TRIVALENT ත්‍රිසංයුජ

JOURNAL OF ARCHAEOLOGY, TOURISM & ANTHROPOLOGY

Department of Archaeology
University of Kelaniya
Sri Lanka.

TRIVALENT

ත්‍රිසංයුජ

Journal of Archaeology, Tourism & Anthropology

Department of Archaeology

Faculty of Social Sciences

University of Kelaniya

Sri Lanka

TRIVALENT

ත්‍රිසංයුජ

Journal of Archaeology, Tourism & Anthropology

2020

Department of Archaeology

Faculty of Social Sciences

University of Kelaniya

Sri Lanka

TRIVALENT

ත්‍රිසංයුජ

Journal of Archaeology, Tourism & Anthropology
Department of Archaeology
University of Kelaniya
Sri Lanka

Volume I   *Issue II*   *2020*

TRIVALENT/ත්‍රිසංයුජ: Journal of Archaeology, Tourism & Anthropology is to provide a platform for researchers and professionals to publish their research findings, theoretical overviews, models, concepts related to Archaeology, Anthropology & Tourism & Cultural Resource Management with a multidisciplinary research approach. This is an interdisciplinary, open-access journal that is exclusively devoted to the publication of high-quality research in the fields of Archaeology, Anthropology & Tourism & Cultural Resource Management. TRIVALENT/ත්‍රිසංයුජ: Journal of Archaeology, Tourism & Anthropology is published twice a year. The Journal focus on new trends in each field.

Dr. Mangala Katugampola

Editor in Chief,
Head of the Department,
Department of Archaeology, Faculty of Social Sciences, University of Kelaniya.
Director, Centre for Heritage Studies, University of Kelaniya.

Volume I: Issue II 2020

Department of Archaeology

Faculty of Social Sciences
University of Kelaniya
Sri Lanka

The Department of Archaeology has extended the history from 1973 as a sub-department under the Department of History. In 1977, the Department of Archaeology was established as a separate department. Our department offers Archaeology, Tourism and Cultural Resource Management and Anthropology for BA (General) Degree Programme. Meanwhile, we offer Archaeology, Tourism and Cultural Resource Management for BA (Special) Degree Programme. Moreover, our department conducts MA and MSSc degree programmes relevant to Archaeology.

Archaeology has become a subject field of studying human culture through human activities beyond a mere appraisal of past cultures & societies. The application of new knowledge & secrets of human history uncovered through that scientific study is the main aim of archaeology. Based on the multidisciplinary & multivocal concept of archaeology, it is an internationally connected subject via likes Tourism & Cultural Resource Management. The department offers a student-centred learning system by instilling in lectures a series of practical skills in field work & research.

Volume I: Issue II 2020

TRIVALENT

ත්‍රිසංයුජ

Journal of Archaeology, Tourism & Anthropology

Volume I   Issue II   2020

Editor in Chief

Dr. Mangala Katugampola

B.A. (Kel'ya), PG. Dip. (PGIAR), M.Phil. (PGIAR), Ph.D. (Sichuan, China) MSLCA
Senior Lecturer Gr. I, Head of Department, Department of Archaeology, University of Kelaniya, Sri Lanka.
Director, Centre for Heritage Studies, University of Kelaniya, Sri Lanka.

Editorial Board

Prof. Robin Coningham

B.A., Ph.D. (Cantab.)
Professor, Department of Archaeology, Durham University, United Kingdom.
UNESCO Chair on Archaeological Ethics and Practice in Cultural Heritage.

Prof. Prishanta Gunawardhana

B.A. (Kel'ya), M.Phil. (Kel'ya), Ph.D. (Kel'ya), FSLCA
Chair Senior Professor, Department of Archaeology, University of Kelaniya, Sri Lanka.

Prof. Noel Scott

BSc. (Hons) (UQ, Australia), MBA (Dist.) (Warwick, UK), M. Bus. (Marketing) (QUT, Australia), PhD (UQ, Australia), GCHEd (UQ, Australia).
Professor, Sustainability Research Centre, University of the Sunshine Coast, Australia.

Prof. Hong Liang Lu,

Ph.D. (Sichuan, China)
Professor, Department of Archaeology, Sichuan University, Chengdu, China.
Director of Center for Archaeological Science, Sichuan University, Chengdu, China.

Dr. Natalia Maksymowicz,

Assistant Professor, Department of Ethnology and Cultural Anthropology,
University of Szczecin, Poland.

Dr. W.H.M.S Samarathunga

B.Sc. (SUSL), MTEHM (UOC), Ph.D. (Sichuan, China)
Senior Lecturer, Department of Tourism & Hospitality Management
Faculty of Management Studies, Rajarata University of Sri Lanka

Layout Editor

Mr. Chamara Kuruppuarachchi

BSc. (Sp)(Kel'ya), MSSc. (Kel'ya), BIT (HDIT)(Colombo), SCJP
Senior Lecturer Gr. I, Department of Library and Information Science, University of Kelaniya, Sri Lanka.

Editorial Manager

Ms P. Gayathri

B.A. (Kel'ya), PG Dip. (Cl'mbo) Red.
Temporary Assistant Lecturer, Department of Archaeology, University of Kelaniya, Sri Lanka.

Assistant Editors

Ms. M. Piumi Hansamali

B.A. (Kel'ya), MSc (PGIAR) Red.
Temporary Assistant Lecturer, Department of Archaeology, University of Kelaniya, Sri Lanka.

Mrs. A.K.D. Thashila Yohani

B.A. (Kel'ya), MSSc (Kel'ya) Red, MSc (Perad'ya). Red.
Temporary Assistant Lecturer, Department of Archaeology, University of Kelaniya, Sri Lanka.

Mr. D.S. Anushan Munasinghe

B.A. (Kel'ya), DPPB (PGIAR), DPZA (PGIAR) Red, MSc (PGIAR) Red.
Temporary Assistant Lecturer, Department of Archaeology, University of Kelaniya, Sri Lanka.

Ms. K.K.P.M. Jayathilake

B.A. (Kel'ya), PG Dip. (PGIAR) Red.
Temporary Assistant Lecturer, Department of Archaeology, University of Kelaniya, Sri Lanka.

Ms W.S.D. Boteju

B.A. (Kel'ya), MSc (PGIAR) Red.
Research Assistant, Centre for Heritage Studies, University of Kelaniya

TRIVALENT

ත්‍රිසංයුජ

Journal of Archaeology, Tourism & Anthropology

Volume I   Issue I   2020

Peer Review Committee

Prof. Rev. W. Wimalaratana
B.A. (Perad'ya), M.A.(Colombo), Ph.D (Netherlands).

Prof. Hearath Madana Bandara
B.Ec. (Vidyodaya, University of Ceylon), M.A. (USJ), Ph.D. (Strathclyde, UK)

Prof. Jagath Weerasinghe - Emeritus Professor
MFA (American)

Prof. Anura Manatunga - Senior Professor
B.A. (Kel'ya), M.A. (Pune, India), M.Sc. (Kel'ya), FSLCA

Prof. Mudiyanse Disanayake - Emeritus Professor
B.FA. (Kel'ya), PG. Dip.Kathak (Lucknow, India) M.A.(USJ), Ph.D. (Calif. USA).

Prof. T.G. Kulathunga
B.A. (Vidyodaya). M.A.(Vidyodaya), B.Litt. (Honoris-causa)

Prof. Yasanjalee D. Jayathilake - Senior Professor
B.A. (Hons); M.A. (USJ), LLB (OUS), Ph.D. (JNU)

Prof. Malinga Amarasinghe - Senior Professor
B.A. (Kel'ya), M.Phil. (Kel'ya), Ph.D. (Kel'ya), FSLCA

Prof. Prashantha B. Mandawala
B.Sc. (Moratuwa), M.Sc. (Moratuwa), M.A. (York, UK), PG. Dip. (IHS, Netherlands), ARC 98 (ICCROM, Rome), FSLCA, AIA (SL), ICOMOS (SL), MSLAAS,

Prof. D.A.C. Suranga Silva
B.A (CMB), Dip (Aus) in Env. Econ, MA (CMB), M.Phil. (Maast.), Ph.D. (Amst.).

