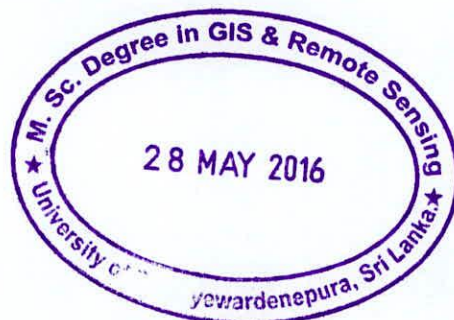


**URBAN TRANSFORMATION PROCESS REFERENCE
TO SPATIAL AND FUNCTIONAL STRUCTURES: A
COMPARATIVE ANALYSIS**

By

D.A Sukhitha Meththayana Ranasinghe

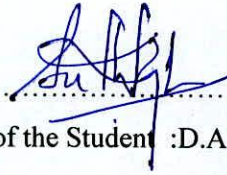


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DECLARATION OF THE CANDIDATE

I do hereby declare that work described in this thesis was carried out by me under the supervision of Dr Pinnawala Sangasumana Thero and Mr Prabath Malavige and report on this thesis has not been submitted in whole or in part to any University or any other institution for another Degree/Diploma.

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ABBREVIATIONS

GIS	-	Geographic Information System
FSI	-	Floor Space Index
GSI	-	Ground Space Index
MXI	-	Mixed Use Index
OSR	-	Open Space Ratio

Urban Transformation Process Reference to Spatial and Functional Structures : A Comparative Analysis

D.A Sukhitha Meththayana Ranasinghe

ABSTRACT

Many new towns are established in Sri Lanka with the intention of providing desirable places to live. Nevertheless, these new towns often lack the flourishing street life, small businesses, and variety of social activities that old towns have to offer. This research explores the differences in urbanity level between organic towns and planned towns? And also has needed to investigate by contrast the interrelationship between the various degrees of the three spatial variables?

So the intention is to apply spatial and functional structures through geographical information system (GIS). The application of these tools is used to identify urbanity level of different urban transformed cities which are Katugastota and Digana.

Old Katugastota Town features more urban areas with a high-level of spatial values from the perspective of street network configuration, building density, and land use mix as compared to Digana new town. These high spatial value urban areas uphold a vital city center, the type of which is absent from the new town. Digana New Town area difficult is caused by a lack of well-integrated main roads and local streets, a low degree of spatial interaction between buildings and streets, and low point of land use mix as well.

In this research study on different urban transformation process, and the analytical methods that were used were based on Space Syntax, Space matrix, and Mixed Use Index (MXI) and GIS analysis. And from this study, it was determined that the correlation existing among the factors: on to the Pedestrian Movements. Urbanity level and Spatial Integration highly correlated than other morphological features.

Key words: Space Syntax, Space matrix and MXI model, Urbanity level

CHAPTER ONE

INTRODUCTION

1.1 Background and the matrix of the Problem.

Urban transformations deal with both growing and declining urban regions (Laursen, and Holst 2009). There is no city just diminishing or just growing, but containing both aspects to some degree, as seen in the theoretical investigations as well as in the situation studies.

Urban transformation offers a more holistic approach, when trying to understand the modern development tendencies as a whole, where the different mechanisms and structures of the urban are taken together. It is not dealt with separately. This means that urban transformation is all inclusive and captures the relational aspect by both containing growth and decline. Urban transformation is a term that includes both urbanization and de-urbanization that is urban growth as well as negative urban development. Thereby, the term urban transformation

When consider about growing, urban transformation process reveals have two basic processes. There are organic towns and planned towns. Organic towns are primarily happening of towns in the natural way where people simply start building, as they still do, in the emerging world. Planned Towns are artificial way of create towns in which, master plans are organized and urban blocks indented in which buildings are then placed according to some planner's sense or order. Those kinds of town developments commonly established under the economic strategies of the country. But, must be understood and remembered that, neither of these two basic categories of towns exists in its pure form. Organic towns may evolve organically but, times go developed in a planned manner. Likewise, organic growth and development in a planned town may be a common occurrence.

