



Analytical Study for Urban Rating Systems and Natural Environment for the Egyptian Cities

" دراسة وتقييم اداء النظم البيئية والعمرانية بالمدن المصرية "

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Contents:

O Table of contents

I.	Abstract	i
I.I.	PROBLEM DEFINITION	iii
I.II.	RESEARCH HYPOTHESES	iii
I.III.	RESEARCH METHODOLOGY	iii
I.IV.	AIM OF THE RESEARCH	iv
I.V.	RESEARCH STRUCTURE	iv

Part One :RATING System on Buildings Level 1

1 **CHAPTER ONE: Introduction of Rating System on Building Scale**

1.1.	Review Of Relevant Literature	1
1.1.1	Urban Sustainability	2
1.1.2	Definition	2
1.2.	Sustainable Building Rating System	4
1.2.1	Definition of Sustainable Building Rating System	4
1.2.2	Importance of Building Rating System	4
1.2.3	The Start point of Sustainable Building Rating System	4
1.2.4	the Green Building Rating Systems Across The Globe	5
1.3.	BREEAM Environmental Assessment Method (BREEAM)	8
1.3.1.	Primary Goals , Market Penetration , Characteristics.	8
1.3.2.	How BREEAM works.	9
1.3.3.	BREEAM certification process Flow	11
1.4.	Comprehensive Assessment System For Building Environmental Efficiency (CASBEE)	12
1.4.1.	Primary Goals ,Market Penetration , Characteristics.	12
1.4.2.	How CASBEE works.	14
1.4.3.	CASBEE certification process Flow	19
1.5.	Leadership In Energy And Environmental Design (LEED)	20
1.5.1.	Primary Goals / Market Penetration / Characteristics.	20
1.5.2.	How LEED Works.	20
1.5.3.	LEED certification process Flow	25
	Conclusion of part 1	27

Part two : Global Urban Development Rating System :

Introduction Of Part 2 33

2	CHAPTER TWO:(BREEAM Communities)	35
2.1.	Introduction of BREEAM Communities	35

2.2.	The categories in BREEAM Communities	37
2.3.	The importance of consultation and engagement	39
2.4.	BREEAM Communities and viability	40
2.5.	When to engage with the BREEAM Communities scheme	40
2.6.	BREEAM rating benchmarks	41
2.7.	Mandatory standards	42
2.8.	BREEAM assessment issues and credits	43
2.9.	Category and assessment issue weightings	43
2.10.	Calculating an assessment score	49
	Case Study BREEAM Excellent	51
	Case study: (5th Studio)	53
3	Chapter Three:(CASBEE_UD)	67
3.1.	CASBEE for Urban Development	67
3.2.	The basic concept of the hypothetical boundary	67
3.3.	Application methods	69
3.4.	Site types to be evaluated	70
3.5.	Composition of assessment items	71
3.6.	Weighting coefficients	77
3.7.	Composition of assessment sheets	79
3.8.	Score Entry Sheet	80
3.9	Assessment Results Sheet	85
	Case study of CASBEE UD	87
4	Chapter Four:(Leed ND)	103
4.1.	LEED for Neighborhoods Developments	103
4.2.	Background on LEED for neighborhood Development	104
4.3.	LEED FOR NEIGHBORHOOD DEVELOPMENT BASICS	105
4.4.	LEED Credit weightings	106
4.5.	Overview and Process	108
4.6.	When to Use LEED for Neighborhood Development	109
4.7.	"Neighborhood Development," Defined	110
4.8.	Certification	116
4.9.	Stages of Certification	117
	Case study :(UNION PARK)	119
	Conclusion of part 2	139

Part three : Middle East Urban Development RATING Systems :