TRIVALENT/ත්‍රිසංයුජ: Journal of Archaeology, Tourism & Anthropology

Cover Page: Rumal Vindula Bandara

Compiling and Page set up: P. Gayathri, D.S.A. Munasinghe

Graphic Designing: Rumal Vindula Bandara

Volume I: Issue II 2020

Table of Contents

Understanding Megaliths of Pennagaram Taluk, Dharmapuri District

Mutharasu Anbalagan [1], Don Wesley [2], V. Pradeep [3]

[1] Archaeologist, Dharmapuri

[2] Archaeologist, Chennai

[3] Archaeological Survey of India, Chennai

arasumuthu000@gmail.com

Abstract

Since the discovery of Megalithic burial by Babington in 1823 in Kerala, hundreds of Megalithic burials were explored and excavated all over India. In the northern part of Tamil Nadu, the Middle Cauvery Basin is very rich in archaeological vestiges dating from various periods. Burial with the superstructure in the form of Cairn-Circle or Dolmen was a common feature dating from Iron Age to the Historical period and are collectively referred to as Megalithic Burial in India. To understand the spatial pattern and the effect of geography and geology of an area on the Megalithic burial practice, the taluk of Pennagaram was selected. This article is mainly related to the finding from 10 newly discovered Megalithic burial sites from Pennagaram taluk, which forms part of the Middle Cauvery Basin. In this article, with the help of Google map and Geological map an understating of the spatial pattern and why Megalithic builders of this region selected the place where the present burials are noticed.

Keywords: Cairn Circle, Cist, Megaliths, Pennagaram, Vandalism.

Introduction

'Megaliths' are monuments constructed out of large stones and were the burial practice of various cultures dating from the Iron Age to the Historical period. The term 'Megalith' is derived from the Greek word '*megas'*, which means big or great and *'lithos'* means stone. Thus, Megaliths refers to the monuments constructed out of large stones for the memory of deceased people. These Megalithic burials are spread over a large area, including the Deccan plateau, Peninsular India, Vindhya ranges, some parts of Jammu and Kashmir and the Northeastern part of India. Precisely, in Tamil Nadu, the Sangam literature such as *Naṟṟinai, Purananuru, Pathiṟṟupattu* and *Manimekalai* has mentioned these various types of burials and its ritual practices in ancient Tamil Nadu. Morphologically these burials were classified as Cairn circle (*Kal Vaṭṭam*), Dolmen (*Kal Tiṭṭai*), Cist burial (*Kal Patukkai*), Urn burial (Mutumakkaḷ Tāli), Menhir (Kutukkal), Hat stone (Topikkal) and Umbrella stone (Kuḍakkal). Research on Megaliths was undertaken by various scholars like Babington (1823), Alexander Rea (1888), Wheeler (1948), Gururajarao (1972), Leshnic (1974), Sundara (1975), K. Rajan (2000) and Selvakumar and Mohanti (2002) from the colonial period. The chronology of Megaliths is still controversial after two centuries of research on Megalithic burials. The earliest date of Megalithic burial is 9th century BCE obtained from an archaeological site called Adichanallur in Tamirabarani river valley and the youngest Megaliths are dated back to 7th century CE from Siruthavur in the northern part of Tamil Nadu. Most of the Megalithic burials from South India are secondary burials in nature where the burials contain few remains of the deceased person instead of the whole body. These burials remain in the form of grave goods like beads, iron objects and potteries. Often these potteries include Black-and- Red ware, All Black ware and Red slipped ware and Red Ware.

The present study area geographically comes under Middle Cauvery Basin and lies between the Western Ghats and the Eastern Ghats and forms an administrative division in Pennagaram taluk of Dharmapuri district (Fig.1), Tamil Nadu. Initial exploration work was conducted by Robert Sewell in 1882, when he discovered one dolmen at Ajjampatti in Pennagaram taluk, which he published in *Antiquarian*

Remains in the Presidency of Madras in 1882. After the establishment of the Archaeological Survey of India in 1861, many archaeological exploration works were conducted in Pennagaram Taluk and numerous archaeological sites have been reported from this study area. These findings were reported in the reputed journal of IAR- *Indian Archaeological Review* 1988-1990. Subsequently, in 1997, Dr K. Rajan had conducted extensive field work in the Dharmapuri district and reported several archaeological sites ranging from the Iron Age to the Historical period, which was reported in *Catalogue of Archaeological sites in Tamil Nadu* (Rajan. K. 1997).

These studies have reported archaeological vestiges dating from Iron Age to the Modern Period. The present study is mainly focused on Megalithic Burials, their location, exploitation of raw material and study the spatial pattern of burials. This article is based on 10 newly discovered Megalithic burial sites from Pennagaram taluk.

Sl. No	Name of the Site	Latitude	Longitude	Burial Types
1	Ajjanahalli	12°1'50" N	78°48'44"E	Cairn-Circle
2	Eriyur	12°0'17"N	77°47'17" E	Cairn-Circle
3	Kurkampatti I	12°1'52"N	77°48'53"E	Cairn-Circle
4	Kurkampatti II	12°1'36"N	77°47'47"E	Cairn-Circle
5	Kurkampatti III	12°1'37"N	47°47'28"E	Cairn-Circle
6	Pattakarankottai	12°1'29" N	77°48'27" E	Cairn-Circle
7	Periyavathalapuram	12°3'41" N	77°50'05" E	Cairn-Circle
8	Sidumanahalli	12°0'43" N	77°50'22	Cairn-Circle
9	Solapadi	12°0'8" N	77°49'2" E	Cairn-Circle
10	Thanda	12°01'41"N	77°47'05"E	Cairn-Circle

Table 1: *List of Megalithic burial sites from Pennagaram taluk, Dharmapuri District.*

Location of The Burials

The Megaliths are found generally on the slopes of hills or elevated parts and the foot hills of the non-productive lands. In the Pennagaram taluk, the Megaliths are found very close to the river streams, dry lakes, whereas in some cases, they are also found to have been erected in dry areas where the rocky outcrop is exposed. The contemporary people have selected the places for constructing these burials were basically where the raw materials are easily available at some approachable distance from the habitation area. The majority of burials from this taluk are situated in the foothills and slope of the hills, dense forest, and also some of them are found in river banks.

The exploitation of Raw Material for Burial Erection

The Megalithic people have selected locally available raw materials for the erection of these burials and the reason could be for the easily transportable stones for burial construction. The present location of the graves indicates that the raw materials were available within a distance of one or two kilometres. These stones were used as undressed boulders for the alignment of circles and with dressed stone slabs for the orthostats chambers with its capstone. Urns were made out of Coarser Red ware and most of them are in completely broken condition. In the Cist burials dressed and undressed slabs are used for orthostats and cap stones. In this study area locally available raw materials for burials are of Proterozoic in age with types as granite, charnockite, granitic gneiss and dolerite. Granite is the dominating raw material used in the construction of Cist burials. The materials used for cairn-circles and cairn packing are granite, charnockite, granitic gneiss and dolerite. Quartz is the major stone type that was used for cairn packing.

Local Mythology and Vandalism

In the Pennagaram region, the Megalithic monuments, such as Cairn-circle and cists are known and called by the local people in various names such as *Pandiyar Kuli'* and *"Pandavar Kuli"*. Locals have a belief that ancient people lived inside these

burials and also they have a belief that dwarf humans lived in this burial, whom they called *"Chittira Kullargal"*. Most of the burials in Pennagaram taluk have been vandalized (Fig. 2) due to this myth by the locals in search of precious metals and for precious stones within the burial.

Typology

In the study area, three major types of Megalithic burials were noticed, such as cairn circles, cairn circles with cist and cairn circles with an urn. Though most of the burials from the study area are Cairn-Circle, due to vandalism activity by the locals the structures in the form of cist and urns burials have been exposed, otherwise, the surface indication only indicates Cairn-circle.

