

**LIVEABILITY DEFINED: THE CASE OF COLOMBO,
SRI LANKA**

Tennakoon Mudiyanseelage Maheshi Pabasara Tennakoon

(198055T)

Degree of Master of Science

Department of Building Economics

University of Moratuwa

Sri Lanka

August 2020

**LIVEABILITY DEFINED: THE CASE OF COLOMBO,
SRI LANKA**

Tennakoon Mudiyanseelage Maheshi Pabasara Tennakoon
(198055T)

Thesis submitted in partial fulfilment of the requirements for the degree Master of
Science

Department of Building Economics

University of Moratuwa

Sri Lanka

August 2020

DECLARATION

I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

Also, I hereby grant to University of Moratuwa the non-exclusive right to reproduce and distribute my dissertation, in whole or in part in print, electronic or other medium. I retain the right to use this content in whole or part in future works (such as articles or books).

Signature

Date

The above candidate has carried out research for the Masters thesis under my supervision.

Signature of the supervisor

Date

DEDICATION

to my beloved family

ACKNOWLEDGEMENT

The accomplishment of the research would not be possible solely due to my commitment. The achievement has always been encouraged and assisted by number of individual. Therefore, I embrace this opportunity to convey my heartiest gratefulness to all of them.

Firstly, I am profoundly thankful to Dr. Udayangani Kulatunga, my MSc. supervisor for her immense inspiration, outstanding supervision, direction and reassurance contribute for the success of this valued output. Without her precious and constructive advice, the accomplishment of this effort would not be reached its apex.

Moreover, I would like to express my deepest gratitude for Prof. Yasangika Sandanayaka, Head of the Department of Building Economics and Dr. Sachie Gunathilake, the research coordinator. Furthermore, my cordial thank is stretched all the other academic and non-academic staff members of the Department of Building Economics for their extensive assistance.

Besides, my earnest gratitude extended to all the interviewees and respondents for their treasured support and cooperation given for me during the data collection phase.

Finally, I express my love and honor to my family members, colleagues, friends for their patience and immense support provided.

ABSTRACT

LIVEABILITY DEFINED: THE CASE OF COLOMBO, SRI LANKA

The rapid increment in the population in the cities has manifested number of challenges in terms of unauthorized developments, underutilized housing, limitations in infrastructure and services, energy consumption and waste management. The quality of lives of the inhabitants have diminished and cities are becoming less liveable.

Hence, the need of a planning approach to address these issues with a sensitivity to the requirements of the inhabitants has been felt for some time. The concept of liveability which is a subset of the concept of sustainability is perceived as a philosophy to face the urban conundrum. Liveability has been assessed using liveability indexes which have marketability purpose. The representation of liveability through the existing indexes is unlike to address the issues of urbanization. Thus, this study advocates to define and characterize liveability to enhance the quality of lives of inhabitants in Sri Lanka.

Based on a pragmatist research philosophy, an abductive research approach is used for the study. Firstly, an extensive literature review is conducted, followed by a case study strategy to contextualize the literature findings. Data collection is done via expert interviews, document review to define liveability for the case. Six liveability characteristics, twenty-five attributes and seventy-one indicators were distinguished prioritized using Analytical Hierarchy Process.

Challenging the existing vague definitions, liveability was defined as the satisfactory quality of lives of inhabitants achieved through its balanced socio-economic environment reflected through the character of the city of Colombo with quality and proximate services, connectivity to amenities through proper infrastructure and preserved natural environment. Balanced socio-economic environment was prioritized over other characteristics. A global weight was assigned to these elements which was utilized as the weighting factor of the developed liveability index to enhance the quality of lives of the inhabitants of cities. Unlike current liveability indexes with marketability purposes, the developed liveability indexes adapt a participatory approach to address the issues in the cities with a liveability perspective.

Keywords: Liveability, Liveable City, Liveability Index and Urbanisation.

