

A Comparative QOL Assessment for Surat City Zones

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Abstract: *Urbanization, a precarious scenario is globally spread which is revamping the whole concept of urban planning. To handle the expansion radically increased urban area, the local government faces challenges particularly in planning for future. However, Quality Of Life (QOL) is a tool that expands the city into sustainable manner by improving environmental, educational, social, economic, political, health, and infrastructural conditions through objective and subjective appraisal. QOL is the path that builds a measure of happiness and satisfaction for the government in the mind of citizens. Current research paper discusses an assessment of QOL in city Surat located in Gujarat, India. This descriptive-analytical study carried out through a questionnaire-household field survey of 385 respondents in seven zones of Surat city. Collected data was analyzed using spreadsheets. Cronbach's alpha for survey data was observed a value of 0.873. The analysis shows that environmental, health, social, and education index are highest in the South-West Zone. The Economic Index seems to be highest in the Central Zone, and infrastructure index is the highest in the West Zone. The North Zone gets lowest environmental, health, social, political and educational index. However, the South Zone shows the lowest infrastructure and economic index. Among all zones in Surat, the QOL for the North Zone (2.77) was worst and for the South-West Zone was found to be excellent (3.52). A discussion over recommendations to improve QOL of Surat city concludes the paper.*

Keywords: Urbanization, Quality of life, QOL, Surat city, Zones

I. INTRODUCTION

In the 21st century, a century of urbanization, many countries are facing the opportunity of overpopulation in cities. To manage rapidly developing sprawl, the government needs to focus on effective planning, projects identification, allocation of budget, skilled workforce and of course, the willingness of the citizens to help the government. Urbanization creates many challenges and to address it; new concepts are emerging day by day such as sustainable city, green city, eco-city, smart city, Pier to Pier urbanization and so on. However, to accomplish the common aim, crux revolves around - how to measure the condition of the city? The quality of life (QOL) philosophy can support in this situation. It is a concept revealing a status-quo guide governments for making provisions leading to a better standard of living and preserve resources for future generation by adopting a specific conceptual framework (Francisco Zorondo-Rodriguez, 2012). The Cities act as the locomotive of growth; people gather to ensure a better and healthier life and in such case, QOL assessment becomes necessary. QOL is a

multidimensional model that refers to satisfaction with life of citizens. Surat city in Gujarat-India, globally the 4th fastest growing city (City Mayors Statistics, n.d.) provides employment to hundreds of people. Also, Surat city selected under Smart City Mission Scheme, launched by the Prime Minister of India (SECRETARIAT, 2015). QOL analysis in Surat city can empower to suggest directions for Surat Municipal Corporation (SMC) to deal with several urban development and management aspects. Objectives of the study were: (1) To recognize and study different parameters for improving QOL of zones of Surat city, (2) to govern QOL for zones of Surat city, and (3) to frame recommendation for improvement of existing conditions.

II. QOL CONCEPT

QOL is a broad and qualitative approach concerning mainly with the satisfaction of people with their life (Andelman, 1998). It is a theory deriving real state and fulfillment state based on authoritative resource and people's thoughts on amenities and facilities provided by the government. In an urban area, QOL assessment helps to develop strategic, logical and comprehensive urban planning system and make the place livable. QOL is a historical concept where many researcher and policy makers develop and redefine QOL based on their exhaustive research and study. As far as, in the 21st century, it is obligatory to provide qualitative life to expanded population dynamism and for that QOL assessment support very intensely.

According to Cummins, QOL is both objective and subjective, each axis being the aggregate of seven domains: material, well-being, health, productivity, intimacy, safety, community, and emotional well-being. QOL is the human condition determined by the interaction between health and happiness (Andelman, 1998). QOL is the full concept of life domain including value, belief and aspiration dimension from both public and government side (Costanza, 2007).

Two approaches can measure QOL. One direct approach that is subjectively associated with people's feeling about the condition of life and surrounding physical as well as natural environment. A second is an indirect approach with objective related to the collection of observational data from the organization (Akbar Kiani, Jan-2015). Many researcher and policy makers identify different variable to assess QOL. In this research QOL can found based on seven parameters; environment, health, economic, social, education, political, and infrastructure (Narendra N. Patel, 2010).