5	Chapter five: ESTIDAMA , QSAS for Neighborhood Development	155
	Introduction of part 3	155

5.1.	ESTIDAMA	157
5.1.1	The Pearl Rating System for Estidama	157
5.1.2	Pearl Rating Levels	158
5.1.3	Section Weightings	159
5.1.4	The Pearl Rating System Documents	159
5.1.5	The Pearl Rating Stages	159
5.1.6	Application of The Pearl Community Rating System Process	163
5.1.7	Current UPC Policy Documents Requiring Compliance Through the Design Process Include	164
5.1.8	Summary of Credit Points for the Pearl Community Rating System	165
5.2.	QSAS for Neighborhood Development	167
5.2.1	What is GSAS/QSAS?	167
5.2.2	The Objective of GSAS/QSAS	167
5.2.3	What is the GSAS/QSAS Framework?	168
5.2.4	How is the GSAS/QSAS Developed?	171
5.2.5	Trademarks	171
5.2.6	Instructions of QSAS for Neighborhoods	172
5.2.7	The Goal and Criteria	172
5.2.8	GSAS/QSAS Certification Levels	176
5.2.9	The Process for Project Certified	176
6	Chapter six: The Green Pyramid Rating System	177
6.1	Challenges of Urban Environment in EGYPT	177
6.2	Environmental Impacts Resulting from Deficiencies in Development of Urban Communities	179
6.2.1	Problems of Transport and Traffic in Urban Communities	179
6.2.2	Urbanization of Rural Areas	181
6.2.3	Rural Characteristics in Urban Areas	181
6.2.4	Emergence of Informal Housing:	181
6.2.5	Informal Industrial Activities:	181
6.2.6	Reduce Per Capita Share from Green Areas:	182
6.2.7	Urban Development Distortions Resulting from Unbalanced Growth Between Economic Rate of Development and Population Growth:	183
6.3	Efforts to Reduce Adverse Impacts of Urban and Industrial Development Imbalances	184
6.4.	Future Goals for Urban and Industrial development	185
6.5.	The Green Pyramid Rating System	185
6.5.1	Establishment of Egyptian Green Building Council:	186
6.5.2	The aims of the Green Pyramid Rating System	188
6.5.3	General Overview of the green Pyramid Rating System	189
6.5.4	Format and Layout of the Categories	190

6.5.5	Certifications and Levels of Rating	190
6.5.6	GPRS for Sustainable Community	190
6.5.7	Proposed Guidelines for Egyptian System	190
O	Result and Recommendation	197
O	APPENDIX 1	201
O	APPENDIX 2	205
O	Abbreviations and Acronyms	209
O	REFERENCES	215

List of Figures:

Figure 1: Research methodology	iii
Figure 2: The interactive forces driving sustainability	2
Figure 3: A systems approach to sustainability	3
Figure 4: Timeline of Green Building Rating Systems	5
Figure 5: Green Building Rating Systems Across The Globe	5
Figure 6: certification process of BREEAM	11
Figure 7: Definition of Q and L through the hypothetical boundary	14
Figure 8: Sustainability ranking of buildings	18
Figure 9: certification process of CASBEE	19
Figure 10: certification process of LEED	25
Figure 11: Steps in the BREEAM communities process	36
Figure 12: BREEAM Communities and the master planning process	41
Figure 13: BREEAM communities' assessment result	53
Figure 14: Concept of Assessment subjects for CASBEE UD	68
Figure 15: Conceptual diagram of assessment-related items	68
Figure 16: Overall composition of assessment sheets CASBEE UD	79
Figure 17: LEED for Neighborhood Development basics	106
Figure 18: LEED for Neighborhood Development basics and Credit	108
Figure 19: Clarence perry's Neighborhood Unit, 1929	112
Figure 20: A "sustainable" update of perry's neighborhood unit	113
Figure 21: Examples of neighborhood morphology	115
Figure 22: Assessment Results Sheet LEED-ND	118
Figure 23: The Four Pillars of Estidama	157
Figure 24: : Links between the Pearl Rating Systems The Pearl Rating Process	160
Figure 25: The Pearl Rating Process	162
Figure 26: Integration of Pearl Rating System into the design process	163
Figure 27: GSAS/QSAS Framework	169
Figure 28: GSAS/QSAS Rating Schemes Development	171
Figure 29: GSAS/QSAS Certification Levels	176
Figure 30: Challenges of urban environment in EGYPT	178
Figure 31: The percentage of energy consumption in different sectors	179
Figure 32: Percentage of urban and rural populations	181
Figure 33: Egypt pyramids	186
Figure 34: Egypt-GBC Organization Structure	188
Figure 35: LEED achieved height score	198

