Distribution Pattern of the Buddhist Monastery in Rajagala, Sri Lanka

By

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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 Prof.R.M.K. Ratnayake and, Mr. C.L.K. Nawarathne 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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Here I would like to remind two old good sayings which were always kept in my mind. Those are "The beginning of all good thing are small" and "The birds of feather roams together".

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ABSTRACT

The Rajagala Monastic site is located on top of the Mountain range in the Eastern Province. The area has been the location to human inhabitation around 2600 years ago. The number of identified monuments in the area is more than 600 in which all the monastic structures have spread throughout the area. There are several types of cave dwellings, refectories, different buildings, ponds, walkways, and steps which have been constructed located in the jungle in the 1st Century BC.

While constructing the ancient monasteries, it was always done with an exact reason. The Rajagala which can be named as a meditation monastery is constructed with the aim of absorbing wonderful calmness and spirit of nature. In this context, to understand the said specialty the research comprises to examine that to what extent the ancient architecture deals with the spatial distribution patterns between the ruins and Environmental/ Geographical setup of the Rajagala Buddhist Monastery.

And the study has been carried out under the objectives like identifying the area selected for the monastery, examine the distribution patterns of ruins and the monastery complex, recognizing the relationship between ruins, geographical features.

On the way of trying to fulfill said objectives, this study was carried under a field survey by sorting the collected information and digital map data. Other than that, it has been studied to understand how the settlements were related with the Rajagala Monastery and application of GIS techniques to the Rajagala site construction. The understanding and discovering the relationship in between the settlement and monastic site signifies in strategically. As a meditation monastery the Rajagala has been constructed as per the establishment of the natural environment also liaising with the modern day geo informatics technics such as road systems and mean centralization of major buildings.

Key Words: GIS, Rajagala, Monastery, Mountain, Distribution patterns

Chapter One

INTRODUCTION

1.1 Introduction

According to the chronicles, the history of Sri Lanka begins with the arrival of Prince Vijaya form Northern India in the 6th Century BC. However, the archeological evidence proves that the pre-history of the Island emerges around 500, 000 years ago and at least 12, 000 years before there have been some of the evidences which illustrate the regional corporation over trade and cultural affairs.

In the 3rd Century BC, the arrival of Mahinda Thero brought some significant changes to the socio-cultural environment in which Buddhism influences to create and disseminate the art and knowledge throughout the Country. In this process, the Anuradhapura era has been considered as the most significant epoch in the history of the creations of Buddhist Monasteries in Sri Lanka. Monastery complex like Mahavihara, Jethavana and Abhayagiri can be shown as a commendable example to the establishments in Rajagala.

In this systematic planning, the idea of environmental resemblance has been remarkable integrated into the engineering process. The concept of 'eco-friendly engineering' has also been highly influential to the establishments of the subordinate areas of Anuradhapura. For example, the Kingdom of Magama and their monasteries have been established following the principle of 'eco-engineering'. Among them, the monastery complex of Rajagala can be shown as a remarkable example for pro-environmental architecture in the Anuradhapura era.

This study mainly focuses on specific types of Buddhist architecture established for meditation, which are recognized as 'meditation monasteries' in ancient Sri Lanka. In the meantime, some of the monasteries show diverse characteristics: from the beginning, as above explained, the development of Buddhist monastic establishments took distinct directions mainly due to environmental factors. The first development can be designated as the 'Closed Type' started with the conversion of natural rock-caves located in forests in the settlement of monks (Paranavitana 1970).

These settlements, dating back to the 3rd Century BC, are found many parts of the Country have been well documented in the archeological literature. Although this Closed Type can still be discovered from time to time, it has not been recognized as the most popular type of monastery in the Buddhist community in Sri Lanka. The second type of monastic establishment is called the 'Open Type' which primarily concentrated in the Capital of Anuradapura, and, it has spread all over the Country. Within the confines of these Monasteries, all the establishments for monastic purposes were constructed which include ritual, residential and service buildings (Wijesuriya 1998: 2).

The first type or the meditation monasteries are generally located on the slope or tops of mountains or at the very least outcrops of rocks. The evidence shows that these buildings were constructed without disturbing the existing natural features and the terrain in the area. In several cases, there are traces of links between the main path and residential building in the form of footpaths which also very little disturbance of the natural features. Even today, the topographical features in between the buildings are well preserved and do not show any signs of human intervention (Aditya 1971:155). In these establishments, Ritigala, Arankale, Manakanda, Nuwaragalkanda are most popular meditation monasteries among scholars who carry out their studies on the Buddhist Monastery System in Sri Lanka.

