Urban Quality of Life: Domains, Dimensions and Indicators for Indian Cities

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Abstract

The word “quality of life” has been used vigorously from everyday language to research studies. Often, it becomes challenging to differentiate between notions related to QoL, well-being, satisfaction, and happiness. UQoL is a notion that has been conversed in recent studies as a response to various urban issues and challenges. The paper aims to define the concept of QoL in urban context through a descriptive analytical approach and reviews various QoL models and approaches of QoL- studies and compares the number of indices measuring QoL at the national and city level to identify various dimensions and indicators. Finally, a conceptual model concluding the UQoL indicators have been deduced in the form of a matrix. These dimensions represent a guide for policymakers, Planners, Architects, and Designers.

Keywords: Quality of Life (QoL); Urban Quality of Life (UQoL); Sustainable Development; QoL Indices; QoL Assessment

1. Introduction

Quality of life (QoL) is a complex, multifaceted concept and used across many disciplines ranging from philosophy, social, Political, environmental to health sciences. It usually refers to the general well-being of individuals and societies, but in many disciplines, it has been defined differently. Often, it becomes difficult to differentiate between related notions such as QoL, well-being, satisfaction, and happiness. Most people understand QoL as “goodness of life” and the ability to live happily and successfully within the environment \cite{1}. It has been defined and perceived differently over time. The beginning of the QoL concept can be traced back from the era of the early philosophical period (427- 322 BC); and happiness was the central objective of a good-life and defined by attitudes, feelings, and beliefs. In the field of Economy, QoL was introduced in 17th century and measured using a material living factors such as GDP and quantity of the goods produced. In the Field of Social Science, the term was introduced after the social indicator movement in the 1960s to measure societal development. Which added various social aspects of human living such as community life, family relationships, and environmental quality. In 1970s in the field of political science, QoL studies used only economic measures of social welfare. In 1980s, QoL concept was introduced in medical fields which focused on health-specific well-being and termed as Health-Related Quality of Life. From 1990 onwards, QoL concept was researched in the field of social sciences, marketing, city planning and design. The term QoL has multiple interpretations in different fields, and a lack of consensus in the use of the term has also been found in many studies due to its multidisciplinary nature \cite{2,3}. The efflorescence of Quality-of-Life researches in various fields played an essential role in the policy regime and improving the living environment quality and quality of life of people became the major objective goal of governments.

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Over the past few decades, there has been a shift in the overall perception of urban life and numerous studies have emphasized the significance of the place or context in determining the quality of life; as the place can offer various opportunities such as a healthy and safe environment, income opportunities and other facilities like health, education, and recreation. In 2014, 54 percent of the world’s total population was living in urban settings, and by 2050, it is projected to reach 70 percent [4]. To provide decent QoL for the citizen’s with rapid population and urbanization, it becomes necessary to integrate QoL concept in researches related to Natural and Built Environment. However, fields such as Urban Planning, Environmental Planning, Architecture and Landscape Architecture, QoL-related researches are few.

Through the analysis of the literature, the paper aims to identify various facets of QoL in the urban context in India. Furthermore, it also explores how significant these aspects are based on their assigned relative weights to the respective aspect in different QoL indices. The comparison of QoL Indices with the global development goals provides understandings of the concept of QoL in the realms of urban development.

2. Methodology

The study follows the Descriptive Analytical Approach to review the various concepts of quality of life, Urban quality of life, sustainable development and diverse approaches to quality of life studies. It compares the number of indices measuring QoL at the national and city level with Sustainable Development Goals to identify various dimensions and indicators defining QoL in the urban context. In addition, it applies the system concept to define the urban quality of life. Finally, a conceptual model concluding the UQoL dimensions is developed and various indicators have been deduced in the form of a matrix.
3. Literature Review

3.1. The Concept of Quality of Life

The QoL construct is composed of complex multidimensional elements, so there is no widely accepted definition and a standard method of measurement [5] and due to this, studying the concept has become more challenging and stimulating.