Cataloging QOL score for city based on analysis of collected information through various means (shown in Table 1). QOL is a

method that provides practical information about the condition (AjzaShokouhi, 2013). Area scored with terrible and low quality; the government needs to focus with more concentration around this field to improve QOL.

Table 1 Classification of QOL score

Quality score	Evaluation
1-1.8	Terrible quality
1.8-2.6	Low quality
2.6-3.4	Average quality
3.4-4.2	High quality
4.2-5	Excellent quality

Source: (AjzaShokouhi, 2013)

III. STUDY AREA

Surat city, a self-motivated port city, is also known as Suryapur in antiquity, located on the bank of the Tapi River in the South region of Gujarat State of India (Refer to Figure 1). Surat city spreads in a 326.515 sq. km. area and has 44,66,826 citizens (Registrar General & Census Commissioner, 2011). The census revealed that a 40% of total citizens were residing in slums. Surat city has seven geographical divisions for administration. These are North Zone, South Zone, East Zone, West Zone, Central Zone, South-East Zone, and South-West Zone. The area and population of these zones are shown in Table 2.



Figure 1 Location of Surat city

Table 2 Demographics detail of zones of Surat city

Sr.	Zones	Area (Sq. Km.)	Population in lakh (Census 2011)
1	WZ	51.27	4.24
2	EZ	37.52	11.38
3	NZ	36.36	7.03
4	SZ	61.76	6.93
5	CZ	8.18	4.08
6	SWZ	111.91	3.47
7	SEZ	19.49	7.45

(Source: SMC website)

IV. DATA COLLECTION

The current research to determine QOL for the Zones of Surat city was a descriptive-analytical study. A field survey was carried out through a household survey using scientific questionnaire. The study was conducted by applying random sampling technique. To maintain consistency, a pilot survey study was performed for a reference of 35 pilot samples across the city. It helped in the modification of the questionnaire, and the final questionnaire was formulated with three categories. The first category was aiming to explore the extensive detail about respondents like name, age, family members, income level, education, and occupation. The second category involved questions based on parameters of QOL domain. Responses were obtained for an opinion on 73 statements (i.e. 28 parameters) on 5- Likert scale. The Likert scale was distributed as 1-“Strongly disagree”, to 5-“strongly agree.” The third category consisted of rating of several parameters on 1-10 scale.

To determine sample size, a confidence interval of 95 percent and error margin 0.05 was used. The sample size was derived from 385 individuals of the city population. It further led to having 55 questionnaires responded from each of the seven zones of Surat city.

After collecting the data from city, a data reliability test was performed. The test helped in determining the consistency of data obtained through a questionnaire. Current research work data observed a value of 0.873 for the Cronbach’s alpha, which is considered to be good and suggests for further analysis.

V. RESULTS

Questionnaires in all seven zones were responded mostly by a male person (>51%) having an age between 20 to 50 years (>64%). In all the zones more than 40% people responded to have an annual income between one lakhs to 3 lakhs. However, more than 31% people living in the West Zone and the South-West Zone have annual revenues more than five lakhs. More than 42% people have education less than higher secondary excluding the East Zone, West Zone, and South-West zone. Most of the citizens in these zones have attained undergraduate education level. (>29%) residents of all the zones are involved in private services.

Quality of life index assessment

Based on the personal investigation, the QOLI was discovered using average QOL score obtained in various parameters in second categories.

Environmental Index (EI):

For the physical environment, it is observed from Table 3 that people live in the North Zone are not satisfied with the facility related to housing, transportation, and public service. In aesthetics facility, people of the South-East Zone are not convinced. On another hand, South-West Zone enjoys the excellent facility of accommodation, transportation, and aesthetics. For the public service, Central Zone gets higher rating among all seven zones.