When consider about many planned towns in the world most frequently lack the flourishing street life, small businesses and variety of social activities then organic Towns. On other word can say normally organic towns tend to perform socio-economically better than new town (Ye and Nes 2013)

The purpose of this study is to determine the urban spatial and functional reasons and why natural urban transforms cities, tend to perform socio-economically better than planned towns. Urban spatial and functional structures considered as the study of urban tissue, or fabric, as a means of discerning the environmental level normally associated with urban design. Tissue comprises coherent neighborhood morphology (open spaces, building) and functions (human activity). Cities are exhibit recognizable patterns in the ordering of buildings, spaces and functions (themes), within which variation reinforced an organizing set of principles.

To investigation of the concept of urban transformation processes used in the urban morphology tradition. Whereas 'urban transformation processes' describes urban changes over time in a particular area. Recently, advances in new quantitative spatial analysis tools have made it possible to quantitatively analyses spatial and functional features of whole cities. That kind of features brings some new visions into the evolving logic of urban form and related functions.

During the last decade, spatial analyses methods improved capacity of computers have made it possible to quantitatively analyses above morphological features of whole cities. It can be help to identify how planned towns differ spatially from organic Towns. Different types of spatial and functional reasons have to effect on functionality of an urban area. According to Akkelies and Ye main (2013) three spatial and functional reasons directly effect on urban transformation process. They are Street network, building density and land use diversity. Those parameters are texted using different analytical methods, which methods are developed by different authors in defect time periods.

- Street Network - Space Syntax Method (Hillier 1993)
- Building Density - Space Matrix (Zurich 2010)
- Land Use Diversity - Mixed Use Index (Hoek 2007)

And also they have shown by contrast the interrelationship between the various degrees of the three spatial variables in urban area. Find quantitative classification system on various types of urban areas can be present. Classification of the urban area ranked urban suburban areas to highly urban areas.

1.2 Statement of the Problem

There have different types of investigation done by many professionals based on spatial and functional structures of different types of urban areas. When consider about urban transformation process reveals that there have been two basic processes, which have given to two types of towns. There are organic towns and planned towns. According to Ye and Nes (2013) new town was often lack the flourishing street life, small businesses, and variety of social activities than organic Towns

Therefore, there is a necessity to look into the does urbanity level is differences in organic towns and planned towns? And also has needed to investigate by contrast the interrelationship between the various degrees of the three spatial variables? This may be help to understand, which morphological feature mostly effect on urban transformation process in Sri Lankan context and also has needed to look at which morphological feature mostly effect on urban transformation process

1.3 Research Objectives

Main Objective

The main Objective of this study is to Examination the urbanity level differences between old towns and new towns in Sri Lanka.

Specific Objectives

To identify correlation between urbanity levels and spatial and functional structures on the Sri Lankan urban context.

To identify the which morphological feature mostly effect on most attractive locations for lively and vital urban areas on different urban transformation process

1.4. Significance of the Study

A consideration of the urban transformation process of cities is helpful in decision making process. The plans should be prepared for cities by understanding spatial structures and its correspondent functions. Some urban areas have originated up to a balanced position in because of their spatial and functional structures. However some cities are in the process to achieve that. Some cities have been developed for a long period of time while others have been built very instants. Unfortunately functionalities are been different, because of the spatial and functional effect of the city. These differentiations in urban systems should be understood and taken into consideration when preparing development plans for cities

1.5 Limitations of the study.

This study is in the initial stage and limited for an only two case study due to the main limitation; unavailability of required large number of data. If it is applied to many cases, it will reflect a better outcome that will leads to understand the relationship between urban transformation process and spatial and functional structures of the city.

It should be noted that this is a technique which has only concerning spatial aspects throughout the process but apart from that there can be numerous other factors such as guidelines, policies, governance structure etc. which will affect to the results of the analysis.

