



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكرو فيلم

بسم الله الرحمن الرحيم



HANAA ALY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم



شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



HANAA ALY



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات



يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار



HANAA ALY



Cairo University
Faculty of urban and regional planning
Urban Design Department

HEALING LANDSCAPE AS A TOOL FOR DESIGNING A BLUE-WAY SYSTEM

**A Thesis Submitted in Partial Fulfillment of the Requirements
for the Master's Degree in Urban Design**

By:
Raneem Alaa Abdulghany Ibrahim

Under the supervision of:

Assistant Prof. Dr. Sahar Ismail Mohamed
Assistant professor at urban design department
Faculty of urban and regional planning

Dr. Abdullah Farouk AL-Attar
Lecturer at urban design department
Faculty of urban and regional planning

2022

Approval and Accreditation

HEALING LANDSCAPE AS A TOOL FOR DESIGNING A BLUE-WAY SYSTEM

**A Thesis Submitted in Partial Fulfillment of the Requirements
for the Master's Degree in Urban Design**

Department of Urban Design
Field of specialization Urban Design

By:
Raneem Alaa Abdulghany Ibrahim

Thesis External Judge: Prof. Dr. Ahmed Sami Abd Elrahman

Thesis Internal Judge: Prof. Dr. Mohammed Husain Refaat

Thesis Main Supervisor: Assistant Prof. Dr. Sahar Ismail Mohamed

Thesis CO- Supervisor: Dr. Abdullah Farouk AL-Attar

ACKNOWLEDGEMENT

Firstly, I would like to express my sincere gratitude to my advisors Assistant Prof. Dr. Sahar Ismail Mohamed and Dr. Abdullah Farouk AL-Attar for their continuous support of my MSc. Study and research, their patience, motivation, immense knowledge and constructive comments. Their guidance helped me at all times. Further, I am indebted to Prof. Dr. Mohamed Refaat for his outstanding support and the time he dedicated to answer my questions.

Abstract

This thesis mainly elaborates on a research gap dealing with blue-ways and healing landscape. Since mental health is the fulcrum of human behavior, there is a pressing need to develop a design method for improving mental health. In a deep search to get new landscape design elements as a design for mental health strategy, the notion of blue-ways comes to light. This thesis is a testimonial study that discusses how to use the blue-way system as a tool to improve human mental health and achieve the blue mind effect utilizing healing landscape design principles. It establishes an applied framework for a healing blue-way system elaborating on the healing landscape as a tool for blue-way system design. To understand how healing landscape can complement the main goal of blue-way systems, literature on blue-ways concept and its main goals have been reviewed. In addition, healing landscape as a trending landscape technique has been also revealed through an extensive literature. Since the blue-way system is a water bodies-related system, it is obligatory to differentiate between waterfronts and blue-ways as two water bodies-related concepts. Furthermore, this thesis demonstrates the correlation between the existence of large water bodies and the healing effect. This triggers an acute need for a new perspective to experience waterfronts and maximize the value of water body existence in terms of healing approach through the creation of an integrated water- land-based journey. Proving this relation, sheds the light on the integration between healing landscape and blue-way system. Concerning land-based journey, the researcher aims at clarifying the significant healing effect through different riverfront corridors spatial forms. This study is a case study-based one that depends on a comparative analysis of international case studies to formulate the main design principles and objectives of healing landscape and blue-ways separately at first. Subsequently, the researcher outlines the incorporated list healing blue-way key design principles. Throughout the research, the detailed design objectives of healing blue-way system will be tackled. Accordingly, the researcher depends on questionnaire survey to verify the relationship between those principles and design objectives. This questionnaire is oriented to a selected sample of experts. Finally, the researcher tackles the applied framework of healing blue-way systems and design guides for different spatial forms.

Executive Summary

The fast-paced rhythm of life, as well as the industrial-biased style of urban development process have detrimental effects on human mental health and cause stress, necessitating a fundamental shift away from high-tech approaches and urban development-oriented areas to nature-oriented settings. There is a significant need to change from the old paradigm of being created to master nature to let nature master our life. Rivers are one of the most essential elements of nature. They are great asset for healing aspect contrarily of what was thought that large water bodies have a less healing effect than small ones but on condition that there is a direct connection with those large water bodies through water-based activities such as kayaking, surfing, and canoeing. Furthermore, many studies have indicated that even minimal exposure to nature reduces stress levels. This research reports the results of an empirical study performed using questionnaire method for experts in landscape architecture and urban design. the primary purpose is to provide a proposed framework to create healing blue-ways in urban riverfronts of Egypt.

