

ECO FRIENDLY ARCHITECTURE IN ECO TOURISM

An illustrative study of Eco tourist architecture in the tropical environment with special reference to Sri Lankan context

Dissertation submitted in partial fulfillment of the Master of Science in Architecture
Department of Architecture

University of Moratuwa
LIBRARY
UNIVERSITY OF MORATUWA, SRI LANKA
MORATUWA

72°01"
719:379.85
(543.7)

TH

D. S. Rajapakse
Department of Architecture
University of Moratuwa
Sri Lanka



30th June 2001
University of Moratuwa

76203



76203

76203

Abstract

The pace of development in countries within the tropical region is among the fastest in the world. Yet many of these nations still depend heavily on their natural resources. This today has led to a conflict: rapid development places an ever-increasing claim on scarce natural resources, which results in environmental degradation. On the other hand the effects on the ecological balance due to mankind's short sighted activities.

The key element in any sustainable development is to ensure that they are undertaken in an environmentally sound manner. Here the buildings are the main added contributor into the creation of imbalance in the natural environment. With the rise of the concept of eco tourism this has become more aggravated as it makes direct physical interaction within the nature. The built environment as the major physical component in eco tourism, which also contributes to give the character to the place, visualizes the significant role of the architect creating sustainable eco tourism friendlier towards the nature. But unfortunately in the contemporary practice of eco tourist architecture, though it needs to be exceptionally eco friendly, has lost the sensitivity mainly because of lack of understanding the design principles of eco tourism.

Finding the solution it convinced the necessity of the comprehensive understanding of eco friendly architecture, which is the total interpretation of design principles of eco tourism. Thus the study is initially attempted to make a broader understanding of eco friendly architecture, clearly defining the concept as a holistic approach of the green, eco sensitive, sustainable and ecological conceptions with their physical and psychological perception as a criteria to evaluate the design principles in a more elaborative manner.

Since the concept of eco tourism is highly elaborated in the tropical nature and its merged exclusive culture the examples are evaluated mostly within the tropical eco systems. Thus the study attempts to visualize how possibly viable eco tourism can be generated in Sri Lanka which has an exotic tropical nature enriched with an exclusive culture. Thus has given examples of some of the recent tourist products, which are developed within these natural and socio cultural settings making closer attitudes towards sustainable eco tourist architecture.

Acknowledgment

My sincere gratitude is due to many who contributed in the production of this Dissertation.

My special thanks goes to Professor Nimal De Silva, Head of the department of architecture and Architect Chris De Saram Senior Lecturer at University of Moratuwa, for encouraging me during the study by correcting and advising me taking their valuable time of their busy schedules.

Architects Vijitha Basnayaka and D. P. Chandrasekara my tutors for believing the worth of this study and guiding me by giving incisive comments and valuable criticisms, which helped me and gave pace to develop my thoughts and approach to this study.

I am profoundly great to Dr. L. S.R. Perera, the Senior Lecturer in the Department of Architecture, University of Moratuwa for all his guidance given at the beginning of the study.



University of Moratuwa, Sri Lanka
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

Great appreciation goes to Architect Sunil Gunawardana, Mr. Chandra De Silva; Managing Director Ranweli Holiday Village, Mr. Chandra Wickramasinge; Chairman of Connaissance de Ceylon Ltd, Mr. Hemantha Ratnayake; Operations Manager Kandalama Hotel and Mudiyanse Thennakoon at Ulpotha.

My warmest thanks goes to Rachitra and her Family and to my friends Udaya, Ashoka, Dilkushan and Madhuwanthi for their constant support given in numerous ways during the study.

Last but not least my greatest gratitude goes to my dear parents, sisters who were behind me encouraging all the time.



| | Page No. |
|---------------------------|----------|
| ▪ Abstract | i |
| ▪ Acknowledgements | ii |

Introduction _____

| | |
|--------------------------|----|
| ▪ Topic explanation | 01 |
| ▪ Objective of the study | 02 |
| ▪ Justification | 03 |
| ▪ Methodology | 04 |
| ▪ Scope and limitations | 06 |