For natural environment, it is observed that the air quality is not good in the South Zone. However, the South-West Zone responded to have better air quality. People living in the North Zone reported for poor water quality. In the East Zone, the solid waste management has higher disturbance which is less in the central Zone. In the South-East Zone, an issue related to high noise was identified. However, the South-West Zone offers a good, pleasant atmosphere to the citizens.

The physical, as well as the natural EI, is higher and lower in the South-West Zone and the North Zone respectively.

Health Index (HI):

A view of the mental and physical health parameters derived the HI. In general, from Table 3, it is reported that condition of physical health and mental health are inferior in the North Zone. Physical health is virtuous in the West Zone and mental health to be virtuous in the South-West Zone. North Zone get a lower score, and South-West Zone gets a higher score of the HI.

Economic index (Eci):

The EI was analyzed through income and work satisfaction level based parameters. From the Table 3, it is observed that an opportunity for economic engagements was greater in the South-West Zone and poorer in the South Zone. The level of the work-satisfaction was identified to be higher for the Central Zone and lower in the East Zone. From the overall analysis of EI, the economic condition is upright in Central Zone and evil in the South Zone.

Social Index (SI):

From the Table 3, it is detected that North Zone acquires lower score in family relations, social stability, culture and recreation. For the community cohesion and physical security, the South Zone obtained a lower score. The South-West Zone was identified to have a higher score in social, community cohesion, social stability and culture matters. Higher scores were revealed for the recreation and physical security parameters by the East Zone and the West Zone, respectively. The overall SI is greater for the South-West Zone and lower for the North Zone.

Political Index (PI):

From Table 3 it is observed that PI is greater for the East zone and less for the North zone.

Educational Index (EdI):

From Table 3, the North Zone is achieving lower educational index rating and the South-West Zone obtains higher EdI among all zones of Surat city.

Infrastructure Index (II):

From Table 3, it is established that variable related to II, the drainage, storm water, and milk distribution network scored lowest for the North Zone, and other variables such as electricity, communication, traffic, energy distribution, and fire safety network scored lowest for the South Zone. Central Zone citizens enjoy good drainage and storm water network that is reflected through high scoring. The East Zone apexes the score in a communication network. Electricity and energy distribution

system are on peak rating for the South-West Zone, and West Zone is leading in traffic, fire safety, and milk distribution network. However, overall infrastructure index is lowest for the South Zone and highest for the West Zone

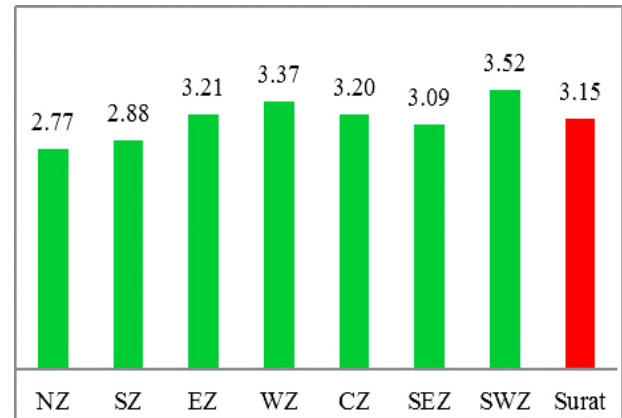


Figure 2 Average QOL score for Surat city

(Source: Authors)

The overall QOL in all zones are determined by analyzing seven parameters and shown in Figure 3. The South-West zone obtained the highest QOL score of 3.52 with a city average of 3.15.

VI. CONCLUDING REMARKS

The discussions drew the analogy of QOL score among all the seven zones of Surat city. The results demonstrated that, among all the parameters and subparameters, the solid waste management service is excellent across the city, with the best score obtained by the South-West. The citizens responded for poor-most fire safety network for the North zone. In all the zones, traffic network conditions need to be addressed on a priority basis. Surat Municipal Corporation may improve these parameters and put efforts to uplift overall QOL of Surat city from score 3.15 which, at present, depicts for the average quality of life of citizens.

VII. SUGGESTIONS

Below are some of the remedial measures derived based on the research work discussed earlier.

