A Comparative QOL Assessment for Surat City Zones

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Abstract: Urbanization, a precarious scenario is globally spread which is revamping thewhole concept of urban planning. To handle the expansion radically increased urban area, thelocal government faces challenges particularly in planning for future. However, Quality Of Life (QOL) is a tool that expandscity 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 over happiness and satisfaction for thegovernment in the mind of citizens. Current research paper discusses about anassessment of QOL in city Surat located in Gujarat, India. This descriptive-analytical study carried out through aquestionnaires-household field survey of 385 respondents in seven zones of Surat city. Collected data was analyzedusing 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. 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 thelowest infrastructure and economic index. Among all zones in Surat, theQOL 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, acentury of urbanization, many countries are facing theopportunity of overpopulation in cities. To manage rapidly developing sprawl, thegovernmentneeds to focus on effective planning, projects identification allocation of budget, skilled work-force and of course, willingness of the citizens to help thegovernment. Urbanization creates many challenges and to addressit, 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 revolvesaround - how to measure the condition of thecity? The quality of life (QOL) philosophy can support in this situation. It is aconcept revealing a status-quoto provideguidance to governments for making provisions leading to abetter standard of living and preserve resources for future generation by adoptinga specificconceptual framework(Francisco Zorondo-Rodriguez, 2012). The Cities act as locomotive of growth; people gatherto 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 4thfastest 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 directionsfor Surat Municipal Corporation (SMC) to deal with several urban development and management aspects. Objectives of Study were: (1) To recognize and study different parameters for improving QOL of zones of Surat city, (2) To govern QOLI 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 thegovernment. In anurban area, QOL assessment helps to develop strategic, logical and comprehensive urban planning system and make theplace 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 the21st 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 thecondition of life and surrounding physical as well as natural environment. The second, is an indirect approach with objective related to thecollection of observational data from theorganization(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

thecondition(AjzaShokouhi, 2013). Area scored with terrible and low quality, thegovernmentneed to focus with more concentration around this fieldstoimprove 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,aself-motivated port city, is also known as Suryapur in antiquity, located on the banksthe 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 habitats 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 areNorth 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.
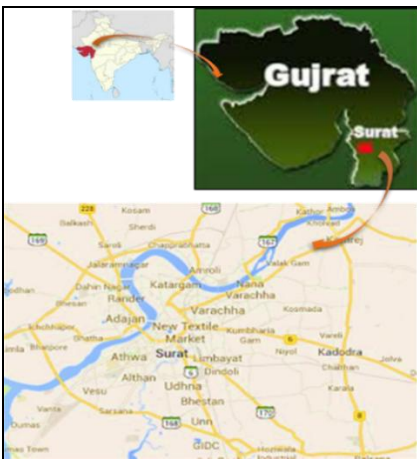

Figure 1 Location of Surat city

Table 2 Demographics detail of zones of Surat city

No.	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 household survey using scientific questionnaire.The survey was conducted by applying random sampling technique. To maintain consistency, apilot survey study was conducted for a reference of 35 pilot samplesacross the city.It helped in modification of the questionnaire and the final questionnairewas formulated with three categories. The firstcategory was aiming to exploretheextensive detail about respondent like name, age, family members, income level, education, and occupation. The second categoryinvolved questions based on parameters of QOL domain. Responses were obtained for anopinionover 73 statements (i.e. 28 parameters) on 5- Likert scale. The Likert scale was distributed as 1-"Strongly disagree", to 5-"strongly agree."The thirdcategoryconsisted ofarating ofseveral parameters on 1-10 scale.

To determine sample size, a confidence interval of 95 percent and error margin 0.05 was used.Sample size was derived as 385 individuals of the city population. It further led to have 55 questionnaireresponded from each of the seven ones of Surat city.

After collecting the data from city, a data reliability test was performed. The test helped in determining the consistency within data obtained through 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 wereresponded mostly by amale person (>51%) having an age between 20 to 50 years (>64%). In all the zones more than 40% people responded to have annual income between one lakhs to 3 lakhs. However, more than 31% people living in the West Zone and the South-West Zone haveannual revenues more than five lakhs. More than 42% peoplehave education less than higher secondary excluding the East Zone, West Zone, and South-West zone. Most of the citizens in these zones have attained under graduate education level. (>29%) residents of all the zones are involved in private services.

Quality of life index assessment
Based on the subjective investigation,the QOLI was discoveredusingaverage QOL score obtained in various parameters in second categories.

Environmental Index (EI):
For thephysical 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 enjoy theexcellent 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, thesolid

waste management have higher disturbance which is less in thecentralZone. In the South-East Zone,an issue related to high noise was identified. However, the South-West Zone offersa good, pleasant atmosphere to the citizens.

The physical as well as thenaturalEIis higher and lower in the South-West Zone and the North Zone respectively.

Health Index (HI):
A view over the mental and physical health parameters derivedthe 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 get 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 observedthatan opportunity for economic engagements was greater in the South-West Zone and poorer in the South Zone. Level of the work-satisfaction was identified to be higher for the Central Zone and lower in the East Zone. From theoverall analysis of EI, the economic condition is upright in Central Zone and bad in the South Zone.

Social Index (SI):
Fromthe 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 alower score. The South-West Zone was identified to have ahigher 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 overallSI is greaterfor the South-West Zone and lowerfor the North Zone.

Political Index (PI):
From Table 3 it is observed that PI is greater for the East zone and lessfor the North zone.

Educational Index (EdI):
From Table 3,the North Zoneis achiving 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 lowestfor the North Zone, and other variables such as electricity, communication, traffic, energy distribution, and fire safety network scored lowestfor the South Zone. Central Zone citizens enjoy good drainage and storm water network that is reflected throughhigh scoring. The East Zone apexes the score in acommunication network. Electricity and energy distribution systemare on peak ratingfor the South-West Zone, and West Zone isleading in traffic, fire safety, and milk distribution

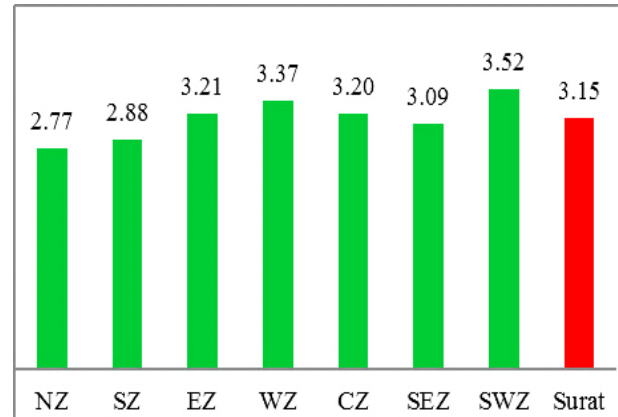network. However, overall infrastructure index is lowestfor the South Zone and highestfor the West Zone

Figure 2 Average QOL score for Surat city
(Source: Authors)

Theoverall 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 averageof 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, thesolid waste management serviceisexcellentacross the city,withthe 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 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 promoteexcellent employment opportunity with 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 ensuringrigorous implementation of guidelines is essentialfor almost all the zones.
- To ensure enhancementof physical security of the citizens, astrengthening the police force or installation of surveillance system may be carried out.

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Table   SEQ Table * ARABIC 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