Chapter One _____

Eco friendly architecture and the tropical environment



University of Moratuwa, Sri Lanka
Faculty of Architecture
www.lib.mrt.ac.lk

| | |
|---|-----------|
| 1.1 Eco friendly Architecture: The concept and the evolution | 07 |
| 1.1.1 Relationship between nature and the architecture. | 09 |
| 1.1.2 Contemporary definitions of Eco friendly architecture | 10 |
| 1.2 Eco friendly Architecture and the tropical climate | 11 |
| 1.2.1 Traditional eco friendly architecture in tropical climates. | 12 |
| 1.2.2 Eco friendly adaptations in contemporary tropical architecture. | 15 |
| 1.2.3 Enhanced eco friendly architecture in tropical eco systems | 17 |
| 1.3 Application of green principles on tropical Eco friendly Architecture in Tropical climates | 19 |
| 1.3.1 Conserving energy | 20 |
| 1.3.2 Working with climate | 21 |
| 1.3.3 Minimizing the new resources | 22 |
| 1.3.4 Respect for user | 23 |
| 1.3.5 Respect for Site | 23 |
| 1.3.6 Holism | 24 |

| | |
|---|-----------|
| 1.4 Psychological perceptions of Eco friendly Architecture elaborated in the Tropics | 25 |
| 1.4.1 Imagebility and the Spirituality of the place. | 25 |
| 1.4.2 Emotional sense of spatial progression enhanced with architectural elements | 26 |

Chapter Two _____

Application of Eco friendly Architecture in Tropical Eco Tourism

| | |
|---|-----------|
| 2.1 Concept of eco tourism and eco tourist architecture | 28 |
| 2.1.1 History and the evolution of eco tourist architecture. | 29 |
| 2.1.2 Metaphors and Eco lodges in eco tourist architecture | 30 |
| 2.2 Enhanced eco tourist architecture in the tropical environment | 32 |
| 2.2.1 Inspiration of tropical architecture | 33 |
| 2.2.2 Distinctive elaboration of architecture in eco tourist metaphors in tropical climates | 34 |
| 2.3 Interpretations of eco friendly architecture in the design Principles of Tropical eco-tourist architecture | 35 |
| 2.3.1 Generation of sense of place | 36 |
| 2.3.1.1 Imagebility | 37 |
| 2.3.1.2 Emotional sensitivity of spatial progression enhanced With architectural elements | 37 |
| 2.3.2 Use of sustainable design methods | 38 |
| 2.3.2.1 Conserving energy | 39 |
| 2.3.2.2 Working with climate | 39 |
| 2.3.2.3 Minimizing new resources | 40 |
| 2.3.3 Application of the concept of carrying capacity | 41 |
| 2.3.3.1 Respect for site | 41 |
| 2.3.3.2. Respect for user | 42 |



Chapter Three _____

Generating Eco friendly architecture for Eco tourism in Sri Lanka 44

3.1 Ella Adventure Park – Ella wellawaya

3.1.1 Introduction 46

3.1.2 Evaluation of the principles of eco tourist architecture in the perceptions of Eco friendly architecture

3.1.2.1 Generation of sense of place 46

3.1.2.1a Imagability 47

3.1.2.1b Emotional sense of spatial progression enhanced with architectural elements. 48

3.1.2.2 Use of sustainable design methods 51

3.1.2.2a Conserving energy 52

3.1.2.2b Working with climate 52

3.1.2.2c Minimizing new resources 53

3.1.2.3 Application of concept of carrying capacity 54

3.1.2.3a Respect for site 54

3.1.2.3b Respect for user 55

3.2 Ulpotha village – Kurunegala

3.2.1 Introduction 56

3.2.2 Evaluation of the principles of eco tourist architecture in the perceptions of Eco friendly architecture

3.2.2.1 Generation of sense of place 57

3.2.2.1a Imagability 58

3.2.2.1b Emotional sense of spatial progression enhanced with architectural elements. 59

| | |
|---|-----------|
| 3.2.2.2 Use of sustainable design methods | 62 |
| 3.2.2.2a Conserving energy | 62 |
| 3.2.2.2b Working with climate | 63 |
| 3.2.2.2c Minimizing new resources | 63 |
| 3.2.2.3 Application of concept of carrying capacity | 64 |
| 3.2.2.3a Respect for site | 64 |
| 3.2.2.3b Respect for user | 65 |
| | |
| 3.3 Eco Resort – Dambulla | |
| | |
| 3.3.1 Introduction | 66 |
| 3.3.2 Evaluation of the principles of eco tourist architecture in the Perceptions of Eco friendly architecture | |
| 3.3.2.1 Generation of sense of place | 67 |
| 3.3.2.1a Imagability | 67 |
| 3.3.2.1b Emotional sense of spatial progression enhanced with architectural elements. | 68 |
| 3.3.2.2 Use of sustainable design methods | 69 |
| 3.3.2.2a Conserving energy | 70 |
| 3.3.2.2b Working with climate | 70 |
| 3.3.2.2c Minimizing new resources | 72 |
| 3.3.2.3 Application of concept of carrying capacity | 72 |
| 3.3.2.3a Respect for site | 73 |
| 3.3.2.3b Respect for user | 73 |
| | |
| Conclusion | 75 |
| Bibliography | 77 |
| List of Illustration | 79 |