Cairn-Circle

The Cairn-Circles are one of the most popular types of Megalithic burials which are commonly seen all over South India. Mostly Cairn-Circles were constructed out of irregular boulders; usually, the stone was arranged in a circle or oval shape with cairn packing in the centre (Fig. 3). The diameter and measurement of the Cairn-Circle may vary according to the contents and some of the circles are found with cist burials and some of them have urn burials. These types of burials are found in the villages like Ajjanahalli, Eriyur, Kurkampatti, Pattakarankottai, Periyavathalapuram, Sidumanahalli, Solapadi and Thanda.

Cairn-Circle with Cist Burial

The Cist is a box-like structure constructed by four orthostats and covered with a capstone. The cist burial noticed here are found to have been constructed with four granitic orthostat slabs in the form of a tub with a huge capstone placed over it (Fig. 2). Usually, they are found in single and multiple chambers. The eastern or northern orthostat has invariably a round port-hole at the centre. These Cists was roundly surrounded by boulders and filled with cairn packing. These types of Megalithic

burials are exposed due to human vandalism in the villages like Ajjanahalli, Eriyur, Pattakarankottai and Solapadi.

Cairn circle with an urn

It is one of the most dominating burial practices found in South India. These urns are generally closed with a lid and protected by a capstone and cairn packing. The Urns are made mostly of Red Ware or Black-and-Red Ware of coarse fabric and are ill fired. The rim portion is thick and short. They often have a decoration on the neck portion. The size of the Urn may vary from region to region. These Urns are buried inside the stone circle then filled with cairn packing. These Urns are noticed in vandalized burials in the villages like Periyavathalapuram and Sidumanahalli (Fig. 4).

Findings

Systematic exploration conducted by the authors of this article has revealed 10 burial sites from this taluk. Initial plotting of these burials on the contour, geological and geomorphological maps few important aspects related to these burial sites have been brought to light and they are as follows:

- Contour maps have revealed that most of the burials were erected on an evaluation of 250 mts Above Mean Sea Level (AMSL) and only two sites namely Periyavathalapuram and Thanda are noticed above 300 mts AMSL (Fig. 5).
- Lithology map has revealed that all these burial sites were found in the Charnockitic region (Fig. 6). As most all the boulders of cairn-circles were made out of Charnockites, so, the availability of raw material might be a reason for the selection of this location by the Megalithic burial builders.
- The geomorphological map indicates that all the burials are associated with pediment and pediplain formation (Fig. 7). A pediment is usually a place where smaller sized stones are found and these smaller sized stones were used for cairn packing by the Megalithic builders and this could be the major reason why Megalithic builders have chosen this place.

- ▪ A physical map indicates the water bodies of the study area have revealed that all the burial sites from the study area are located very near to river streams (Fig. 8). Water bodies are more important for rituals, so megalithic builders had chosen places very close to water bodies for erecting burials.

With the help of these maps, it could be concluded that the Megalithic builders of this region have preferred foot of the hills which are closer to an elevation of 250 mts AMSL and preferred the pediment zone where they could easily find a smaller stone for cairn packing as all burials from this region are cairn-circles type burials.

Conclusion

Archaeological exploration conducted at this taluk has revealed 10 Megalithic burial sites with more than 10 burials from each site. Among the 10 Megalithic sites 3 sites namely Periyavathalapuram, Thanda and Sidumanahalli are almost destroyed. The destruction of Megalithic burials from Periyavathalapuram, Thanda and Sidumanahalli for treasure hunting is mainly due to the fact that the finding of Megalithic burials are in the deserted place, away from the present habitation and are situated in the Reserve Forest region. Irrespective, of the elevation of the landscape the Megalithic builder of this region preferred Cairn-Circle type burials. The site of Periyavathalapuram and Thanda has situated more than 300 mts AMSL the burial types are the same. From all the vandalized burials, grave goods like the fine quality of Black-and-Red ware, All Black ware, Red Slipped and Red ware potsherds and some of these potsherds have graffiti marks on them were noticed. The associated finds with these burials in the form of potsherds indicate that these burials could be placed in a time frame from 1100 BCE to 500 BCE. As this article is based on initial systematic exploration works, more intensive exploration and excavation work would through much more valuable information on the Megaliths from this region.

Reference

Gosh, A., (ed)., (1973). *Indian Archaeology 65-66: A Review*,   Archaeological Survey of India, New Delhi.

Gosh, A., (ed)., (1989). *An Encyclopedia of Indian Archaeology, Vol.2*, Munishiram Manoharlal publishers.

Joshy, M. C., (ed)., (1993). *Indian Archaeology 88-89: A Review,* Archaeological Survey of India, New Delhi.

Lal. B.B., (ed)., (1973). *Indian Archaeology 69-70: A Review,* Archaeological Survey of India, New Delhi.

Mitra. D., (ed)., (1983). *Indian Archaeology 79-80: A Review,* Archaeological Survey of India, New Delhi.

Rajan. K., (ed)., (2009). *Catalogue of Archaeological sites in Tamil Nadu* Vol.1, Heritage India trust.

Sewell, Robert, (1882). *Antiquarian Remains on the presidency of Madras,* Oxford University Press.

Smiriti, H., (2013). Situating Megalithic burials in the Iron Age - Early historic landscape of southern India*, Antiquity*, Vol.87, pp.488-502.

Figures
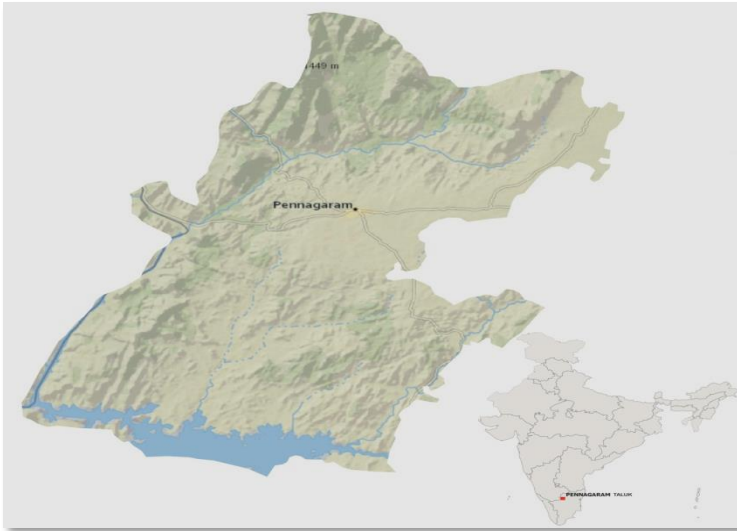
Figure 1. *Study Area, Pennagaram Taluk, Dharmapuri District.*