TABLE OF CONTENTS

DECLARATION	1
DEDICATION	2
ACKNOWLEDGEMENT	3
ABSTRACT	4
TABLE OF CONTENTS	5
LIST OF FIGURES	11
LIST OF TABLES	12
LIST OF ABBREVIATIONS	14
1.0 INTRODUCTION	16
1.1 Problem Statement	19
1.2 Aim	19
1.3 Objectives	20
1.4 Originality of the Study	20
1.5 Methodology	21
1.6 Scope of the Research	21
1.7 Limitations to the Study	22
1.8 Chapter Breakdown	22
2.0 RESEARCH METHODOLOGY	24
2.1 Introduction to the Chapter	24
2.2 Research Design	24
2.3 Research Philosophy	25
2.3.1 The ontological question	25
2.3.2 The epistemological question	25
2.3.3 The axiological question	26

2.4	Research Approach.....	26
2.5	Methodological Choice	27
2.6	Research Strategies.....	28
2.7	Case Study Strategy.....	28
2.7.1	The case of Colombo	29
2.8	Time Horizon	30
2.9	Techniques and Procedures Followed in Data Collection and Analysis.....	30
2.9.1	PRISMA method in selecting sources for defining liveability in literature review	31
2.9.2	Data collection and analysis of the case study	34
2.10	Graphical Representation of the Research Process	43
2.11	Chapter Summary.....	45
3.0	LITERATURE REVIEW.....	46
3.1	Introduction to the Chapter.....	46
3.2	The Concept of Liveability.....	46
3.2.1	Liveability concept and sustainability.....	46
3.2.2	Liveability concept and urbanization	47
3.2.3	Liveability concept and resilience.....	49
3.3	Liveability and Liveable City Defined	50
3.3.1	Liveability defined	50
3.3.2	Liveable city defined.....	52
3.3.3	Elements of liveability	54
3.4	The Importance of Concept of Liveability	56
3.5	The Importance of a Measurement of Liveability.....	58
3.6	Liveability Indexes	59
3.6.1	EIU liveability Index.....	60

3.6.2	The Mercer quality of living survey.....	61
3.7	Cases of the most liveable cities.....	61
3.8	Cases of the least liveable cities	63
3.9	Limitations of Current Liveability Indexes	64
3.9.1	Methodological limitations	64
3.9.2	Data integrity and compatibility	65
3.9.3	Indicators.....	65
3.9.4	Ranking	66
3.9.5	Subjectivity	66
3.10	Liveability of Colombo Sri Lanka.....	66
3.10.1	Urban sprawl: the effect of rapid urban expansion of Colombo.....	67
3.10.2	Compact cities: effects of mix development approach in Colombo	68
3.10.3	Urbanized economy: effects of the changing characteristics of economy of Colombo	68
3.10.4	Issues related to urban housing and tenure in Colombo	69
3.10.5	Limitations in the cities and municipal services	70
3.10.6	Intercity and rural-urban connectivity.....	70
3.11	The Need for Standardized Indicators for Colombo Sri Lanka.....	71
3.11.1	Measuring the performance of the city	72
3.11.2	Capturing trends over time and across cities	72
3.11.3	Monitoring aid effectiveness of projects.....	73
3.12	Development of a Context Specific Liveability Index	73
3.13	Chapter Summary	76
4.0	DATA COLLECTION AND ANALYSIS	77
4.1	Introduction to the Chapter.....	77
4.2	Introduction to the Case	77

4.3	Analysis of the Expert Interviews	79
4.3.1	Expert selection and demographic distribution of the experts	79
4.3.2	Experts definition of liveability for the context of Colombo.....	80
4.3.3	The factors challenging the liveability of Colombo.....	82
4.3.4	The liveability characteristics of Colombo	84
4.3.5	The liveability characteristics, attributes and indicators identified via expert interviews.....	88
4.4	Analysis of the Document Review	93
4.4.1	Details of the reviewed documents	93
4.4.2	The liveability characteristics, attributes and indicators identified via documentary review.....	95
4.5	The List of Liveability Elements for the Liveability Index.....	96
4.6	AHP Analysis	99
4.6.1	Performance score calculation of liveability characteristics, attributes and indicators.....	100
4.6.2	Prioritization of liveability characteristics	104
4.6.3	Prioritization and assigning global weights to liveability attributes and indicators under balanced socio- economic environment.....	106
4.6.4	Prioritization and assigning global weights to liveability attributes and indicators under quality and availability of services	108
4.6.5	Prioritization and assigning global weights to liveability attributes and indicators under proximity to local level services	109
4.6.6	Prioritization and assigning global weights to liveability attributes and indicators under the connectivity to amenities and location-based attributes ..	110
4.6.7	Prioritization and assigning global weights to liveability attributes and indicators under environment and character of the city.....	111