1.2 Research Problem

At the beginning, the archeologists of Rajagala initially focused on the inscriptions and the history of the ruins. However, the recent discoveries have mainly pointed out the importance of sophisticated technology for cognitive archeological research. Therefore, this study focuses on identification of the spatial distribution between ruins and environmental setup of the Rajagala Buddhist Monastery. In this context, the research problem of this study carried out under the comprises to examine that, "To what extent the ancient architecture deals with the spatial distribution patterns between the ruins and Environmental/ Geographical setup of the Rajagala Buddhist Monastery?".

1.3 Significance of the Study

Archeological discoveries are important in every aspect not only because of their historical value, but also its applicability to contemporary socio-cultural life by absorbing the old good lessons and identify the failures not to repeat again. As explained somewhere of this study, the significance of the principles of ancient creations such as architecture, environmental adaptability, religious means and ends, etc. can be utilized constructively to shape the modern monastic or religious lifestyle of the Country.

In the archeological research in Sri Lanka, studies on the spatial data distribution have been highly limited due to the problem of technological adaptability. And the said reason caused to demotivate the new researchers to carry out continuous studies on the subject area. At this point, the importance of spatial data analysis can be shown in several aspects: firstly, a spatial database can be utilized to various interpretations of diverse researches in the field,

Secondly, archaeology is a new field that combines archaeology and computer to reconstruct of the past. It can be used numerous ways as extensively. Geographical information system is a recent analytical tool to combine with computer in the field archeology. It has been used to simulate diachronic changes in past landscape and intra site analysis. (Kvamme 1989).

Using this technology, we are able to create maps that simulate different environments and ways in which people might have used the land, living space, and material goods, with the help of this information try to understand the catchment area who patronage to the monastery in the past and also based on that data can apply to create a map. Archaeological data are inherently spatial, and archaeologists are naturally concerned with the distribution of Rajagala archaeological sites across the landscape. From these distributions, described as settlement patterns, we can infer a great deal about the social and political complexity of the ancient people's we study, the size of their domains, aspects of resource procurement. GIS can be used as database management instruments of great flexibility; they have been applied with the greatest success to regional-scale archaeological survey, which is the systematic search for archaeological sites on the landscape with environment.

1.4 Objectives

The main objective of this research is to identify the Spatial Distribution Patterns and the use of social cultural aspects of the Buddhist Monastery in Rajagala.

The secondary objectives of this study are as follows:

- To identify the area selected for the monastery.
- To examine the Distribution patterns of ruins in the site and around the monastery complex.
- To recognize the relationship between ruins and geographical features and try to understand of distribution.
- To discover the relationship in between the settlement and the monastic site.
- To understand the supplying arias and civil awareness
- To identify the water management system and reconstruct the earliest irrigation system with the help of a map.

Chapter Two

SPATIAL ANALYSIS OF ARCHAEOLOGICAL MONUMENTS AND SITES

2.1 GIS approaches for the spatial analysis in Archaeology

A geographic information system (GIS) is a technological tool for comprehending geography and making intelligent decisions. GIS organizes geographic data so that a person reading a map can select data necessary for a specific project or task. A thematic map has a table of contents that allows the reader to add layers of information to a base map of real-world locations. The combination of GIS and archaeology has been considered a perfect match, since archaeology often involves the study of the spatial dimension of human behavior over time, and all archaeology carries a spatial component.

Seeing that archaeology looks at the relating of historical occasions through geography, time and culture, the results of archaeological studies are wealthy in spatial information. GIS is adept at finalizing these large volumes of information, especially that which usually is geographically referenced. The most important aspect of GIS in archaeology lays, yet, not in it is use being a pure map-making tool, but also in its functionality to merge and examine different types of info to be able to create new information. The make use of GIS in archaeology has changed not simply the way archaeologists get and visualize data, yet also the way in which archaeologists think regarding space itself. GIS features therefore become more of your science than a target tool (Gillings 1996:2).

In recent years, it has become clear that archaeologists will only be able to harvest the full potential of GIS or any other spatial technology if they become aware of the specific pitfalls and potentials inherent in the archaeological data and the research process. Archaeo information science attempts to uncover and explore spatial and temporal patterns and properties in archaeology. Research towards a uniquely archaeological approach to information processing produces quantitative methods and computer software specifically geared towards archaeological problem solving and understanding (Gillings 1996:2).

Space analysis can be taken out on archaeological info to examine the circulation of the archaeological remains to be in several ways. They works extremely well to describe and