Figure 2. *Vandalized Cist Burial from Tanda, Pennagaram Taluk.*

 Figure 3. *Cairn-Circle from Solappadi, Pennagaram Taluk.*

Figure 4. *Vandalized Urn Burial from Sidumanahalli, Pennagaram Taluk.*
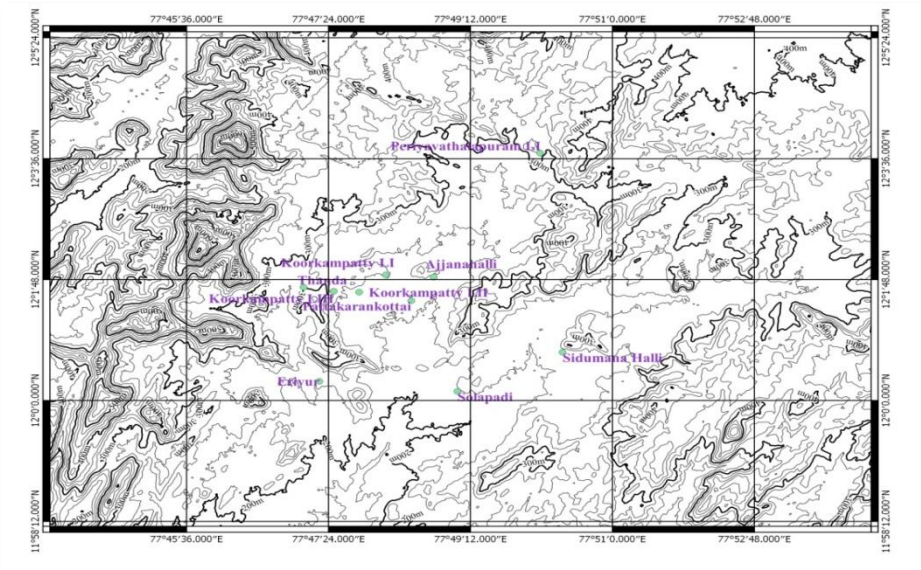
Figure 5. Contour map of the Study area.
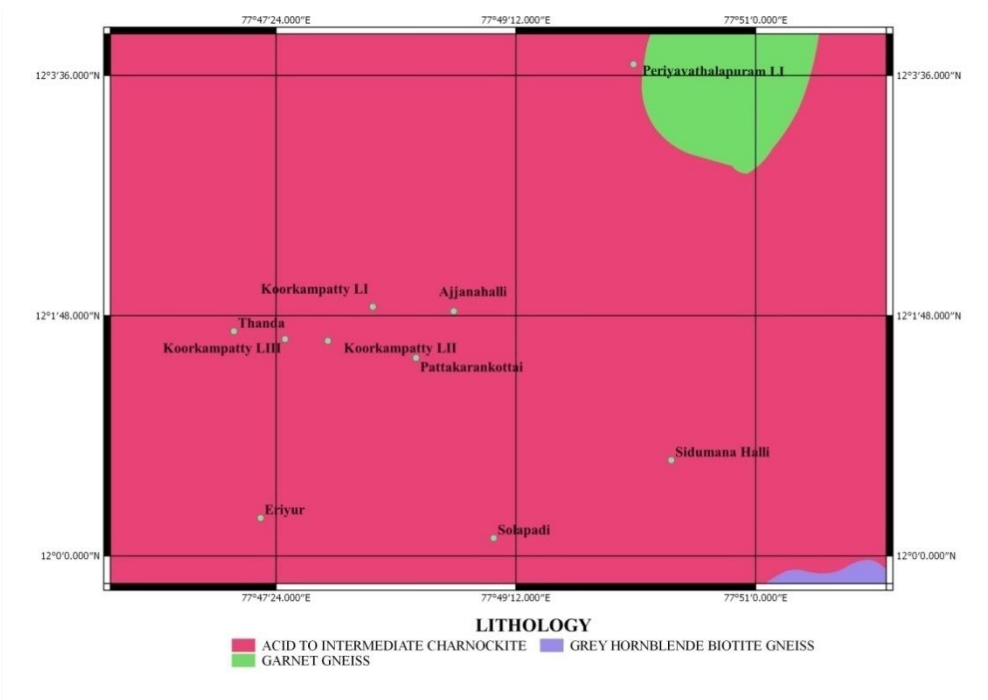
Figure 6. Lithology map of the Study area.
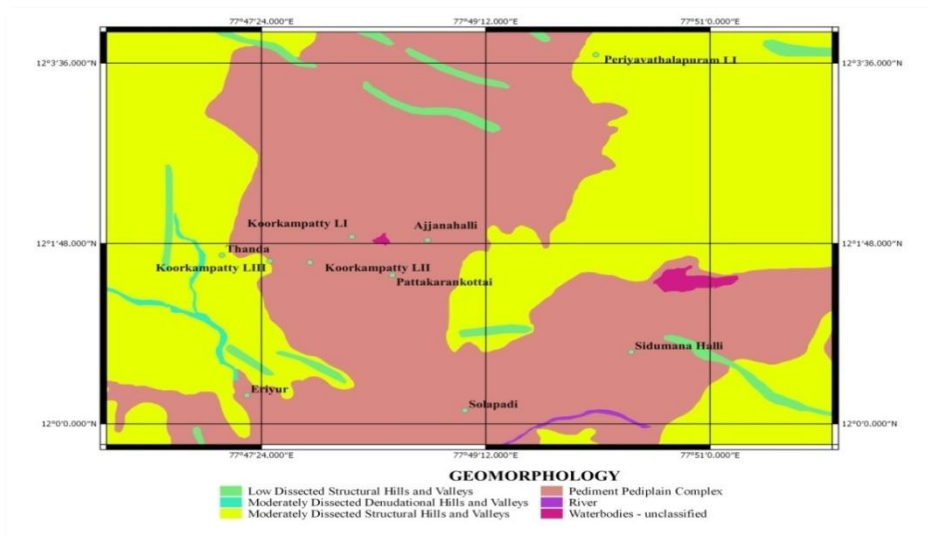
Figure 7. Geomorphology map of the Study area.

Figure 8. Physical map indicating water bodies of Study area.

Determinants of Job Satisfaction and Employee Performance in Classified Hotels

R.A.D.D.N. Ranatunga

Department of Tourism & Hospitality Management, Faculty of Management Studies, Rajarata University of Sri Lanka, Mihintale

dinunawanji@gmail.com

Abstract

This study aims to identify the Relationship between Pay, Promotion, Supervision, Co-workers and Work itself of Job Satisfaction and Job Performance among Employees in Classified Hotels. Though the available literature does not provide sufficient empirical evidence to the respective study. Hence, the objective of this study was to find out Relationship between Pay, Promotion, Supervision, Co-workers and Work itself of Job Satisfaction and Job Performance among Employees in Classified Hotels. The study was chosen 150 non–executive employees as the sample and used the convenience sampling method. Moreover, the study used a structured questionnaire to collect the data. Internal consistencies of the questionnaire were measured using the reliability static Cronbach's alpha. Frequencies, univariate analysis, Pearson's correlation, T-test and multiple regression analysis as multivariate analysis were the analysis which used in the study. The results of the correlation coefficient were shown that pay, promotion, co-workers, supervision, work itself has a significant positive relationship with job performance and it emphasized that the factors pay and co-workers have a strong relationship with job performance. According to the multiple regression analysis, the model was strongly fitted to the data and 40.6% variance of job performance was explained by pay, promotion, co-workers, supervision and work itself of job satisfaction. Consequently, it can be recommended that future researchers should concern about the other factors which may also have a relationship with job performance. Lastly, it can be concluded that there is a significant positive relationship between selected factors of job satisfaction and job performance of employees in Classified Hotels. Based on the findings of the study, it is recommended for management to advance and sustain job satisfaction in the hotel industry to deepen the job performance of employees.

Keywords: Job satisfaction, Job performance, Pay, Promotion, Co-workers, Supervision, Work itself, Star Hotels

Introduction

Today, the tourism sector acts an important role in the development of a country's economy. Countries across the globe compete for tourists. Tourism plays a crucial role in bringing foreign currency into the country, which in turn stimulates the economy. The hospitality industry is the primary source of support for tourists and visitors seeking accommodation during their visit. (Almutairi, Moradi, Idrus, Emami, & Alanazi, 2013). As a service-based industry, the hospitality industry incorporates the biggest sector of the tourism industry and it can be recognized as the heart of the industry (Rogerson & Kotze, 2011). Employees are the core ingredients of hospitality service as they are the ones who mainly provide the service. Since least time splits the production of the service from its delivery, the impression of providing workers with the flexibility, autonomy, and capability to encounter customer service demands as they arise is instinctively appealing (Hechanova, Alampay, & Franco, 2006). Where employees are happy with their jobs, they tend to offer a high level of service to customers. Satisfied employees tend to be more productive, positive and creative than the ones who are not satisfied (Kong, Cheung, & Zhang, 2010). Since human capital is the main challenge in-service process, most organizations strive to improve job performance amongst their employees for attaining high levels of productivity, efficiency and effectiveness (Cho, Woods, & Erdem, 2006). In recent decades, job satisfaction has become a burning topic of research as it is positively linked to the job performance of the employees and organizational performance (Gu & Siu, 2009). This is why considerable attention has been given by researchers in this hospitality industry (Edwin & Sheryl, 2013). The hotel sector faces enormous competition and a vibrant environment (Murasiranwa, Nield, & Ball, 2010). When insisting on the unceasing deliberations on the challenges faced by the hotel industry in Sri Lanka, human involvement has played a significant organizational role (Weerakkody & Perera, 2016). Relocating abroad for high wages, lack of competent employees, etc., are a few human resource issues in the industry, which makes a massive obstacle to lessen the effort to reach organizational objectives. Consequently, employees play the most crucial role in fostering competitive advantage that influences organizational

performance (Lankeshwara, 2016). Because they can be the same for different organizations, but the individuals representing two organizations are not the same, and it is reasoned to act in order to gain a competitive advantage (Jayarathna, 2014).