4.6.8	Prioritization and assigning global weights to liveability attributes and indicators under proper planning of land use and affordable housing.....	112
4.7	Liveability Index as a Tool to Assess Liveability of Colombo.....	113
4.7.1	Data collection instrument of the liveability index	113
4.7.2	Average satisfactory level of the inhabitants	114
4.7.4	Validation of the liveability index as a tool to measure liveability of Colombo.....	115
4.7.5	Validation of the application of the liveability index.....	116
4.7.6	Validation of the performance of the liveability index	117
4.7.7	Suggestions for further improvements	117
4.8	Chapter Summary	118
5.0	RESEARCH FINDINGS AND DISCUSSION	119
5.1	Introduction to the Chapter.....	119
5.2	Defining Liveability Specifically for the Context of Colombo.....	119
5.3	The Attributes and Indicators that Constitute Liveability in the Global Context and with Particular Reference to Colombo.....	121
5.3.1	Emphasis on the grounded issues.....	124
5.3.2	Bridging the gap to reach the level of global indexes.....	125
5.4	Prioritization of Liveability Characteristics, Attributes and Indicators.....	126
5.5	Development of the Composite Liveability Index for the Context of Colombo	127
5.5.1	Examining the empirical relationships of variables and combining of these items into an index.....	128
5.6	Overcoming the Limitations of Previous Liveability Indexes	131
5.6.1	Methodological limitations	131
5.6.2	Data integrity and compatibility	132
5.6.3	Indicators.....	132

5.6.4	Ranking	132
5.6.5	Subjectivity	132
5.7	Chapter Summary	133
6.0	CONCLUSIONS AND RECOMMENDATIONS	134
6.1	Introduction to the Chapter.....	134
6.2	Accomplishment of Objectives	134
6.2.1	Accomplishment of first objective	134
6.2.2	Accomplishment of second objective	135
6.2.3	Accomplishment of third objective.....	136
6.2.4	Conclusion	136
6.3	Implications to the Theories	137
6.4	Implications to the Practices.....	137
6.5	Limitations of the Research.....	138
6.6	Further Research Directions	139
	REFERENCE.....	140
	Annexure 01: Expert Interview Guideline	154
	Annexure 02: AHP Hierarchy Tree.....	156
	Annexure 03: AHP Questionnaire	157
	Annexure 04: Questionnaire for Validation.....	168
	Annexure 05: AHP Calculations	173

LIST OF FIGURES

Figure 2.1: Saunders' Research Onion	24
Figure 2.2 : Methodological Choices	27
Figure 2.3: Positioning of the Research Paradigm.....	28
Figure 2.4:Techniques and Procedures	30
Figure 2.5:PRISMA Diagram	34
Figure 2.6 : Snapshot of the AHP Questionnaire.....	36
Figure 2.7 : Steps of AHP Process	37
Figure 2.8 : Approach to Develop the Index.....	41
Figure 2.9 : The Research Process	44
Figure 3.1: The Growth of Population in the World over 100 Years of Time.....	48
Figure 3.2: Popular Liveability Indexes in the Global Context	59
Figure 3.3: Weightage Allocated for Liveability Criteria in EIU Index	60
Figure 3.4: Per Capita GDP and Urban Poverty in Selected South Asian Nations ...	69
Figure 3.5: Conceptual Framework.....	75
Figure 4.1: The Boundary of CCC	78
Figure 4.2 : Liveability Characteristics Emerged through Expert Interviews	84
Figure 4.3 : The composition of the respondents of the AHP questionnaire	90
Figure 4.4 Sample of the Data Sheet.....	113
Figure 5.1 : Deriving the Definition of Liveability	119
Figure 5.2: Liveability Index after Addressing Comments at Validation.....	130