List of Tables:

Table 1: Rating System Source	6
Table 2: Building Types Targeted for Assessment	13
Table 3: Guideline of Chemical Substances	16
Table 4: Classification, Regulation for (Japan)	17
Table 5: Maximum Indoor Air Contaminant Levels	23
Table 6: Approximate rating comparisons of LEED, BREEAM, and CASBEE ratings for a building constructed in the UK	28
Table 7: Process Comparison	29
Table 8: Issue Value Comparison – Summary Table	31
Table 9: BREEAM Communities steps ,assessment issues	37
Table 10: Assessment issues with a link to consultation	39
Table 11: BREEAM Communities rating benchmarks	41
Table 12: Mandatory BREEAM Communities standards	43
Table 13: Mandatory BREEAM Communities standards	44
Table 14: Governance assessment issue weightings	46
Table 15: Social and economic wellbeing assessment issue	47
Table 16: Resources and energy assessment issue weightings	48
Table 17: Land use and ecology assessment issue weightings	48
Table 18: Transport and movement assessment issue weightings	49
Table 19: Example BREEAM Communities score, rating calculation	50
Table 20: Analysis Case study of BREEAM Communities	55
Table 21 Assessment Points included in (QUD) environmental Quality in urban Development :	71
Table 22: Table of assessment items included in “LRUD: Load Reduction in Urban Development	74
Table 23: Weighting coefficient of CASBEE UD	78
Table 24: Score Entry Screen (example)	80
Table 25: Elements of the Score Entry Sheet (Direct Score-input)...	81
Table 26: Formation of urban context and scenery	82
Table 27: Scoring Sheet for Item Count (example)	83
Table 28: Main Elements of the Scoring Sheet (for item count)	84
Table 29: Assessment Results Sheet CASBEE UD	85
Table 30: Analysis Case study of CASBEE UD	87
Table 31: Analysis Case study of LEED-ND	119
Table 32: Analysis and Comparison of urban assessment tools	141
Table 33: Categorizing the criteria of the urban assessment tools	153
Table 34: Pearl Community Rating Levels	158
Table 35: Maximum Credit Points Available for each Section	159
Table 36: Credit point of Integrated Development Process	164
Table 37: credit point of Natural Systems	164

Table 38: credit point of Precious Water	165
Table 39: credit point of Resourceful Energy	165
Table 40: credit point of Stewarding Materials	166
Table 41: credit point of Innovating Practice	166
Table 42: Total Excludes Innovating Practice credit points which are offered as bonus credits of PCRS	167
Table 43: TOTAL Credit Points of QSAS	174
Table 44: GSAS/QSAS Certification Levels	176
Table 45: Problems of Transport and Traffic	180
Table 46: shows improvement rates in per capita share from green area in Cairo	182
Table 47: clarifies current situation and targeted green areas in Egyptian cities and Villages	183
Table 48: Proposed Guideline for Egyptian System	191
Table 49: Summary of research proposal	197

Abstract

"Analytical Study For Urban Rating Systems and Natural Environment For the Egyptian Cities"

Egyptian cities are suffering from a number of urban , environmental and social problems. According to Egyptian environmental reports 2011:

- Encroachment on agricultural land has led to the loss and waste of one million and two hundred feddans of fertile agricultural lands, mostly in the Delta region.
- Degradation of urban environment and encroachment on lands in cities and villages.
- Increasing costs of residential areas development.
- Difficulty in allocating lands for public utilities and infrastructure works.
- Increasing pressure on public utilities networks (electricity - sewage - roads, etc.) as a result of vertical urbanization.

One of the reasons causing these problems is ignoring sustainability aspects when building in Egypt.

Therefore, building codes considering sustainability assessments can help in solving or at least appeasing the effect of these problems as well as controlling future problems.

Sustainability assessment through the use of specialised rating systems is a model which is steadily gaining acclaim in the built environment professions. These systems aim to associate techniques, effects and design philosophies with the promotion of the (now familiar) concept of sustainability.

This research aim is proposing guidelines for sustainability assessment rating system for Egypt. This is performed by reviewing existing international sustainability assessment rating systems, analyzing them and concluding on their applicability in Egypt.