Keywords: waterfronts, riverfronts, blue-way, healing landscape, blue mind effect

Table of Contents

Abstract	I
Executive Summary	II
Introduction	2
Research Scope	3
Statement of Research problem	3
Research Aim and Objectives	3
Research Questions	4
Research Gap	4
Research Methodology	4
Research Structure	5
Research Methods	6
Chapter 1 : Urban Waterfronts & Blue-ways Concepts Overview	8
1.1 Introduction	8
1.2 Generic Overview of Urban Waterfronts definitions, typologies, and classifications	9
1.2.1 Definition of urban waterfront:	9
1.2.2 Typology of urban waterfront:	10
1.2.3 Urban waterfronts classifications	14
1.3 Generic Overview of Riverfronts	16
1.3.1 Riverfront development History:	16
1.3.2 Components of Riverfront System	18
1.4 Generic Overview of Urban Blue-ways	23
1.4.1 Definition of urban blue-ways:	23
1.4.2 Components of urban blue-ways:	24
1.4.3 Classification of urban blue-ways:	27
1.4.4 Designing of a blue-way system	28
1.5 Conclusion	30
▪ Riverfront Spatial Urban Forms	30
▪ Reading Blue-Ways Through Riverfront Layers	32
Chapter 2 : Healing Environment (healing landscape overview)	36
2.1 Introduction	36

2.2	Healing Environments	37
2.3	Generic Overview of Healing Landscape	37
2.3.1	Healing landscape definition.....	37
2.3.2	Healing landscape typologies.....	38
2.3.3	Importance of healing landscape	43
2.3.4	Public Healing Landscape principles	44
2.4	Healing Notion and Water Existence Relationship	47
2.4.1	The healing power of water existence.....	47
2.4.2	Healing power of water trails experience.....	48
2.5	Conclusion	51
Chapter 3 Case studies of urban blue-ways from the healing environment perspective		55
3.1	Introduction.....	55
3.2	City of Miami Beach Blue-ways:.....	59
3.2.1	Location & Description.....	59
3.2.2	Development plan main strategies	59
3.2.3	Land-based experience	60
3.2.4	Water-based experience	63
3.2.5	Findings of City of Miami Beach Blue-ways Development Plan	64
3.3	Blue-ways of St. Clair County:.....	66
3.3.1	Location & Description.....	66
3.3.2	Development plan main strategies	66
3.3.3	Land-based experience	67
3.3.4	Water-based experience	68
3.3.5	Findings of St. Clair County Blue-ways Strategic Plan.....	69
3.4	Ireland Blue-ways System	70
3.4.1	Site Overview	70
3.4.2	Development Plan Review	71
3.4.3	Lough Dreg land-based experience.....	71
3.4.4	Lough Dreg water-based experience.....	74
3.4.5	Findings of Ireland Blue-ways development Plan	76
3.5	The Healing Baghmati	77
3.5.1	Location & Description.....	77

3.5.2	Development strategies	77
3.5.3	Land-based experience	78
3.5.4	Water-based experience	81
3.5.5	Findings of Healing Bagmati blue-way development Plan	82
3.6	Conclusion	83
Chapter 4 Applied framework for healing blue-way system		89
4.1	Introduction.....	89
4.2	Questionnaire Design Methodology.....	91
4.3	Land-based Healing Blue-way Experience	92
4.3.1	Researcher analysis of land-based experience	92
4.3.2	Land-based experience questionnaire analysis.....	94
4.4	Water-based Healing Experience	105
4.4.1	Researcher analysis of land-based experience	105
4.4.2	Water-based experience questionnaire analysis	107
4.5	Design Objectives Correlation with Riverfront Corridor Different Spatial forms.....	115
4.5.1	Second part of the questionnaire analysis methodology.....	115
4.5.2	Land-based experience analysis - second part of questionnaire results	117
4.5.3	Water -based experience analysis second part of questionnaire results	119
4.6	Design Guides for Healing Blue-ways	121
4.6.1	Urban spatial form riverfront corridor design guide.....	122
4.6.2	Semi-urban spatial form riverfront corridor design guide	124
4.6.3	Natural spatial form riverfront corridor design guide	126
Chapter 5 Conclusions and Recommendations		130
5.1	Conclusions	130
5.1.1	Reflection on Egypt's case study	138
5.2.	Recommendations	139
	Reflection on future research scopes	141
	References	142
Appendix A- Questionnaire forms		1
Appendix B- Questionnaire Analysis.....		1