With productivity, becoming a dominant issue in today's hospitality industry, all positions in the employee category have a vital role to play in maintaining the highest labour productivity in this sector (Weerakkody & Perera, 2016). Gaining productivity through job performance positions have done extensive research into the literature on organizational behaviour and human resource development (Bommer, et al., 1995). Based on the quantity and quality intended for each employee, job performance may be identified. Most organizations operate well with the support of effective employees (Khan, Khan, & Khan, 2011). Most organizations perform well with the assistance of efficient employees.

Of these, job satisfaction is an important pathway to decide how hard employees work in an organization. (Locke, 1976). For instance, a happy employee outperforms an unsatisfied employee. Once an employee succeeds, it is a competitive advantage for an organization and there is justification for surviving in the competitive marketplace (Munisamy, 2013). In general, an increasing relationship can be observed between employee satisfaction and customer satisfaction and ultimately with organizational performance, in service organizations (Hallowell, Schlesinger, & Zornitsky, 1996).

Like all organizations, Hotels also operate for a purpose. They should cost-effectively use their scarce resources to reach their goals and objectives. To obtain a competitive advantage, hotels need human resources with well job performance because it is a unique resource special feature. When considering the challenges faced by Hotels in the Sri Lankan scenario, human resource issues become a major issue. In today's fast-paced and turbulent market environment, it is vitally important to obtain and maintain a pool of employees who possess the personal qualities necessary for the effective performance of work in the workplace. (Karatepe, Keshavarz, & Nejati, 2010). Considering their satisfaction can be considered as important as it impacts the performance of employees.

Furthermore, the available literature does not provide sufficient evidence on the impact of employee job satisfaction in hotels classified in the Sri Lankan context. Precisely, this study has 06 objectives.

I.   To find out the relationship between Pay and Job Performance among Employees in Classified Hotels

II. To find out the relationship between Co-workers and Job Performance among Employees in Classified Hotels?

III. To find out the relationship between Supervision and Job Performance among Employees in Classified Hotels

IV. To find out the relationship between Supervision and Job Performance among Employees in Classified Hotels

V.   To find out the relationship between Work itself? and Job Performance among Employees in Classified Hotels

VI. To find out the difference between Gender and Job Performance of Employees in Classified Hotels

Significance of the Study

The findings of the study offer the empirical data for literature review. Moreover, this study is important to the existing theories which support clarifying and boost the significance of job satisfaction to the employees from this study. Accordingly, it supports making the job satisfaction theory more complete in terms of the relationship among the two variables, that is the independent and dependent variables.

This study is important to assist data and facts which had been done by previous searchers. The study used a survey questionnaire and a pilot test to collect data from respondents to make certain the questions accomplish the minimum standard of validity and reliability analysis that can assist more accurate findings and outcomes. The validity and reliability test were conducted to test all the instruments which were used in the study as the study can maximize the level of validity and reliability set and produce a more appropriate and precise study. Moreover, the study is also capable

of further clarifying any ambiguous matters linked to the field of this study that was done by previous researchers.

Pay

The employees pay is a significant aspect that assures the willingness to do the job well to increase job performance. Therefore, organizations need to develop a good compensation system that is able to satisfy their employees in order to increase their job performance in the organization. The total of financial payment which is received and the extent to which this is noticed as equitable compared to others in the organization. Wages and salaries are important but at the same time, they can be identified as a cognitively multifaceted and multidimensional feature in job satisfaction. Employees need money for the fulfilment of their basic needs as same as their higher-order level needs. They are usually viewed as pay by means of a reflection of how management observe their contribution to the organization. Fringe benefits are also vital, however, they are not influential because most employees do not even recognize how much they are getting in benefits. Furthermore, misunderstanding of their important monetary value tends to undervalue these benefits (Luthans, 2011).

Promotion

The opportunities for advancement in the organization can be defined as a promotion. Promotions affect job satisfaction in various ways because they can be identified in several forms. For example, the employees who get promotions depend on their seniority less satisfied than the employees who get their promotions on their performance (Luthans, 2011).

Co-workers

The extent to which parallel employees are technically proficient and socially helpful can be defined as co-workers. The nature of the work group or team will affect job satisfaction. Friendly, supportive co-workers are a modest cause of job satisfaction of employees, and tight workgroups function as a source of assistance, well-being, and

guidance to the individual employees, likewise the environment of workgroup affects job satisfaction (Luthans, 2011).

Supervision

The capabilities of the supervisor to deliver technical support and behavioural support can be defined as supervision. There are two aspects of supervisory styles which affects job satisfaction. They are employee-centeredness, and participation/influence as illustrated by managers. Employee-centeredness is measured by the extent to which a supervisor takes individual attention and cares about the employee. As examples; examine to see exactly how well the employee is working, offering advice and support to the employee, and interactive with the subordinate on a personal as well as an official level. Participation or influence, as demonstrated by managers who let their individuals take part in decisions that influence their jobs is the other aspect of supervisory style. This style impacts greater job satisfaction than the other. If the supervisor creates a participative environment it will have a more considerable consequence on employees' satisfaction than participation in a specific decision (Luthans, 2011).

Work itself

The degree to which the job offers the individual stimulating tasks, chances for learning, and the opportunity to receive responsibility. The content of the work itself is a key source of satisfaction (Luthans, 2011).

Job Satisfaction

Job satisfaction is a sentimental or emotional response towards different features of an employee's work. Probable causes of job satisfaction include supervision, co-worker relationships, remuneration and extrinsic rewards, promotion and work itself (Schermerhorn, 1993). Job satisfaction occurs when a job meets the expectations, values and standards of an individual and will influence their commitment and performance (Gordon, 1999). Job satisfaction is an approach, researchers should be cautioned to recognize the goals of cognitive evaluation, which are affected by

feelings, convictions and practices (Weiss, 2002). Shaikh, Bhutto, and Maitlo (2012) conducted a study among bank employees in Pakistan and they have emphasized that work, co-workers, supervision, pay and promotion as measures of job satisfaction and they have a substantial and solid impact on overall job satisfaction level. Five job measurements have been accepted in later years to designate the most significant characteristics of a job about which employees have satisfaction responses and it is generally used to measure job satisfaction over the years. Additionally, a meta-analysis has confirmed their construct validity (Luthans, 2011).

Job Performance

Job Performance is the execution of an individual's work when spread over required strength on the work which is involved outline, grew over fulfilment of expressive work, and empathetic co-workers/employers all over the place (Karakas, 2010). Job performance consists of quality and quantity of values motivated from a person or group struggle success (Shockley-Zalabak, Ellis, & Winogard, 2000). It can be defined as behaviours which related to organizational goals and under the resistance of individual workers (Sony & Mekoth, 2016). Motowidlo and Van Scotter (1994) specified that performance is shaped by behaviours or actions which allied with the goals of an organization. Moreover, job performance is the action or behaviour itself and not the consequence of activities or a result. Each employee employed within an organization is projected to execute his/her tasks and duties effectively in an accountable method in accordance with the employment contract. Eventually, the employees do their job reliably and experience a feeling of responsibility for performing well (Opatha, 2012). Through the predisposition and truthfulness employees can enhance their productivity that eventually leads to the performance of the employees (Sinha, 2001). Pearce (1992) explained that job performance is one of the important symbols in measuring organizational performance. Job performance can be measured by using two measurements as task performance and contextual performance. Job performance is derived as outcomes of two aspects (Salanova & Kirmanen, 2008; Sarmiento & Beale, 2007; Wall et al., 2004). It encompasses the natural or attained abilities and skills that can be used to carry out a better job. Ideally

grouped into two distinct levels as task performance and contextual performance. For instance, task performance is ingestion of a continuous great standard of work, and contextual performance means pointing new associates further than job purview (Pradhan & Jena, 2016).