LEED, BREEAM, CASBEE the top three sustainability assessment systems used worldwide are described in details in this research with an application case study for each. Based on the analysis of the three processes and comparing them, the research proposes a guideline sustainability assessment rating system for Egypt. The proposed

system is based mainly on LEED system due to its flexibility with additions from BREEAM systems that are absent in LEED system. CASBEE is disregarded because it is a very different approach, and highly complex way.

Introduction

Problem Definition :

Egyptian cities have many environmental and urban problems as a result of ignoring sustainability aspects. This initiates the need for a sustainability assessment rating system in Egypt for new urban projects. Worldwide, different approaches for assessing sustainability are developed. However choosing the suitable system to adopt in Egypt needs further investigation.

Hypothesis

LEED sustainability rating system is more suitable than the other systems to be considered as the base for the proposed sustainability assessment rating system for Egypt.

Research Methodology :

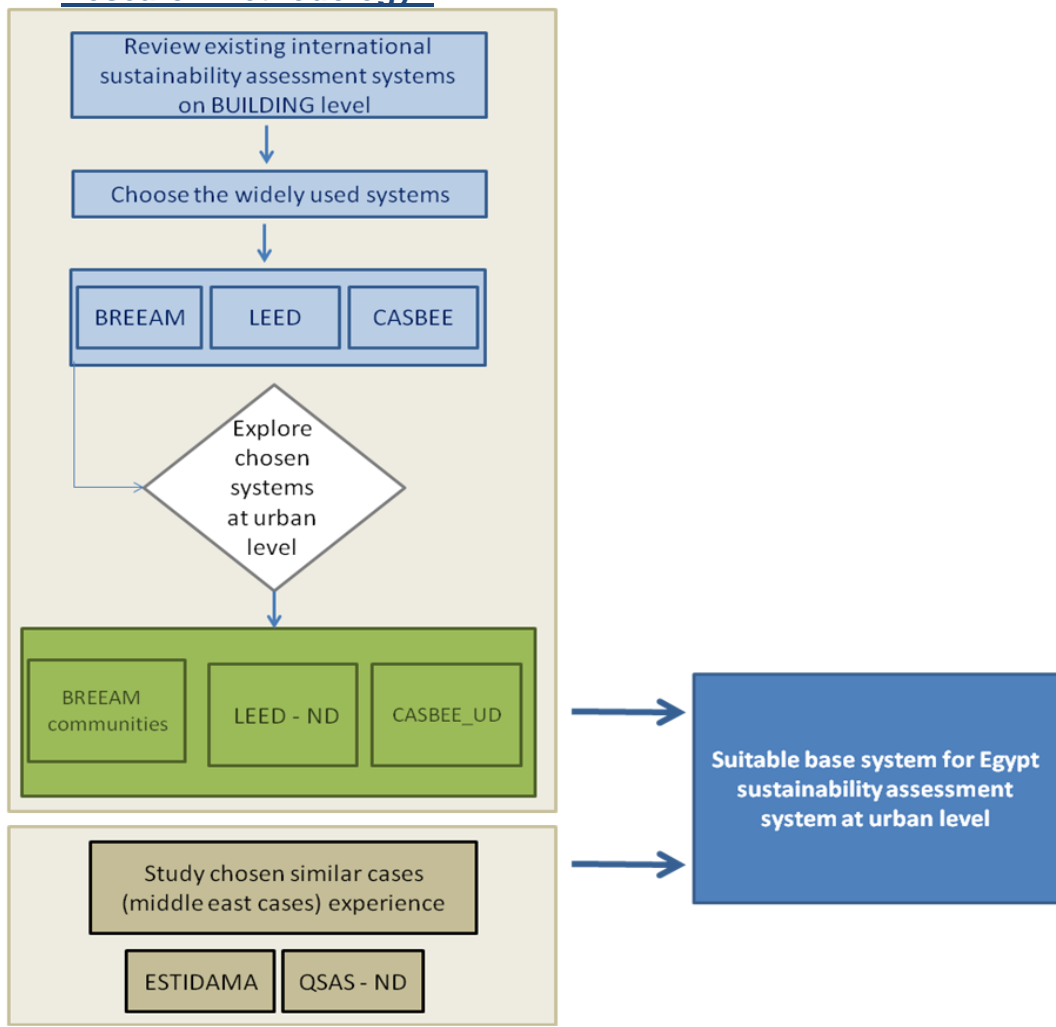


Figure 1: Research Methodology
Source :by the researcher

Aim of the research

- . Understand the importance of rating tools and the beginning of them.
- . Review rating tools worldwide and analysis the most frequently used.
- . Proposing guidelines for sustainability assessment rating system for Egypt.