List of Figures

Figure 1 Research Methodology.....	5
Figure 1-1 Integrated urban Blue-ways notion.	8
Figure 1-2 Waterfront's definitions classification.	10
Figure 1-3 Urban waterfront typologies.	10
Figure 1-4 the vertical cliff edge -waterways canal	11
Figure 1-5 Waterfront Forms: The Fishing Village – Polperro, UK.	11
Figure 1-6 The Degli Uffizi Piazza in Florence, Italy	11
Figure 1-7 The Avon River in Stratford, England.....	12
Figure 1-8 Canal with double docksides in Amsterdam, Holland.	12
Figure 1-9 Albert Dock in Liverpool, UK.....	12
Figure 1-10 The Pier - BlackPool in England.....	13
Figure 1-11 Canal, Westport, County Mayo, Republic of Ireland.....	13
Figure 1-12 Ponte Vecchio in Florence, Italy.	14
Figure 1-13 Waterfront's classification according to main functions.	14
Figure 1-14 urban waterfronts categories according to their locations.	15
Figure 1-15 Riverfronts Development History Timeline.	16
Figure 1-16 components of riverfronts system.....	18
Figure 1-17 (SEC. A-A)	18
Figure 1-18 Natural slope style revetment zone.	20
Figure 1-19 platform style revetment zone.....	21
Figure 1-20 pick out style revetment zone.....	21
Figure 1-21 Components of Riverfronts System.	22
Figure 1-22 Blue-ways notion.	23
Figure 1-23 Blue-ways definition.	23
Figure 1-24 urban blue-ways & waterfronts notion.....	24
Figure 1-25 Urban Blue-ways trails concept.....	24
Figure 1-26 Urban Waterfronts Layering Concept.....	24
Figure 1-27 blue-ways trails types.	25
Figure 1-28 Major Trailheads Components.	25
Figure 1-29 unofficial launch point.	26
Figure 1-30 urban blue-ways main components.....	27
Figure 1-31 this section develops a series of qualitative typologies of waterfronts that culminate in a systematic classification system.	30
Figure 1-32 this section develops a series of qualitative functions of waterfronts that culminate in a systematic classification system.	30
Figure 1-33 this section develops a series of qualitative spatial form of waterfronts that culminate in a systematic classification system.	31
Figure 1-34 This section develops blue-ways components through different riverfronts layers (case one).....	32

Figure 1-35 This section develops blue-ways components through different riverfronts layers (case two).	32
Figure 1-36 This section develops blue-ways components through different riverfronts layers (case three)	33
Figure 1-37 blue-way components weight's comparison.	33
Figure 1-38 level of intervention through different riverfront layers.	34
Figure 1-39 comprehensive Blue-way system components	34
Figure 2-1 Healing Blue-ways journey notion.	36
Figure 2-2 Healing Blue-ways notion.	36
Figure 2-3 Healing landscapes Typologies according to its type of use.	39
Figure 2-4 design for mental health theory.	40
Figure 2-5 Eight Perceived Sensory Dimensions Theory.	41
Figure 2-6 The Chattahoochee River-Walk.	42
Figure 2-7 Healing with River Streams.	52
Table 2-1 The Extracted Principles of Different Healing Environments	52
Table 2-2 The proposed open list of healing environment design objectives	53
Table 3-1 the merged list of healing blue-way design principles	55
Figure 3-1 Case studies analytical methodology goals.	56
Table 3-2 proposed list of healing blue-way design objectives	57
Figure 3-2 Miami Beach Blue-way location.	59
Figure 3-3 south point park proposal.	60
Figure 3-4 Monumental Island development proposal.	60
Figure 3-5 Maurice Gibb Park development plan.	61
Figure 3-6 Section in Residential Neighborhood Pocket Parks	61
Figure 3-7 Section in lake Pancoast promenade.	62
Figure 3-8 Miami Beach Blue-way way of treatment weight.	64
Table 3-3 Trailhead Type affecting factors Matrix.	64
Figure 3-9 launch points of city of Miami Beach Blue-ways.	65
Figure 3-10 St. Clair water ways map.	66
Figure 3-11 Urban fabric of St. Clair.	67
Figure 3-12 Ecological Landscape	68
Figure 3-13 The Sny Loop Water Trail.	69
Figure 3-14 St. Clair County blue-way way of treatment weight.	69
Figure 3-15 water trail of Ireland Blue-way	70
Figure 3-16 Gairdín Organic Garden and Ecology Centre	71
Figure 3-17 Derg Isle healing features.	72
Figure 3-18 spatial form of Ireland waterfronts.	72
Figure 3-19 walking & cycling trails.	73
Figure 3-20 Sli-na-Slaite of Lough dreg blue-way.	73
Figure 3-21 Portumna Forest Park natural healing walking trail.	74
Figure 3-22 Trailheads in North of Lough Dreg.	75
Figure 3-23 Ireland blue-way way of treatment weight.	76