The following hypotheses could be drawn by the literature:

H1: There is a significant relationship between pay and job performance of employees in Classified Hotels

H2: There is a significant relationship between promotion and job performance of employees in Classified Hotels

H3: There is a significant relationship between co-workers and job performance of employees in Classified Hotels

H4: There is a significant relationship between supervision and job performance of employees in Classified Hotels

H5: There is a significant relationship between work itself and job performance of employees in Classified Hotels

H6: There is a significant difference between Gender and Job Performance of Employees in Classified Hotels

Materials and Methodology

This study intends to find the relationship between pay, promotion, co-workers, supervision, and work itself of job satisfaction and job performance of the employees in classified hotels. Accordingly, this explanatory research used the quantitative research approach to detect the stated relationship between independent and dependent variables. There are five independent variables used to determine the dependent variable. They are Pay, Promotion, Co-workers, Supervision and Work itself. The dependent variable is Job Performance.

Conceptual Framework

Based on the hypothesis employees job performance depends on five factors of job satisfaction as pay, promotion, co-workers, supervision and work itself. Job performance of employees' is considered as the dependent variable. Consequently, pay, promotion, co-workers, supervision and work itself are labelled as independent variables.

```
┌──────────────────────────────────────────────────────────────────┐
│  ┌──────────────────────────┐        ┌──────────────────────────┐  │
│  │  Independent Variables   │        │   Dependent Variable     │  │
│  └──────────────────────────┘        └──────────────────────────┘  │
│  ┌──────────────────────┐                                         │
│  │  Pay                 │─────────────┐                           │
│  └──────────────────────┘             │   ┌──────────────────────┐│
│  ┌──────────────────────┐             │   │                      ││
│  │  Promotion           │─────────────┼──▶│                      ││
│  └──────────────────────┘             │   │   Job Performance    ││
│  ┌──────────────────────┐             │   │                      ││
│  │  Co-workers          │─────────────┤   │                      ││
│  └──────────────────────┘             │   └──────────────────────┘│
│  ┌──────────────────────┐             │                           │
│  │  Supervision         │─────────────┤                           │
│  └──────────────────────┘             │                           │
│  ┌──────────────────────┐             │                           │
│  │                      │             │                           │
│  │  Work itself         │─────────────┤                           │
│  └──────────────────────┘             │                           │
│  ┌──────────────────────┐             │                           │
│  │  Gender              │─────────────┘                           │
│  │                      │                                         │
│  └──────────────────────┘                                         │
└──────────────────────────────────────────────────────────────────┘
```

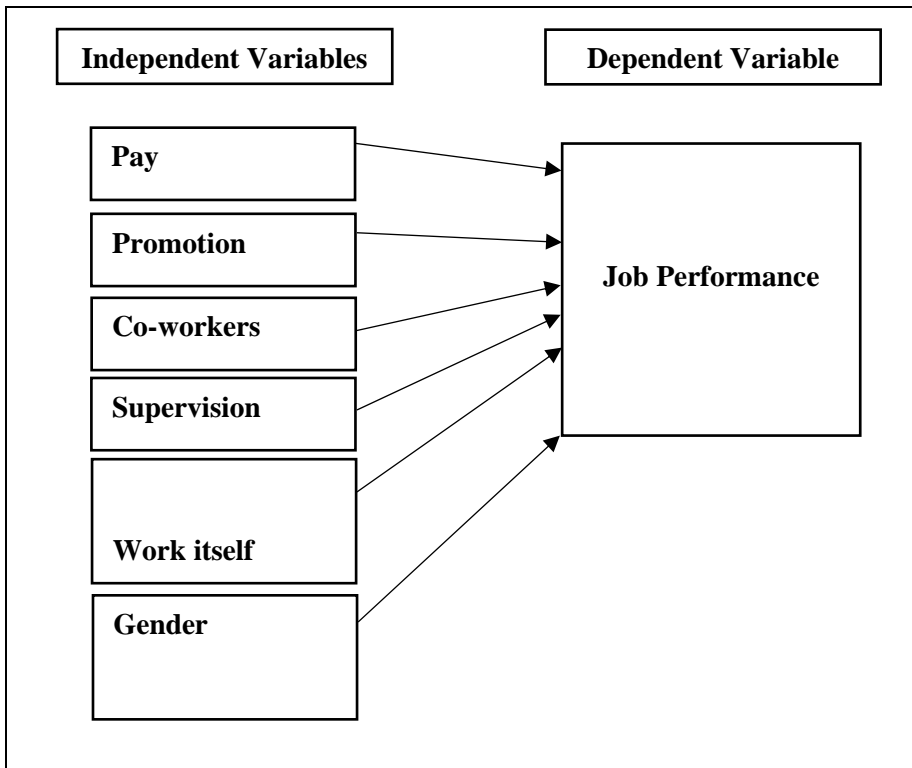*Figure 1. Conceptual Framework   Source: Developed by the author, 2019*

Population and Sampling Technique

The study was used non- executive employees of classified hotels in the Kandy district as the target population. Classified Hotels were selected by referring to the accommodation guide issued by Sri Lanka Tourism Development Authority. Since there weren't any sources to recognize the exact amount of population it was

recognized as an undefined population. The study was used the convenience sampling technique to choose the sample from the population since it was not probable to reach all the non-executive employees of star class hotels to be contributed to the study because the study was conducted during the peak season in the tourism industry and the hectic work atmosphere of hotels. 200 questionnaires were distributed among employees and the study was used 150 as the sample since there were incomplete and inaccurately filled questionnaires. Non-executive employees who work in the main 04 departments (Front Office, Food and Beverage, Kitchen and Housekeeping) consists in the study.

Research Instruments

Fundamentally, the study was used a quantitative research method to collect information. A questionnaire that contained three main sections was used as a research instrument. The first section contained demographic factors, the second section comprised of questions related to job satisfaction and the third section contained questions associated with the job performance questions.

In this study, two measures were chosen from established sources. Weiss, Dawis, England, & Lofquist (1967) measure for job satisfaction and Befort & Hattrup (2003) measure for task performance and contextual performance. A 5-point Likert scale was used to measure the dependent and independent variables.

Results and Interpretations

Reliability analyzes, descriptive analysis, correlation analyzes of the dependent and independent variables, T-Test was done to realize the set objectives and to assess hypotheses of the study.

Demographic Profile of the Respondents

Below TABLE 1 shows that the largest proportion under the gender category represent the male respondents (62%) and in the age category majority of the respondents comes under the 25-34 age category. 32.7% of respondents passed

Ordinary Level and 36% of the respondents out of all respondents have married. Furthermore, 49.3% of respondents have less than 2 years of service.

Demographic factor	Category	Frequency	Percentage
Gender	Male	93	62%
	Female	57	38%
Age	Less than 25	36	24%
	25-34 years	58	38.6%
	35-44 years	28	18.7%
	45 and above	28	18.7%
Education qualification	O/L	49	32.7%
	A/L	37	24.7%
	Diploma	28	18.6%
	Graduate	18	12%
	Other	18	12%
Marital status	Married	54	36%
	In a relationship	40	26.7%
	Single, never married	42	28%
	Single, divorced	09	6%
	Single, widowed	05	3.3%
Length of service	Less than 2 years	74	49.3%
	3-5 years	40	26.7%
	6 and above	36	24%

Table 1: Demographic Profile of the Respondents Source: SPSS Software

Reliability

The internal consistency of the constructs which were used to measure the key variables of the study is reviewed by reliability. In accordance with that intention,

Cronbach's Alpha test was performed by the researcher. The results are shown in TABLE 2.