1.6 Methodology in brief

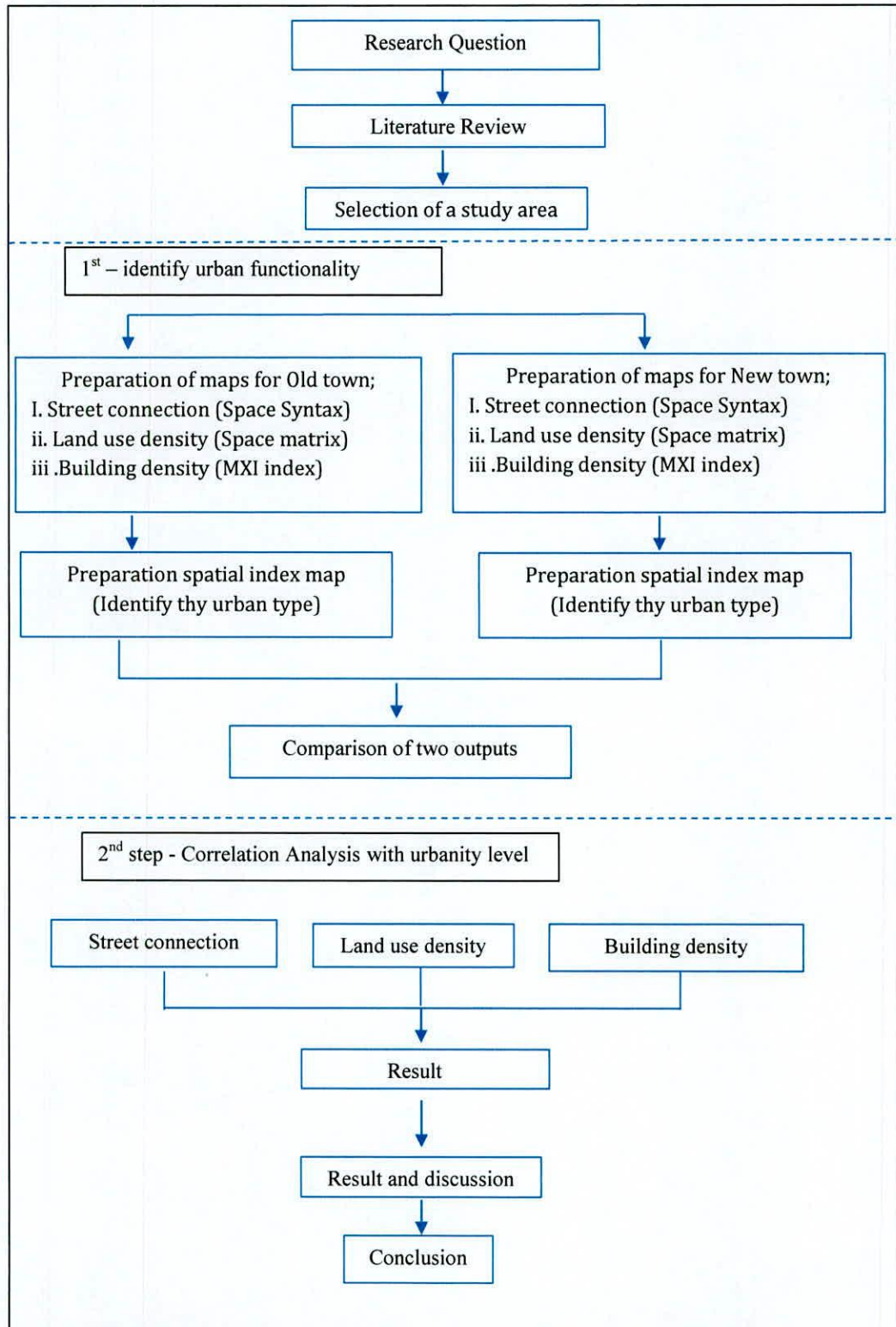


Figure 1.1: Methodology of the study