

CONCLUSION

Climatic Responsive Design (CRD) was not a strange topic for our Ancestors. The traditional buildings were more climatic responsive and therefore both internal and external spaces of traditional buildings were comfortable.

The contemporary buildings, which ignored the CRD strategies and find their comfort by using mechanical methods such as Air Conditioning, have been a main cause for current global environmental crisis such as Energy crisis, Ozone layer depletion and Global warming etc.

As the Professionals who responsible for designing of buildings, the Architects has much more to contribute on addressing these issues and therefore perform on CRD.

The world climate can be classified in to main climatic zones and there are various climatic 'sub zones' within these climatic zones. The main causes for the presence of such sub zones can be stated as topography, the effect of the sea and neighboring lands, the effect of wind and rain and the geography of the region.

There are various researches done by various scholars on CRD for Tropical climate and they has many similarities other than a very few variations.

Therefore formulating a comprehensive set of Principles and Strategies for CRD in Tropics was not very complex and developing such finding further in to a CRD Evaluation Index was the main discovery of this dissertation.

The developed 'CRD Evaluation Index' had certain merits as well as demerits. But it was very well suited for the research component of this dissertation and facilitated the analysis of 18 case studies (which was the set scope of the study) both individually and comparatively.

The analysis of case studies were concluded the following investigations;

1. There is a direct relationship between the climate of the region and its Architectural form.
2. Climate of a region is the deciding factor for the built form than the socio cultural factors.
3. There are various climatic 'sub zones' within main climatic regions of Sri Lanka such as Nuwara-Eliya in hilly zone and Hambantota in dry zone.
4. The selected common traditional houses as base cases were perfectly matched for Dry zone and Wet zone but the selected 'courtyard house' for hilly zone was not matched for the 'hilly zone' which has a considerable diversity in micro climatic conditions and therefore the built form.
5. The Traditional buildings are Climatically responsive than the Modern buildings.

6. All the principles and strategies investigated in this study cannot be applied at once and which is not practical in designing a building; following only a part of such which are appropriate to the situation can make it CRD.
7. This research is done only for domestic buildings since they have more consideration and care as the 'living spaces' of people than commercial or public buildings. Therefore it is interesting to study on CRD of such buildings (which is out of the scope of this dissertation) as well in order to make the study further comprehensive.

This dissertation was attempt to study on the CRD and its regional variations with special reference to main climatic regions of Sri Lanka is concluded with giving more credits to traditional domestic buildings than the modern once in addition to the above main findings while opening several paths for possible future studies.



BIBLIOGRAPHY

Beyer M.B. and Klooster V.I. (2000) 'Environmentally-Friendly Buildings as a starting point for the Design', Open house International, Urban design development, Vol. 25, No.3 (pp65-73)

Crowther, R.L (1992) 'Ecologic Architecture', USA: Butter worth Architecture.

Dayaratne R. (2000) 'Learning From Tradition for an Environmentally Responsive Architecture in Sri Lanka', Open house International, Urban design development, Vol. 25, No.3 (pp5-15)

De Silva, Prof. Nimal, "The Sri Lankan Tradition for Shelter", Journal of the Sri Lanka Institute of Architects, Colombo, Sri Lanka.

De Vos, Ashley, "Some Aspects of Traditional Rural Housing and Domestic Technology", Journal of the Sri Lanka Institute of Architects, Colombo, Sri Lanka.

Emmanuel R. and Rathnayake G. (02.2002) Indoor thermal comfort in contemporary Sri lankan urban houses: a simulation study, Built – Environment in Sri Lanka, Vol. 02 (pp22-27)

Emmanuel R. (06.2002) 'An Analysis of the Bio-Climatic Effects of Roof Cover of Domestic Buildings in the Equatorial Tropics', Architectural Science Review, Vol. 45 (pp117-124)

Energy Research Group (1996) "The Climatic Dwelling: An Introduction to climate-responsive residential architecture", James & James, London

Evans, M (1980) 'Housing, Climate and Comfort', London: Architectural Press.

Fathy H. (1986) 'Natural Energy and Vernacular Architecture', Chicago: The University of Chicago Press

Fry, M and Drew, J (1956) 'Tropical Architecture in the dry and humid zones', London Williams Clowes & Sons Ltd.

Givoni, B. (1991) "Impact of Planted Areas on Urban Environmental Quality", Graduate School of Architecture and Urban Planning, UCLA, LA, USA,

Hyde, R (2000) 'Climate Responsive Design', London: E& FN Spon.

Hyde, R and Docherty M. (1997) Thermal Performance of housing in the Hot-Humid Tropics of Australia, Architectural Science Review, Vol. 40

Jayasinghe, T.M (2003) 'Energy Efficient Houses for Tropical Climates', Sri Lanka: United Printers.

Jonson S. (1993), "Greener Buildings Environmental impact of property", The Macmillan press ltd, London

Konya, A (1980) 'Design Primer for Hot Climate', London: Architectural Press.

Kukreja C.P. (1978), "Tropical Architecture", Tata McGraw-Hill Publishing Company Limited, New Delhi, India

Lewcock R., Sansoni B., Senanayaka L., (1998) "The Architecture of an Island" Barefoot (PVT) LTD, colombo, Sri Lanka.

Mallick H. F. (2000) 'Environmentally Responsive Architecture', Open house International, Urban design development, Vol. 25, No.3 ((pp3-4)



Olgray V. (1963) "Design with Climate bioclimatic approach to architectural Regionalism", Princeton University press, New Jersey.

Rapoport A. (1969) 'House Form and Culture', Prentice-hall, INC: Englewood Cliffs N.J.

Somasekaram T. (19), "Arjuna's Atlas of Sri Lanka", Arjuna Consulting Co. Ltd, Dehewala , Sri Lanka.

Watson D. and Labs K. (1983) "Climatic Design Energy efficient Building Principles and Practice", Mc.Graw-Hill book Company, New York.

Vale, B, Vale, R (1996) 'Green Architecture – Design for Sustainable future, London: Thames and Hudson ltd.