Variables	No. of items	Cronbach's Alpha value
Pay	05	0.889
Promotion	05	0.714
Co-workers	04	0.827
Supervision	05	0.858
Work itself	09	0.686
Job Performance	12	0.943

Table 2: *Cronbach's Alpha Coefficient Value Source: SPSS Software*

TABLE 2 emphasizes that 'Job Performance' denotes the highest Cronbach's alpha value (0.943) which is the dependent variable of the study. According to the rules of thumb of the reliability test, the value of the job performance ranges from 0.80-0.95 and designates very good reliability. Then 'Pay (0.889)', 'Supervision (0.858)' and 'Co-workers (0.827)' record the highest alpha values which fall into the category of 'very good reliability (0.80-0.95)'. Then the dependent variable 'Promotion' has a 0.714 alpha value which can be identified as a 'good reliability' value (0.70-0.80). The 'Work itself' variable records an alpha value which is 0.686 and it ranges between 0.60-0.70. Consequently, it can be identified as fair reliability by the rules of thumb of reliability and at the same time it is almost near to the range of 'good reliability'.

Correlation Analysis

The relationship between independent variables and dependent variable reviews under the correlation analysis and can be either positive or negative. The Pearson correlation analysis was used to measure the relationship between two variables and its value ranges from -1 to +1. When the Pearson Correlation Coefficient value

demonstrate +1, there is a perfect positive correlation and on the other hand, if the value shows -1, there is a perfect negative correlation. Other than that, when the Pearson Correlation Coefficient value shows 0, it denotes that there is no correlation between a dependent variable and independent variables. The results are represented in table 3 given below.

Variable	Job Performance	
	Pearson Correlation Coefficient	Sig. (2-tailed)
Pay	0.524	0.000
Promotion	0.199	0.050
Co-workers	0.674	0.000
Supervision	0.275	0.030
Work itself	0.460	0.000

Table 3: Results of Correlations Analysis Source: SPSS Software

Multiple Regression Analysis

The technique that used to observe the variance in a single or more than one independent variable in a dependent variable.

ANOVA					
Model	Sum of squares	Df	Mean square	F	Sig.
Regression	21.869	5	4.374	19.658	.000[b]
Residual	32.039	144	0.222		
Total	53.908	149			

Table 4: Results of ANOVA Test Source: SPSS Software

Above TABLE 4 shows that the Regression ANOVA probability of F test statistics is 0.000 which is less than 0.05. Consequently, the overall model of the study is

significant. Furthermore, all the independent variables impact job performance together.

R	R Square	Adjusted R Square	Sig. F Change
0.637	0.406	0.385	0.000

Table 5: *Modal Summary Source: SPSS Software*

Coefficient of determination (R square value) and adjusted R square value are emphasized by the Regression modal. TABLE 5 shows that the R Square value is 0.406 and it describes the contribution made by the independent variables to the variation of the dependent variable. Accordingly, 40.6% variation in the dependent variable is showed by the selected independent variables. Moreover, the adjusted R square is 0.385 (38.5%) which explains that the model is fitted to the data reasonably. In addition to that, the model's significant value is less than 0.05. Thus, it can be concluded that the model is strong adequate to forecast future changes.

Hypothesis Testing

H1: There is a significant relationship between pay and job performance of employees in Classified Hotels

Correlation analysis was used to test the hypothesis and the correlation coefficient of pay is 0.524 (greater than 0.5 – strong relationship) and respective Sig. value is less than 0.05 ($p < 0.05$). Accordingly, "H1 is highly accepted" and it can be concluded that there is a statistically positive strong significant correlation between pay and job performance of employees of classified hotels. Most of the previous studies done by researchers revealed that there is a significant relationship between pay and job performance. Shaikh et al. (2012) conducted a study among bank employees in Pakistan and they have pointed out that pay is a measure of job satisfaction and it has a significant strong relationship with job performance. Du and Zhao (2010), these studies conclude that the pay was weak significant to the job performance. Pay is a significant element that motivates the employee's job performance and it has a significant relationship with job performance.

H2: There is a significant relationship between promotion and job performance of employees in Classified Hotels

A correlation coefficient of promotion is 0.199 (0.0-0.3 weak relationship) and respective Sig. value is less than 0.05. Accordingly, "H2 is highly accepted" and it can be concluded that there is a statistically positive weak significant correlation between promotion and job performance of employees of classified hotels.

A comparative study which was carried out by Mahmood and Baloch (2011) of the job satisfaction and job performance between private and public sector hospitals of Peshawar, revealed that there was a positive significant relationship between promotion and job performance. Furthermore, when the opportunities for advancement and growth in a considerable level, it leads to increased performance and a high productivity level. Finally, it was found that there is a significant positive relationship between promotion and job performance (Nimalathasan & Brabete, 2016).

H3: There is a significant relationship between co-workers and job performance of employees in Classified Hotels

The correlation coefficient of promotion is 0.674 (greater than 0.5 – strong relationship) and respective Sig. value is less than 0.05 ($p<0.05$). Consequently, "H3 is highly accepted" and it can be concluded that there is a statistically positive strong significant correlation between co-workers and job performance employees of classified hotels. Some of the studies which have done by previous researchers revealed this relationship. A study that has observed the factors that affect job satisfaction in different private universities in Malaysia, has found that co-workers have a significant positive relationship with job performance (Bujang, 2011). The study which was carried out by Ahmadi (2009), used 923 nurses as the sample in Saudi Arabia in 15 randomly selected Ministry of Health Hospitals. In this job satisfaction-job performance study, it was found that there is a significant relationship between co-workers and job performance.

H4: There is a significant relationship between supervision and job performance of employees in Classified Hotels

The correlation coefficient of promotion is 0.275 (less than 0.3-weak relationship) and respective Sig. value is less than 0.05 (p<0.05). Accordingly, "H4 is highly accepted" and it can be concluded that there is a statistically positive weak significant correlation between supervision and job performance of employees of classified hotels.

A study that has been done on the relationship between job satisfaction and job performance of factory workers in Ahvaz observed that there is a significant positive relationship between supervision and job performance (Shokrkon & Naami, 2009).

H5: There is a significant relationship between work itself and job performance of employees in Classified Hotels

The correlation coefficient of promotion is 0.460 (between 0.3-0.5 – moderate relationship) and respective Sig. value is less than 0.05 (p<0.05). Thus, "H5 is highly accepted" and it can be concluded that there is a statistically positive moderate significant correlation between work itself and job performance employees of classified hotels.

A study that was carried out on the relationship between facets of job satisfaction and task and contextual performance used a sample of 444 respondents in different tasks in a large manufacturing plant in Texas in the United States. The study revealed that there is a positive relationship between work itself and job performance and it is significantly related to employee performance.

H6: There is a difference between Gender and Job Performance of Employees in Classified Hotels

The t-test is used to test the hypothesis and it measures whether the means of two groups statistically vary from each other. This analysis is applicable to compare the means of the two groups. The researcher has used a T-test to analyse gender differences and job performance.

An Independent sample t-test was performed to understand how the job performance of the employees defines the gender as follows.

	Gender	N	Mean	Standard deviation	Standard error mean
Job performance	Male	93	3.4194	0.60670	0.06291
	Female	57	3.5058	0.59431	0.07872

Independent Sample Test							95% Confidence interval of the Difference	
	F	Sig.	T	Df	Sig(2-tailed)	Mean difference	Lower	Upper
Equal variances assumed	0.009	0.923	-0.854	148	0.394	-0.8649	-0.28662	0.11363
Equal variances not assumed			-0.858	120.468	0.392	-0.8649	-0.28600	0.11302

Table 8: *Results of the Independent Sample T-test for Gender and Employee Performance Source: SPSS Software*

According to Levene's test result, the variance means of the male and female was equal. Therefore, the result in the study used an equal variance assumed column to interpret the test. According to the independent test result, respective Sig. value is

0.394. So it is greater than 0.05. Therefore, "H6 is rejected" and this study concluded that there is no statistically significant difference between gender and job performance of employees in classified hotels.

Conclusion

Fundamentally, the study has gone through an introduction and revealed the research questions. By using those research questions researcher had developed below six objectives. (I) To find out the relationship between Pay and Job Performance among Employees in Classified Hotels (II)To find out the relationship between Promotion and Job Performance among Employees in Classified Hotels (III)To find out the relationship between Co-workers and Job Performance among Employees in Classified Hotels (IV)To find out the relationship between Supervision and Job Performance among Employees in Classified Hotels (V)To find out the relationship between Work itself and Job Performance among Employees in Classified Hotels (VI)To find out the difference between Gender and Job Performance of Employees in Classified Hotels.