World Health Organization (WHO) defines the quality of life as, “an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. It is a broad-ranging concept affected in a complex way by the persons’ physical health, psychological state, level of independence, social relationships and their relationship to salient features of their environment” [6]. Raphel et al. 2001, defines as “the degree to which a person enjoys the important possibilities of his/her life,” [7] where possibilities are the interaction between personal and environmental factors based on the opportunities and limitations of their life. Whereas, Ontario Social Development Council, 1997 defines the quality of life as “the product of the interplay among social, health, economic and environmental conditions which affect human and social development.” Cella & Nowinski, 2002 views quality as one’s physical, functional, social, and emotional wellbeing but not external influences such as environmental quality [8]. Ventegodt et al. 2003 conceptualises quality of life as the depth of one’s life, which is defined by connecting both the subjective and objective dimensions [9]. Additionally, Economist Amartya Sen highlights the freedom-centered perception of Quality of Life; which focuses on the choices one has not just on the resources or income that person commands [10]. These varied perspectives show different groups of elements underlying the quality of life rather than the standard agreed definition for quality of life.

3.2. Approaches to Quality of Life Studies

QoL is an elusive concept, concerned with the general well-being of an individual or community. The researchers from different fields and regions have adopted studied it from different perspectives, which is influenced by their own cultures, social environment, and status of economic development [11]. The four varied theoretical perspectives have been identified and reviewed.

3.2.1. Happiness and Life Satisfaction Approach

According to Plato’s and Aristotle’s Philosophy, happiness and life satisfaction are the key objectives of a good life, defined by attitudes, feelings, and beliefs. Although, happiness and life satisfaction are not the same but mutually interrelated with the concept of QoL. Sirgy and Lee, 2006, defines happiness as the feeling or affective state of the individual resulting from the positive and negative emotional responses attained from life events [12]. Many psychologists have viewed happiness as a temporal effect that fluctuates on a daily basis and it reflects how a person feels towards their current state [13]. Whereas, long-term happiness is a disposition and has a lesser dependency on environmental factors.

However, Life satisfaction can be defined as the consequence of the evaluation of an individual’s current life conditions, accomplishments against individuals’ needs, values, goals, and aspirations. It is a long-term perceptive appraisal of the past, present, and overall life. It is relatively more stable among older age groups compared to younger ones [13]. Also, it has been found that younger people reflect greater happiness but achieve less life satisfaction in comparison to older ones.

3.2.2. The Needs Satisfaction Approach

According to the needs satisfaction approach, the degree to which persons’ basic needs are fulfilled an individual reaches a certain level of QoL. Therefore, QoL can be expressed as human needs and meeting those needs effectively. Maslow’s hierarchy of needs (1954) suggests five levels of human needs Physiological needs, Safety needs, Belongings needs, Self-esteem needs, and Self-actualization needs [14]. Arndt (1981) proposed three categories;
Physical needs, Social needs, and Self-actualization needs [15]. According to Allardt (1993), basic needs include three aspects of life such as ‘having’, ‘loving’, and ‘being’. Having needs refers to material conditions essential for human survival while Loving needs refers to the need to connect with others [16]. Being needs refers to living in harmony with society and nature. When the basic needs are met, one will pursue the higher level of needs such as self-actualization [14].

3.2.3. Capability Approach

Economist Amartya Sen (1980) has criticized utilitarian or commodity-focused approaches and highlighted the inadequacy to evaluate the true wellbeing of a person due to wide diversity between populations both in terms of personal heterogeneities, environmental diversities, and variation in climate. He also argues that given equal endowments of goods and resources, two different individuals may not obtain the same state of wellbeing, because of their disparity in ability to transform these resources into wellbeing. Within the capability theory, he suggests two key concepts that should be considered while evaluating individual wellbeing namely functionings and capabilities. The set of possibly attainable states (capabilities) and that of those effectively realised (functionings) govern the wellbeing of an individual [17]. Ivan et al, 2013 has proposed two kinds of capabilities integrated into human life; Base-Capabilities (defining the dimensions of wellbeing; health, home, environment, work/education, play, and participation) and Goal-Capabilities (defines life’s fulfillment; autonomy, self-esteem, and responsibility) [17]. Base-capabilities are required to pursue Goal-capabilities. Thus, attained wellbeing is not independent of an individual’s choices.

3.2.4. Life Satisfaction based on Needs Satisfaction

Needs and life satisfaction are two vital components of human life. Sirgy (1995) has proposed a model that draw life satisfaction utilizing Maslow’s (1954) need hierarchy theory. The greater the need satisfaction of people in a society results in a higher level of QoL. To enhance the community,” QoL variety of institutions are built to fulfill various levels of needs. It argues that an increase in QoL is accompanied by changes in these institutions. The model was tested over 1,226 adults from the United States, Canada, Australia, Turkey, and China. The results provided evidence for the validation of construct need hierarchy measure of life satisfaction.

