kosad and Bhestan Awas respectively. Around 36% and 12% indicators are positive regarding vehicle parking facility in Kosad and Bhestan Awas respectively. Analysis of health infrastructure service shows that 60% indicator is positive regarding overall health service in Bhestan Awas.*

Keywords: *Economically Weaker Section Housing, Indicator, Infrastructure service, Migration.*

I. Introduction

Infrastructure plays very crucial role in day to day life of people. Infrastructure is said to have consideration as one of the important factors for the development of an urban locality. Among many reasons for migration, the infrastructure services form a significant portion. Many type infrastructure services become pull factors for the migrating people towards urban spaces. On the other hand, lack of infrastructure service serves resistance for the citizen settlement in urban pockets. Proper installation and regular maintenance are vital. Before improving services, it is necessary to assess the service delivery infrastructure.

II. Objectives

The prime purposes of the study are; 1) to develop and use indicators with related to Water service, sewerage, wastewater, solid waste, transportation and health of EWS Awas. 2) To perform gap analysis for the present level of services to identify specific issues.

III. Study area

Kosad and Bhestan are the study area for pilot survey. Kosad and Bhestan are the EWS pockets where slum people rehabilitated from across the city. The location of Kosad Awas is in the North zone of Surat city whereas Bhestan Awas is settled in the South zone of the Surat city. Kosad Awas have a population around 17,520 people. Bhestan Awas have a population around 8,448 people.

IV. Methodology

Primary data was obtained by conducting a pilot over 50 samples using the likert-5 questionnaire. The Likert-5 points scale included ranking as very satisfactory (VS), satisfactory (S), neutral (N), not satisfactory (NS) and very dissatisfied (VD). Neutral option acts for those responses not aware of particular infrastructure service. The questionnaire contained 5 section seeking information about water supply related service, sewerage service, solid waste service, public transport service and health service. Out of the total, researchers collected 25 responses from people residing in Kosad Awas and same returns from citizens in Bhestan Awas. After tabulating the responses, authors performed reliability analysis and developed indicators for both EWS pockets so as to compare it with a standard level of services. The results anticipated to either support the actions of the local government or assist in identifying lacking services needing attention for future tasks.

V. Reliability analysis of data

Reliability analysis helps in verification of the internal consistency of data. Researchers performed the Cronbach's alpha test on tabulated data. A minimum Cronbach's alpha value of 0.5 is essential. For acceptance of analysis work, the value should be more than 0.7. In the present work, the value obtained was 0.7. Here, the Cronbach's alpha shows there exist

sufficient internal consistency among data with which performed analysis shall be appreciated.

VI. Data analysis and results

The sub-section deals with the development of indicators in five major sectors of urban infrastructure services in context to the study area. The analysis reveals a comparison of services as well as identifies the level of services delivered based on satisfaction prevailing among the users.

A. Water infrastructure service

The analysis for the water infrastructure service indicates that people are not satisfied with the *water quality* in Kosad Awas and Bhestan Awas. Indicator value for water quality is 68% and 36% in Kosad Awas and Bhestan Awas respectively. The analysis for water infrastructure service interprets that indicator for water quality has minimum value as per the graph among sector-specific responses. In water quality indicators, Bhestan Awas are more dissatisfied than Kosad Awas. The local government, however, supplies pipedwater after due treatment in a WTP. The study reveals that focusing on water quality is essential at the end-user level. It suggests for a check whether any leakages or dilutions of any kind are prevailing within the pipeline network.

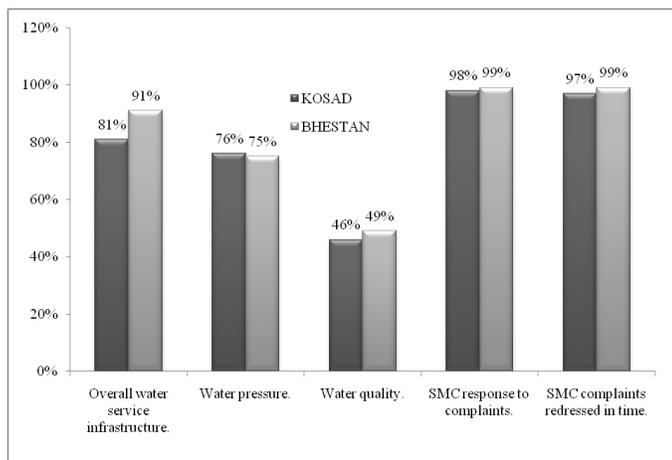


Figure 1 Result of water infrastructure services satisfaction

Indicator values for water pressure in Bhestan Awas is also less compared to Kosad Awas. It is about 80% which predicts that a few people of Bhestan Awas are also not satisfied with the pressure of water. A check in pipeline network may suggest a counter remedy to identify reasons resulting in low-pressure delivery.