- Introduce and implement effective traffic management strategy in the North Zone, and the South zone with top primacy.
- Carry out planning with a focus to promote excellent employment opportunity with a white-collar job in the North zone, the South zone, the East zone and the South-West zone.
- Improvement in the fire safety network through ensuring rigorous implementation of guidelines is essential for almost all the zones.
- To ensure enhancement of physical security of the citizens, a strengthening the police force or installation of surveillance system may be carried out.

VIII. REFERENCES

- i. (n.d.). *The world's fastest growing cities and urban areas from 2006 to 2020* Retrieved April 26, 2016, from City Mayors Statistics: http://www.citymayors.com/statistics/urban_growth1.html
- ii. 2012 *Quality Of Living Worldwide City Rankings – Survey*. (2012). pp. 33-36.
- iii. Abhay Mudey, S. A. (2011). *Assessment of Quality of Life among Rural and Urban Elderly Population of Wardha District, Maharashtra, India*. 89-93.
- iv. Achmad Delianur Nasution, W. Z. (2014). *Community Perception on Public Open Space and Quality of Life in Medan, Indonesia*. *Procedia - Social and Behavioral Sciences*, 585 – 594.
- v. AjzaShokouhi, J. B. (2013). *A comparative study of the quality of urban life The case study of Mashhad neighborhoods (Kosar and Saber)*. *Journal of Novel Applied Sciences*, 387-397.
- vi. Akbar Kiani, H. A. (Jan-2015). *Analysis the quality of life for the citizens in the level of the Zabol city*. *International Journal of Management Sciences and Business Research*, 72-78.
- vii. Andelman, B. C. (1998). *Quality of Life Definition and Terminology. The International Society for Quality of Life Studies*.
- viii. Costanza, R. (2007). *Quality of life: An approach integrating opportunities, human needs, and subjective well-being*. *Ecological Economics*, 267-276.
- ix. Daud, D. N. (2013). *Empirical Investigation on Quality of Life Among Residents in a Community: A Case Study in Malaysian National Park*. *International Conference on Technology, Informatics, Management, Engineering & Environment*, 67-70.
- x. Eurobarometer, F. (October 2013). *Quality of life in cities*. Belgium: European Commission.
- xi. Feneri A-M, V. D. (2013). *Measuring Quality of Life (Qol) In Urban Environment: An Integrated Approach*.
- xii. Flora, C. B. (1998-99). *Quality of Life Versus Standard of Living*. *Rural Development News*.
- xiii. Francisco Zorondo-Rodriguez, E. G.-B.-M.-G. (2012). *What Defines Quality of Life? The Gap Between Public Policies and Locally Defined Indicators Among Residents of Kodagu, Karnataka (India)*. *Springer Science Business Media*.
- xiv. Keles, R. (2012). *The Quality of Life and the Environment*. *Procedia - Social and Behavioral Sciences*, 23-32.
- xv. Madhukar G. Angur, R. W. (n.d.). *Congruence among Objective and Subjective Quality-of-Life (QOL) Indicators*. *Alliance Journal of Business Research*, 47-54.
- xvi. Michalski, J. H. (July 2002). *Quality of Life in Canada: A Citizens' Report Card*. *CPRN RCRPP*.
- xvii. Mohit, M. A. (2014). *Present Trends and Future Directions of Quality-Of-Life*. *Procedia - Social and Behavioral Sciences*, 655 – 665.
- xviii. Mojtaba Shoeibi, I. A. (2015). *Analysis of Subjective Indicators of Quality of Life in Urban Areas of Iran (Case Study: Sonqor City)*. *Journal of Research in Humanities and Social Science*, 39-46.
- xix. Narendra N. Patel, S. N. (2010). *Quality Of Life Index Assessment For Surat City Of India*.
- xx. Puskorius, S. (February, 2015). *The Methodology of Calculation the Quality of Life Index*. *International Journal of Information and Education Technology*, 156-159.
- xxi. (n.d.). *Quality of Life in Twelve of New Zealand's Cities 2007*.
- xxii. (2013). *Quality of Life Survey 2012 Six Councils Report*. New Zealand: nielsen.
- xxiii. Registrar General & Census Commissioner. (2011). *Population Enumeration Data (Final Population)*. (Ministry of Home Affairs, Government of India) Retrieved March 2016, from [Census india 2011: http://censusindia.gov.in/](http://censusindia.gov.in/)
- xxiv. SECRETARIAT, L. S. (2015). *SMART CITIES*. New Delhi: MoUD.
- xxv. (SMC, CEPT university and SUDA). *Surat City Development Plan (2006-2012)*. Surat.
- xxvi. (2005). *The Economist Intelligence Unit's quality-of-life index*. *THE WORLD IN 2005*.
- xxvii. Turkoglu, H. (2015). *Sustainable Development and Quality of Urban Life*. *Procedia - Social and Behavioral Sciences*, 10-14..