Table 1 Comparison of Approaches

| Approach                                      | Base- Theory       | Origin     | Central Objective           | Applicability                      |
|-----------------------------------------------|--------------------|------------|-----------------------------|-----------------------------------|
| Happiness and Life-Satisfaction Approach     | Plato’s and Aristotle’s Philosophy | 324 BC     | Happiness and Life Satisfaction | Subjective Assessment at Individual Level |
| The Needs Satisfaction Approach              | Need Satisfaction Theories | 1954       | Meeting Human Needs         | Objective Assessment at Collective Level |
| Capability Approach                           | Welfare Economics  | 1980       | Enhancing the capabilities  | Objective Assessment at Collective Level |
| Life Satisfaction based on Needs Satisfaction | Happiness and Hierarchy of Needs | Sirgy, 1995 | Considers lower to higher level of human needs | Objective and Subjective assessment at collective level |

Source: Author’s Adaptation from various sources

3.3. Quality of Life Assessment Parameter

Due to the multidimensionality and varied perspectives of the studies, measuring the quality of life has been usually debated since its emergence. There is still a lack of standardized measures [12]. Despite this, in the last 20 years, some form of agreement can be seen based on the commonality of measures in various indexes.

3.3.1. Scales of Study

QoL is a broad concept and has been studied at different scales in policy-making, planning, and research regime. Primarily, it can be studied at two levels, the individual level, and the collective level. The collective level can be
further explained into various spatial scales like National, Regional, City/Urban, Community, Neighborhood, and Building/Group [19]. The spatial scale and the disciplinary context direct the framework of the study. The Table presents the various scales from the literature at which QoL studies have been conducted and the approach and measures used.

3.3.2. Hierarchical Structure of Measures

The QoL assessment framework consists of a number of parameters, it involves objective and subjective assessment of different spheres of human life for instance objective life condition, satisfaction with these life conditions and personal goals and aspirations. These spheres are called as QoL Domains. Each Domain is also defined by various aspects of of human life such as health, education, family and social relationships, economic condition, Infrastructure and mobility, natural and social environment, and subjective perception of their own life. These life aspects are called QoL dimensions. Each dimension is further described by a number of indicators that analyzes the performance of each dimensions. Finally, each indicator has its toolbox of measurement which identifies/provides information.

4. Quality of Life Indices

In 1990, economist Mahbub ul Haq developed the Human Development Index (HDI), which was adopted by United Nations Development Program (UNDP) to measure the overall achievement of a country in economic, education, and health dimensions. The limited sets of indicators have failed to capture the economic performance, social progress, environmental conditions, and well-being of the citizens in a country and providing a comprehensive picture of different populations and countries' life quality is a complex process and a group of indicators representing relevant dimensions is needed [20].

Moreover, a reflection of multiple concerns and limitation of the HDI led the development of various indices by various organisations. WHO QoL -BREF (1996) was developed by World Health Organization, that evaluates the individual’s well-being on four domains; physical, psychological, social, and environmental health. Economic Intelligent Unit (EIU) developed Where to be Born Index in 2005; this included objective indicators, subjective life assessment surveys along with prospects and ranked the countries based on the opportunities they offer for a better quality of life in terms of health, safety, and economic prosperity. In 2010 Social Progress Index was first published to measures the extent to which the environmental and social needs of their citizens are satisfied in a country. OECD published its first Better Life Index in 2011; the index added the parameter such as work-life balance and life satisfaction. In 2012 the first World Happiness Index was released by the united nations; it provides collective happiness in a nation based on respondent ratings of their own lives and happiness.

In India, three QoL Indexes have been developed to rank the cities based on the QoL they offer. In 2010 Institute for Competitiveness and Confederation of Indian Industry developed its first Livability Index, 2010, and ranked 37 cities based on objective analysis of quantitative and qualitative indicators belonging 8 pillars and 20 sub-pillars. In 2018, the Ministry of Housing and Urban Affairs, Government of India has developed its first Ease of Living Index. It ranked 111 cities on 76 objective indicators belonging 4 pillars; Social Index (25%), Institutional Index (25%), Economic (5%), and Physical (45%) that are further categorized 15 sub-index and 78 indicators. In 2019, Ministry of Housing and Urban Affairs, Government has published its second Ease of Living Framework which is strongly linked
with Sustainable Development Goals (SDGs). The index is divided into three pillars; Quality of Life (35%), Economic Ability (15%), and Sustainability (20%) comprising 14 categories and 50 indicators. The Index has added a component of a citizen perception survey to gauge the citizen's view about city livability.