B. Sewerage infrastructure service

Both Awas pockets have underground sewage collection network. It collects wastewater from the household and transports it to STP for treatment and disposal. The analysis for the sewerage infrastructure service indicates that people are not satisfied with the overall sewerage service infrastructure in the study area. Indicator values for overall sewerage service

infrastructure are 88% and 96% in Kosad Awas and Bhestan Awas, respectively.

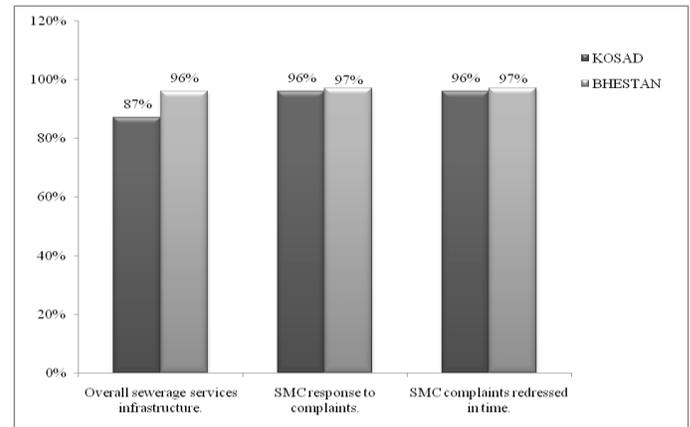


Figure 2 Result of sewerage infrastructure services satisfaction

In overall sewerage service indicator, citizens in Kosad Awas are more dissatisfied than Bhestan Awas. Focusing on overall sewerage service infrastructure is essential. It may lead to a regular check for the overflowing of drains, disposal of manhole covers and like.

C. Solid waste service infrastructure

Indicator value for the solid waste service infrastructure and the sewerage infrastructure service are same. It is also required to work on overall solid waste service infrastructure. Higher values in the indicate a significant level of performance in the solid waste management by the local authorities. However, the somewhat reduced values can yet be improved by checking the measures to improving common area cleanliness, road sweeping-washing and such.

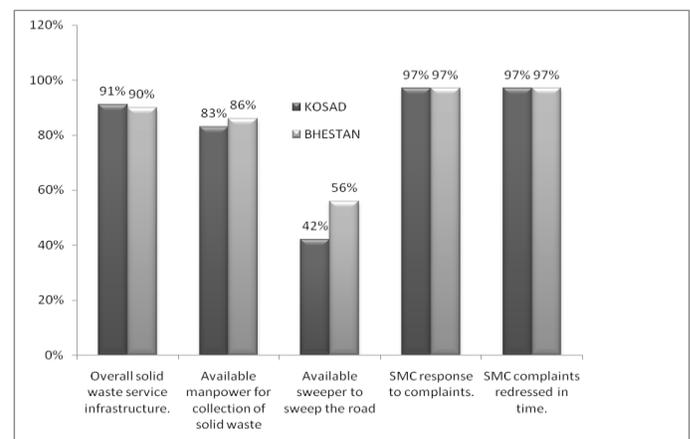


Figure 3 Result of solid waste infrastructure services satisfaction

D. Vehicle traffic related services

The analysis for the vehicle traffic infrastructure service indicates that people are not satisfied with the vehicle parking facility in the study area. Indicator values for vehicle parking facility are 36% and 12% in Kosad Awas and Bhestan Awas respectively. An alarming finding that reveals a complete ignorance of fact the EWS citizens may have an increased economic level after resettlement. The citizens procured vehicles

of their own where the plan of EWS Colony did not consider parking space provision during the planning and implementation duration. Such an indicator identifies a significant general issue resulting in many odds in day-to-day affairs of citizens. It needs to be attended by revising the plans accommodating parking necessities.