Research Structure

Part One: Theoretical Study and Definition Rating System on Buildings Scale

Introduction

The research introduces rating tools, their importance and the need to study them. In addition to the problem definition, research questions, hypotheses, and research methodology.

Chapter One: Rating System on Building Scale

Chapter one gives a review of rating tools around the world, how they started and Study the most frequently used (building scale).

The first chapter is concluded by a comparison between the most common rating systems on the building scale.

Part Two: Study and Definition of Rating System on Urban Scale (world wide)

Chapter Two: BREEAM Communities

This chapter includes the main elements of BREEAM Communities systems, their primary goals, market penetration, characteristics, basics, their categories and weights .

Chapter Three: CASBEE for Urban Development

This chapter includes the main elements of CASBEE_UD systems, their primary goals, market penetration, characteristics, basics, their categories and weights .

Chapter Four: LEED for Neighborhood Development

This chapter includes the main element of LEED-ND systems, their primary goals, market penetration, characteristics, basics, their categories and weights .

It is concluded by a comparison between the most common rating systems on the building scale.

Part Three: Study and Definition Rating System on Urban Scale (Middle East)

Chapter Five: ESTIDAMA (THE PEARL RATING SYSTEM FOR ESTIDAMA)

This chapter includes the main elements of ESTIDAMA and QSAS-ND systems, their primary goals, market penetration, characteristics, basics, their categories and weights .

Chapter SIX: The Green Pyramid Rating System(GPRS)

This chapter includes the main elements of Green Pyramid Rating System(GPRS), their primary goals, market penetration, characteristics, basics, their categories and weights .

Results and Recommendations

The research conclusions and recommendations are produced.

Chapter one gives a review of the assessment programs which have been developed around environmental and energy impacts of buildings worldwide, how and where did the assessment programs started. Why is compliance to a building rating system useful.

1.1 Review Of Relevant Literature

Green building practices are not new phenomena. A handful of buildings integrating environmental design aspects were erected as early as the late 19th and early 20th centuries ([Cassidy,2003](#)). After World War II, a stern belief in technical progress and the abundance of cheap fossil fuels resulted in a building style with little regard for energy efficiency or other ecological aspects. A unified green design movement did not begin to emerge until the 1970s, when design and building practices first became a focus of environmental advocates. In his seminal work *Design for the real world*, ([Papanek,1972](#)) advocated design practices embracing moral and social responsibilities and criticized design characterized by conspicuous consumption. The first attempts at introducing environmental considerations into the design process were characterized by hostility towards the design community and by a focus on developing countries ([Madge,1993](#)). In consequence, the reception of Papanek's and colleagues' ideas was limited in the United States and other industrialized countries.

In the 1980s, the issue reemerged under the labels of sustainable development ([Rees,1989](#))_and sustainable design ([St.John 1992](#))_and this time, it proved more successful. During the last decade, a proliferation of publications on sustainable design and architecture have appeared. Some of these works focus on outlining target objectives, without quantifying their costs and benefits or going into much detail about strategies to attain them. For instance, ([Hawken, et al.,1999](#)) discuss a number of green buildings, and then proceed to propose integrative design as a solution to ecological shortcomings, with retrofit insulation and installation of energy efficient appliances as second best solution. The 1990s also saw increasing efforts to give practical advice to design and construction professionals. (The Minnesota Sustainable Design Guide, 1997), for instance, is providing guidance on how to attain sustainability during the design and planning process. The American Institute of Architects' Environmental Resource Guide ([Demki,1999](#)) provides information on sustainable building materials.