The United Nations Millennium Development Goals were the first comprehensive global development goals signed by 189 UN member states in 2000. MDGs had 8 broader goals which nations agreed to combat poverty and hunger, disease, illiteracy, environmental degradation, and discrimination against women. The MDGs have been superseded by the Sustainable Development Goals formulated under a global agreement called the Agenda 2030, on sept 25, 2015 with a vision to ensure and guide global environmental sustainability. SDGs are a set of 17 integrated goals; No Poverty, Zero Hunger, Good Health & Well-Being, Quality Education, Gender Equality, Clean Water and Sanitation, Affordable and Clean Energy Decent Work and Economic Growth, Industry, Innovation and Infrastructure, Reduced Inequality, Sustainable Cities and Communities, Reduce the per capita adverse environmental impact of cities, Responsible Consumption and Production, Climate Action, Life Below Water, Life on Land, Peace and Justice Strong Institutions, Partnerships to achieve the Goal.

Table 2 Comparing QoL Indices and Development Goals

| QoL Dimensions                             | National Level | City Level | City Level in India National | Global Developmen t Goals |
|--------------------------------------------|----------------|------------|-----------------------------|---------------------------|
|                                            | HDI (1990)     | WHO QoL - BREF (1996) | OECD (2011) | NATION RANKING (2011) | EU (2015) | EU (2005) | MERCER (2011) | Livability Index (2010) | EOI (2018) | EOI (2019) | MD G 2008 | SDG 2015 |
| 1 Material Living Condition                | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 2 Health                                   | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 3 Education                                | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 4 Social Relationships                      | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 5 Natural Environment                       | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 6 Recreation                               | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 7 Economic Security                         | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 8 Infrastructure & Mobility                 | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 9 Safety and Security                       | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 10 Governance and Rights                    | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 11 Work-Life Balance                        | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |
| 12 Overall Life Satisfaction               | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ | ✔ ✔ ✔ ✔ ✔ ✔ ✔ |

Source: Author

10 numbers of QoL Indices and two Global Development Goals have been compared to identify the various dimensions of human life and their significance in overall QoL. The 12 numbers of distinct dimensions have been deduced; Material living conditions, health, education, social relationships, natural environment, recreation, economic security, infrastructure and mobility, safety and security, governance and rights, work-life balance, and overall life satisfaction.
5. Findings

The varied perspectives of authors show different group of elements underlying the QOL rather than standard agreed definition. Here we interpret QOL in Urban context as the dynamic interaction between objective condition of life, subjective assessment of people from the objective life condition, and the degree of satisfaction that a person receives from his overall life. Primarily, it refers to a citizen’s satisfaction with residential environments, traffic, crime rate, employment opportunities, or the amount of open space and green spaces [13]. Alternatively, the term might refer to intangible qualities such as social justice, freedom of expression, and choices [10,14].

5.1. Urban Quality of Life (UQoL): Domain, Dimension, and Indicators

The UQoL has three components People, Place and Perception refer fig. 3. People domain refers to individual QoL, Place refers to objective life conditions offered by an area and Perception refers to the satisfaction one receives from the objective life conditions. The 12 dimensions determining UQoL and their respective weights are material living condition (10-33%), health (20-33%), education (10-33%), social relationships (10-20%), natural environment (10-25%), recreation (10-20%), economic security (5-15%), infrastructure and mobility (20-45%), safety and security (5-15%), governance and rights (10-15%), work-life balance (5-10%), and overall life satisfaction (10-15%). These dimensions can be further grouped based on their importance as primary, secondary, and tertiary dimensions/ need based on included in no of indices out of total 12 indices.