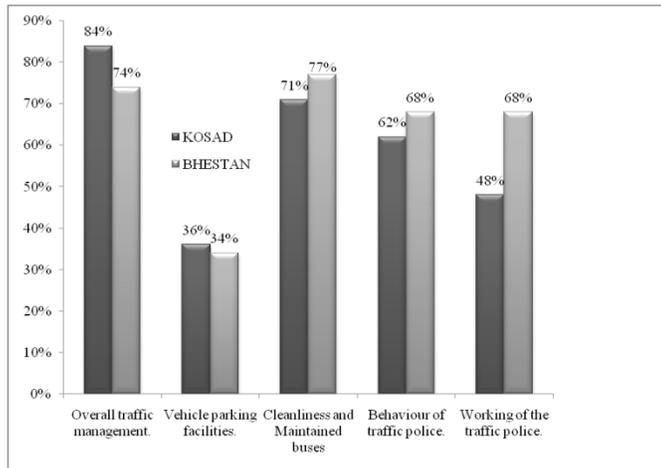


Figure 4 Result of public transport and traffic related services satisfaction

Indicator value for overall traffic management in Bhestan Awas is also less than Kosad Awas. It is about 44 % which indicates that many people of Bhestan Awas are also not satisfied with overall traffic management service.

E. Health-related service

The overall health-related service has 60% indicator value in Bhestan Awas. It depicts that many numbers of people are dissatisfied with overall health-related service. It is required to focus on overall health-related service in Bhestan Awas. By performing a check on developed public health facilities and procedures followed during health awareness campaigns and medicine distribution.

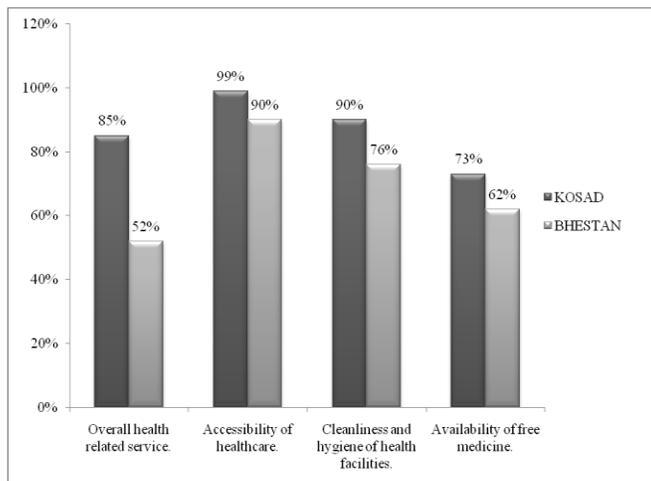


Figure 5 Result of health-related services satisfaction

VII. Concluding remarks

Developing of service level benchmark indicators based on user satisfaction can reveal the other side of the infrastructure service delivery. Local authorities develop indicators of services what it provides for however, the present study attempts in revealing a few missed out provisions from the user's perspective. Below are important remarks derived from the study:

- Water quality and pressure available at end-point user shall be checked for corrective measures;
- Sewerage network shall be examined for leakages, overflows, and missing manhole covers;
- Solid waste management proves to be excellent however, some minor modifications in existing practice will lead in achieving yet a better quality of service delivery;
- Available vacant/ undeveloped land spaces shall be re-examined and re-planned to accommodate sufficient parking facilities for EWS resident owned vehicles;
- Public health related satisfaction level is very high for Kosad however, for Bhestan Awas, the certain check will improve the services.

Proper planning and maintenance will assist in increasing above all indicator value to satisfy need of people in a better way.

VIII. References

- Bipin Prajapati, K. B. (3 Oct-Dec 2011). A study on the availability of basic civic facilities in an urban slum area of Bhuj, Gujarat, India. National Journal of Community Medicine Vol 2 Issue 3 Oct-Dec. 2011.*
- (April 2013.). Economic Indicators Review – Housing and Infrastructure. Developing the Columbia basin rural development institute's economic research paper.*
- Municipal infrastructure grant. (June 2005). 22. Basic level of services and unit costs a guide for municipalities. Department provincial and Local Government .*
- Palei, T. (2014). Assessing the impact of infrastructure on economic growth and Global competitiveness. 2nd Global Conference on Business, Economic, Management and Tourism, 30-31st October 2014.*
- (2013). State of slums in India: A statistical Compendium 2013. Government of India, Ministry of Housing and Urban Poverty Alleviation: National Buildings Organization.*
- (SMC, CEPT University and SUDA). Surat City Development Plan (2006-2012). Surat.*
- www.suratmunicipal.gov.in*
- www.censusindia.gov.in*