Table 3 Average response rate of QOL parameter
(Source: Authors)

Variable	NZ	SZ	EZ	WZ	CZ	SEZ	SWZ
1.Environmental Index (EI)							
Physical environment							
Housing	2.82	2.93	3.35	3.73	3.41	3.32	3.96
Transportation	2.58	2.84	3.07	3.20	3.11	3.16	3.32
Public service	3.37	3.68	3.58	3.77	3.89	3.67	3.79
Aesthetics	3.05	3.35	3.32	3.55	3.09	2.90	3.57
Average	2.96	3.20	3.33	3.56	3.37	3.26	3.66
Natural environment							
Air	2.64	2.38	3.01	3.40	2.99	3.09	3.61
Water	3.03	3.55	3.53	3.92	3.39	3.32	4.00
Solid waste	2.98	3.12	2.88	3.05	3.41	3.31	3.26
Noise	4.52	4.08	3.97	4.43	4.17	3.79	4.86
Average	3.29	3.28	3.35	3.70	3.49	3.38	3.93
Mean	3.12	3.24	3.34	3.63	3.43	3.32	3.80
2. Health Index (HI)							
Physical health	2.77	3.47	3.38	3.79	3.54	3.57	3.73
Mental health	2.72	2.83	2.96	2.75	3.02	2.86	3.18

Mean	2.74	3.15	3.17	3.27	3.28	3.21	3.45
3. Economic Index (EcI)							
Income	3.06	2.89	3.47	3.22	3.41	3.53	3.62
Work satisfaction	2.25	2.37	2.04	2.13	2.71	2.13	2.39
Mean	2.66	2.63	2.76	2.67	3.06	2.83	3.01
4. Social Index (EcI)							
Family	2.98	3.51	3.40	3.44	3.49	3.30	3.66
Community	2.82	2.77	2.98	3.05	2.94	2.93	3.34
Social stability	2.57	3.06	3.67	3.79	3.59	3.39	3.83
Physical security	2.53	2.37	3.19	3.96	3.27	2.37	3.85
Culture	2.63	3.14	3.26	3.35	3.28	3.15	3.98
Recreation	3.10	3.18	3.57	3.19	3.46	3.15	3.47
Mean	2.77	3.00	3.34	3.46	3.34	3.05	3.69
5. Political Index (PI)							
	2.76	2.84	3.51	3.41	3.14	3.11	3.07
6. Educational Index (EdI)							
	2.52	2.58	3.17	3.67	2.85	2.99	4.17
7. Infrastructure Index (II)							
Drainage network	2.92	3.36	3.22	3.17	3.53	3.52	3.19
Storm water network	2.92	3.36	3.40	3.38	3.62	3.45	3.42
Electricity	3.15	3.00	3.25	3.56	4.15	3.18	4.24
Communication network	3.07	2.55	3.70	3.66	3.59	3.37	3.42
Traffic network	2.33	1.93	2.60	3.29	3.06	2.81	3.15
Energy distribution network	2.87	2.60	3.11	3.65	2.99	3.01	3.79
Fire safety network	2.14	1.90	2.48	3.22	2.27	1.98	2.60
Milk distribution network	3.07	3.21	3.56	3.90	3.38	3.48	3.76
Mean	2.81	2.74	3.16	3.48	3.32	3.10	3.44