- **Primary Needs/ dimensions;** Material Living Condition (12) and Health (12).
- **Secondary Needs/ dimensions;** Education (11), Natural environment (11), Economic security (9), Governance and Rights (9), Recreation (9), Infrastructure and mobility (8), Safety and Security (8), Social Relationships (7).
- **Tertiary Needs/ dimensions;** Overall Life Satisfaction (4) and Work-life balance (3)
### Table 3 Urban Quality of Life Matrix: Domain, Dimensions, and Indicators

| Domain                  | Dimensions | No of Index 12 | Weightage | Sub-Dimension | Indicators                                                                 |
|-------------------------|------------|----------------|-----------|---------------|-----------------------------------------------------------------------------|
| People                  |            |                |           |               |                                                                             |
| Material Living         | 12         | 10-33%         |           | Employment    | Income, Economic ability                                                    |
| Condition               |            |                |           | Living Standard| House Condition, Material Commodities                                     |
|                         |            |                |           | Cost of Living | Expenses                                                                    |
| Health                  | 12         | 20-33%         |           | Physical Health| Fitness, Disability, Dependency on medical Substances                      |
|                         |            |                |           | Emotional Health| Self-Esteem, Basic Mood & Feelings, Lack of stress                         |
|                         |            |                |           | Spiritual Health| Personal Values, Spiritual Believes                                        |
| Education               | 11         | 10-33%         |           | Formal Education| Literacy rate, Schooling, Professional Education                           |
|                         |            |                |           | Informal Education| Knowledge, Skills, Learnings from life experiences                       |
| Social                  | 7          | 10-20%         |           | Personal Life  | Personal interests, choices, opinion                                       |
| Relationships           |            |                |           | Family Life    | Family Traditions, values and culture, Relation with Family Members        |
|                         |            |                |           | Social Life    | Friends, Acquaintance & Social Mix                                         |
| Natural                 | 11         | 10-25%         |           | Pollution Level| Water Quality, Air Quality, Noise Level, Soil Quality                     |
| Environment             |            |                |           | Natural        | Total Tree Cover, Vegetation Cover, Green Space per capita, Open Space per capita, Trees per capita, Water Bodies |
|                         |            |                |           | Urban Resilience| No of Natural Disasters, No of Life losses due to natural disasters       |
| Recreation              | 8          | 10-20%         |           | Recreational Facilities| Clubs, Theatre, Leisure Facilities, Sports Facilities |
|                         |            |                |           | Public Open Spaces| Civic Spaces, Parks and Gardens, Playgrounds, Multipurpose open space     |
| Economic Security       | 8          | 5-15%          |           | Transport Facilities| Availability of Public Transport, Choices of Transport Modes, Road Infrastructure, Footpath and Cycle Track |
|                         |            |                |           | Water Supply    | Water Supply Network, Quality of Water                                      |
|                         |            |                |           | Solid Waste Management| Sewage and Drainage Network, Amount of Waste Treated                       |
|                         |            |                |           | Electricity Supply| Electricity Network, Supply Hours, Road Lights                              |
|                         |            |                |           | Digital Infrastructure| Internet Network & Connection, Telecommunication, End-User Devices, Mobile & Laptops |
| Safety and              | 8          | 5-15%          |           | Crime Rate     | Against Women, Children, Elderly, Prevalence of Crime, Cyber Crime         |
| Security                |            |                |           | Road Safety     | Road Accidents, Street Lights, Cycling Lane, Pedestrian Lane               |
|                         |            |                |           | Fire Safety     | No of Fire Hazards, Fire Infrastructure                                    |
|                         |            |                |           | Cyber Security  | Cyber Laws                                                                  |
|                         |            |                |           | Local Governance| Participation in Local Decision Making, Response Time to Complaint, E-Governance |
| Governance and Rights   | 9          | 10-15%         |           | Freedom        | Freedom of Choice, Freedom to Express                                      |
|                         |            |                |           | Rights         | Gender Equality, Opportunities,                                            |
| Perception              | 3          | 5-10%          |           | Work Environment| Working Hours, Address of the complaint                                    |
| Work-Life Balance       |            |                |           | Productivity    | Working and Non-Working Life Ratio, Time Devoted to Recreation and Personal care |
|                         |            |                |           | Satisfaction Level| Satisfaction with each dimension, Satisfaction with Overall Life             |
| Life Satisfaction       | 4          | 10-15%         |           |                |                                                                             |

Source: Author
6. Conclusion

Human life is a complex notion and an individual’s QoL is influenced by place, culture, economic and environmental resources. Human needs are ever changing and becoming more and more multifaceted with time which makes the field ever-growing and assessing QoL more complex. Urban quality of life is a concept that has emerged as a solution to the various challenges and problems faced by urban populations and contributes to a healthy and livable environment in cities. It becomes necessary to capture the true picture of QoL to restore existing urban areas and regulate future development. Identification of relevant parameters is crucial and requires an analytical base for inclusion or exclusion of any indicator. The study identifies three major components of urban living as UQoL Domain; People, Place, and Perception which are further categorized into twelve distinctive aspects of urban life as UQoL dimensions; Material Living Condition, Health, Education, Natural Environment, Recreation, Economy, Infrastructure & Mobility, Safety and Security, Governance and Rights, Work-Life Balance, and Life Satisfaction. These Dimensions are explained by 23 sub-dimensions. These dimensions are required to be tested with a place-specific study to check the significance and effectiveness of parameters. Efforts should be made to conduct dimension specific studies, to ensure the dimension-specific QoL in cities. These studies will guide the government officials, policy-makers, planners, architects, and designers to ensure a livable urban environment and better functionality of cities as a whole.