LIST OF TABLES

Table 2.1: Key Word Search through Sources	32
Table 2.2 : Ratio Scale Demonstrated by Saaty (2008)	34
Table 2.3 : Pairwise Comparison Matrix for Liveability Indicators	38
Table 2.4 : Normalised Comparison Matrix for Liveability Indicators	39
Table 2.5: Consistency Calculation for Liveability Indicators	40
Table 2.6: Equations Used in AHP Calculations	40
Table 2.7 : Average RI for various Matrix Size.....	41
Table 2.8 : Calculation of the Average of a Frequency Distribution	42
Table 3.1: Liveability Definitions	51
Table 3.2: Definitions for Liveable Cities in Different Contexts.....	52
Table 3.3: Liveability Indicators Identified through Literature	55
Table 3.4: Top 10 Liveable Cities in 2018.....	62
Table 3.5: : The Ten Least Liveable Cities in 2018.....	63
Table 4.1: Declaration of Local Authorities of Colombo Commercial City as Urban Areas	77
Table 4.2: Areas of Expertise and Experience of the Experts Interviewed	80
Table 4.3: The Factors Challenging the Liveability of Colombo	83
Table 4.4: Liveability Characteristics, Attributes and Indicators Identified via Expert Interviews.....	88
Table 4.5 : Document Reviewed to Comprehend Sri Lankan Context.....	94
Table 4.6 : Liveability Characteristics, Attributes and Indicators Identified via Documentary Review.....	95
Table 4.7: The Final List of Liveability Characteristics, Attributes and Indicators Selected to Construct the Liveability Index	97
Table 4.8: Pairwise Comparison of the Liveability Characteristics.....	101
Table 4.9 : Normalization of the Liveability Characteristics	102
Table 4.10: Consistency Calculation of Liveability Characteristics	103
Table 4.11: Global Weight of Liveability Indicators under Balanced Socio- economic Environment.....	106

Table 4.12: Global Weight of Liveability Indicators under Quality and Availability of Services	108
Table 4.13: Global Weight of Liveability Indicators under Proximity to Local Level Services	109
Table 4.14: Global Weight of Liveability Indicators under Connectivity to Amenities and Location-Based Attributes.....	110
Table 4.15: Global Weight of Liveability Indicators under Environment and Character of the City	111
Table 4.16: Global Weight of Liveability Indicators under Proper Planning of Land Use and Affordable Housing.....	112
Table 4.17: Average Satisfactory Level of Each Indicator	114
Table 4.18: Profile of the Respondents Participated in Validation	116
Table 4.19 : Validation of the Performance of the Liveability Index	117

LIST OF ABBREVIATIONS

AHP	- Analytical Hierarchy Process
CBSL	- Central Bank of Sri Lanka
CCC	- Colombo Commercial City
CI	- Consistency Index
CMRSP	- Colombo Metropolitan Regional Structure Plan
CR	- Consistency Ratio
DMMC	- Dehiwala Mount-Lavinia Municipal Council
EIU	- Economic Intelligence Unit
GDP	- Gross Domestic Product
GoSL	- Government of Sri Lanka
ICT	- Information Communication Technology
IIED	- International Institute for Environment and Development
MC	- Municipal Council
MMWDSL	- Ministry of Megapolis and Western Development Sri Lanka
MOF	- Ministry of Finance Sri Lanka
OECD	- Organisation for Economic Co-operation and Development
PRISMA	- Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PS	- Pradeshiya Sabha
RI	- Randomized Index
UC	- Urban Council
UDA	- Urban Development Authority

- UN - United Nation's
- UNDESA - United Nations Department of Economic and Social Affairs
- UNFPA - United Nations Population Fund
- USD - United State Dollar