Figure 3-24 Location of Bagmati River.	77
Figure 3-25 Kathmandu development strategy.	77
Figure 3-26 Proposed Layout.....	78
Figure 3-27 Dhol Khola Floating Gardens.	78
Figure 3-28 Thapathali Wetlands.	79
Figure 3-29 Thapathali Temple Park.	79
Figure 3-30 Bagmati Sport Field.....	79
Figure 3-31 Teku Ropeway Park.	80
Figure 3-32 Green Corridor Layer.....	80
Figure 3-33 Connections Layer.....	81
Figure 3-34 Water Layer.	81
Figure 3-35 Way of Treatment Weight.	82
Figure 3-36 Healing Blue-way Experience.	83
Figure 3-37 The Parallel- Layered Experience Notion.	84
Figure 4-1 Flow chart of the applied framework methodology.	89
Figure 4-2 Questionnaire design methodology.	91
Figure 1 chart or healing objectives of public spaces significance.....	1
Figure 2 chart or healing objectives of internal walking trails significance.....	1
Figure 3 chart or healing objectives of plantation design significance.....	2
Figure 4 weight of best practices for habitat attraction	2
Figure 5 Significance order of design objectives for promenade design.....	3
Figure 6 Best practice for riverfront corridor urban spaces.....	3
Figure 7 best safety practices.	6
Figure 8 water journey characteristic.....	6
Figure 9 Major trailhead location weight.....	6
Figure 10 Safety signs significance order.....	7
Figure 11 Water trail types preference percentage.....	7
Figure 12 obstruction existence best solutions percentage.....	7
Figure 13 environmental considerations for safety percentage.....	7

List of tables

Table 1-1 Generic principles of a blue-way system design.....	28
Table 1-2 Proposed open list of blue-way design objectives.....	29
Table 2-1 The Extracted Principles of Different Healing Environments	52
Table 2-2 The proposed open list of healing environment design objectives	53
Table 3-1 the merged list of healing blue-way design principles	55
Table 3-2 proposed list of healing blue-way design objectives.....	57
Table 3-3 Trailhead Type affecting factors Matrix.....	64
Table 3-4 Case studies' comparison according to achieved objectives of healing blue-way in terms of land-based experience.....	84
Table 3-5 Case studies' comparison according to achieved objectives of healing blue-way in terms of water-based experience.....	85
Table 3-6 The proposed open list of land-based healing blue-way design objectives.....	85
Table 3-7 The proposed open list of water-based (river) healing blue-way design objectives	87
Table 4-1 The combined list of healing blue-way design principles	90
Table 4-2 The initial matrix of the relationship between design principles and design objectives for a land-based experience of healing blue-way system.....	93
Table 4-3 The verified open list for the land-based experience of healing blue-way	96
Table 4-4 Final framework of principle-objective relationship of a healing blue-way land-based experience.....	98
Table 4-5 The initial matrix of the relationship between design principles and design objectives for a water-based experience of a healing blue-way system	106
Table 4-6 The verified open list for the land-based experience of healing blue-way	108
Table 4-7 Final framework of principle-objective relationship for a healing blue-way water-based experience.....	110
Table 4-8 Consistency matrix for questionnaire design.....	116
Table 4-9 Quantitative Variables	116
Table 4-10 Land-based experience questionnaire second part results'	117
Table 4-11 Water-based experience questionnaire second part results'	119
Table 4-12 urban spatial form riverfront corridor design guide.....	122
Table 4-13 Semi-urban spatial form riverfront corridor design guide.....	124
Table 4-14 Natural spatial form riverfront corridor design guide	126
Table 1 Questionnaire results for healing objectives of public spaces validation.....	1
Table 2 weight of best practices for habitat attraction.....	2
Table 3 Significance order of design objectives for promenade design as per questionnaire results.....	3
Table 4 The final matrix of the relationship between design principles and design objectives for a land-based experience of a healing blue-way system.....	4
Table 5 continue the final matrix of the relationship between design principles and design objectives for a land-based experience of a healing blue-way system.....	5
Table 6 The final matrix of the relationship between design principles and design objectives for a water-based experience of a healing blue-way system.....	8