References

[1] R. I. Brown and I. Brown, “The application of quality of life,” Journal of Intellectual Disability Research, vol. 49, pp. 718-727, 2005.
[2] M. Farquhar, “Elderly people’s definitions of quality of life,” Social Science& Medicine, no. 41, pp. 1439-1446, 1995.
[3] B. K. Haas, “A Multidisciplinary Concept Analysis of Quality of Life,” Western Journal of Nursing Research, vol. 21, no. 6, pp. 728-742, 1999.
[4] United Nations, “World Urbanization Prospects: The 2014 Revision Highlights,” Department of Economic and Social Affairs Population Division, 2014.
[5] R. Cummins, “Comprehensive Quality of Life Scale: Manual. Melbourne,” Deakin University, 1997.
[6] World Health Organization, “The World Health Organization Quality of Life Assessment. Field Trial Version for Adults Administration Manual,” WHO, Geneva, 1995.
[7] D. Raphael, R. Renwick, I. Brown and B. Steinmet, “Making the links between community structure and individual well-being: community quality of life in Riverdale, Toronto, Canada,” Health & Place, 2001.
[8] D. Cella and C. J. Nowinski, “Measuring quality of life in chronic illness: The functional assessment of chronic illness therapy measurement system,” Archives of Physical Medicine and Rehabilitation, 2002.
[9] S. Ventegodt, J. Merrick and N. J. Anderson, “Quality of life theory I. The IQOL theory: An integrative theory of the global quality of life concept,” The Scientific World Journal, vol. 3, pp. 1030-1040, 2003.
[10] A. K. Sen, Development as Freedom, 1 ed., ALFRED A. KNOPF, INC., 2000.
[11] C. A. Mensah, L. Andres, U. Perera and A. Roji, “Enhancing quality of life through the lens of green spaces: A systematic review approach,” International Journal of Wellbeing, vol. 6, no. 1, pp. 142-163, 2016.
[12] M. a. L. D. Sirgy, “Well-being Encyclopedia of Business Ethics and Society,” Thousand Oaks: Sage Publications, 2006.
[13] A. C. P. a. R. W. Campbell, “The Quality of American Life: Perceptions, Evaluations and Satisfactions,” New
York: Russell Sage Foundation, 1976.

[14] A. Maslow, “Motivation and Personality,” New York: Harper, 1954.

[15] J. Arndt, “Marketing and the Quality of Life,” Journal of Economic Psychology, vol. 1, pp. 283-301, 1981.

[16] E. E. Allardt, “Having, Loving, Being: An Alternative to the Swedish Model of Welfare Research, in M. Nussbaum and A.,” The Quality of Life. Oxford: Clarendon Press, pp. 88-94, 1993.

[17] I. &. T. V. Blečić, “The capability approach in urban quality of life and urban policies: Towards a conceptual framework. In City project and public space,” Springer, Dordrecht, pp. 269-288, 2013.

[18] S. A. M. E. Ariane, Neighborhood Urban Quality of Life: Guidelines for Urban Planning and Development of New Assessment Tool, GIZA, EGYPT: FACULTY OF ENGINEERING, CAIRO UNIVERSITY, 2012.

[19] M. A. Mohit, “Quality of life in natural and built environment–an introductory analysis,” Procedia-Social and Behavioral Sciences, no. 101, pp. 33-43, 2013.

[20] J. E. S. A. &. F. J. P. Stiglitz, “Report by the commission on the measurement of economic performance and social progress,” 2009.

[21] D. Myers, “Building knowledge about quality of life for urban planning,” Journal of the American Planning Association, no. 54, pp. 347-358, 1988.

[22] K. Land, “Social indicators and the quality of life Where do we stand in the mid-1990s,” SINET: Social Indicators Network News, no. 45, pp. 5-8, 1996.