Statistical Package for Social Sciences (SPSS) version 21.0 was the analytical tool used to analyze the result of the study. It was unable to reach all the employees of classified hotels to be participated in the study since the study was carried out in the peak season in the tourism industry and under the hectic work environment of hotels. The population of the study is undefined. So, there was no source to find out the exact population since the details were confidential. Therefore, the study was used a convenience sampling technique to select a sample from the population. Correlation analysis and T-Test was used to test the hypothesis of the study. According to that, H1, H2, H3, H4, H5 were accepted and H6 was rejected.

There were some limitations to the study. The main limitation of the study is, it is limited to a group of employees in the Kandy area. Thus it cannot be generalized to overall employees who are working at hotels in Sri Lanka as the study is limited to the Kandy area. Moreover, it was a bit hard to get true responses, which were related or most accurate to the character or attitude of a respondent. Particular rules and

regulations inside the organization and their individual beliefs can be strongly affected to their answers. The findings in this study depend on the honesty of the respondents in responding to the questionnaire accurately.

This study will be advantageous for the human resource practitioners in the hotel industry since the findings can be used as guidelines to enhance the employee job performance and redesign the job which can lead to the employee's job satisfaction. Ultimately the practitioners can manage effective human resources. Moreover, the study has found out that the selected five factors (Pay, Promotion, Co-workers, Supervision, work itself) have a significant relationship with job performance. Out of the five factors pay and co-workers have a strong relationship with the job performance and work itself has a moderate relationship. Therefore, the study can be used by the managers to understand the significance of these job satisfaction factors in the organization. On the other hand, academically this study would fill the gap in the literature as it is done about the relationship between job satisfaction factors and job performance and it involves the element of specificity as it is conducted predominantly for the hotel industry. Plus, according to the empirical evidence, there were some researches on job satisfaction. But in the Sri Lankan context, few researches have been reported and it can be addressed the gaps which are currently existing in the literature especially in Sri Lanka and provide a more detailed link between theory and practice. Further, this study provides a better direction for future researchers who are interested in similar topics.

Recommendations

Job satisfaction and should be enhanced and maintain at a moderate level to increase the job performance of employees as results of the study show a positive significant relationship of job satisfaction factors between the job performance. Management of classified hotels can attempt to accentuate the fair and friendly management practices towards employees without ongoing with present practices.

According to the study, human resource practitioners in the hotel industry can understand that especially pay, co-workers, work itself factors of job satisfaction can motivate the employees to improve their job performance. So, they can explore and use some organizational practices to enhance the satisfaction of the needs of the employees to retain them for a long period as the hotel industry is based on service-oriented.

References

Almutairi, D., Moradi, E., Idrus, D., Emami, R., & Alanazi, T. (2013). *Job Satisfaction and Job Performance: A Case Study of Five-Star Hotels in Riyadh*, Saudi Arabia. World Journal of Social Sciences, 3(1), 27-37.

Annual Statistical Report. (2019). Sri Lanka Tourism Development Authority.

Balzer, W., Kihm, J., Smith, P., Irwin, J., Bachiochi, P., Chet, R., . . . Parra, L. (1997). Users + Manual for the Job Descriptive Index and the Job in General Scales. Bowling Green State University.

Beehr, T., & Newman, J. (1978). Job stress, employee health, and organizational effectiveness: A facet analysis. Personnel Psychology, 31, 665-700.

Bommer, William, Johnson, Jonathon, Gregory, & Podsakoff, M. (1995). On the Interchangeability of Objective and Subjective Measures of Employee Performance: A Meta-Analysis. 48.

Cho, S., Woods, R. J., & Erdem, M. (2006). Measuring the Impact of Human Resource Management Practices on Hospitality Firms' Performances. International Journal of Hospitality Management, 25(2), 262-277.

Edwin, N., & Sheryl, K. (2013). From Customer Satisfaction to Customer Delight: Creating a New Standard of Service for the Hotel. International Journal of Contemporary Hospitality Management, 25(5), 642-659.

Gharib, M., Jamil, S., Ahamed, M., & Ghouse, S. (2016). The Impact Of Job Stress On Job Performance: A Case Study On Academic Staff At Dhofar University. International Journal of Economic Research, 13(1), 21-33.

Gordon, J. (1999). Organsiational Behaviour: A Diagnostic Approach. New Jersey: Prentice Hall.

Griffin, R., & Moorhead, G. (2010). Organizational Behaviour - Managing People and Organisations.

Gu, Z., & Siu, C. (2009). Drivers of Job Satisfaction as Related to Work Performance in Macao Casino Hotels: An Investigation Based on Employee Survey. International Journal of Contemporary Hospitality Management, 21(5), 561-578.

Hallowell, R., Schlesinger, L., & Zornitsky, J. (1996). Internal service quality, customer and job satisfaction: linkages and implications for management. Human Resource Planning, 19(2), 20-31.

Hechanova, M., Alampay, R., & Franco, E. (2006). Psychological Empowerment, Job Satisfaction and Performance among Filipino Service Workers. Asian Journal of Social Psychology, 9, 72-78.

Jayarathna, S. (2014). An Empirical Investigation of the Impact of Employee Motivation and Productivity of Executive Employees with Special Reference to the Apparel Industry in Sri Lanka. International Journal of Science and Research, 3(3), 749-754.

Karakas, F. (2010). Spirituality and performance in organizations: A literature review. Journal of Business Ethics, 94(1), 89-106.

Karatepe, O., Keshavarz, S., & Nejati, S. (2010). Do Core Self-Evaluations Mediate the Effect of Coworker Support on Work Engagement? A Study of Hotel Employees in Iran. Journal of Hospitality and Tourism Management, 17, 62-71.

Khan, R., Khan, F., & Khan, M. (2011). Impact of Training and Development on Organizational Performance. Global Journal of Management and Business Research, 11.

Kim, G., Ro, H., Hutchinson, J., & Kwun, D. (2014). The Effect of Jay-Customer Behaviors on Employee Job tress and Job Satisfaction. International Journal of Hospitality & Tourism Administration, 15(4), 394-416.

Kong, H., Cheung, C., & Zhang, H. (2010). Career Management Systems: What are China's State-Owned Hotels Practising? International Journal of Contemporary Hospitality Management, 22(4), 467-482.

Lankeshwara, P. (2016). A study on the impact of workplace environment on employee's performance: with reference to the Brandix Intimate Apparel - Awissawella. International Journal of Multidisciplinary Studies, 3(1), 47-57.

Locke, E. (1976). The nature and consequences of job satisfaction.

Luthans, F. (2011). Organizational Behavior: An Evidence Based Approach.

Munisamy, S. (2013). Identifying factors that influences job performance amongst employees in oil palm plantation Faculty of Applied Social Sciences Open University Malaysia.

Opatha, H. (2012). Human Resource Management.

Pearce, D. (1992). Macmillan Dictionary of Modern Economics.

Pradhan, R., & Jena, L. (2016). Workplace spirituality and organisational commitment: role of emotional intelligence among Indian banking professional. Journal of Human Resource Management, 19(1), 13-23.

R, A., Ing, H., & Bujang, S. (2014, September). Relationship Between Selected Factors of Job Satisfaction and Job Performance among Workers at Oil Palm Industries. International Review of Management and Business Research, 3(3), 1751-1766.

Robbins, S., & Judge, T. (2013). Organizational Behavior.

Rogerson, J., & Kotze, N. (2011). Market segmentation and the changing South African hotel industry (1990 to 2010). African Journal of Business Management, 5(35).

Roth, A. (1995). Introduction to Experimental Economics.

Schermerhorn, J. (1993). Management for Productivity (6 ed.). Canada: John Wiley & Sons.

Shockley-Zalabak, P., Ellis, K., & Winogard, G. (2000). Organizational trust: What it means, why it matters? Organizational Development. International Journal of Project Management, 19(1), 1-7.

Sony, M., & Mekoth, N. (2016). The relationship between emotional intelligence, frontline employee adaptability, job satisfaction and job performance. Journal of Retailing and Consumer Services, 30(1), 20-32.

Weerakkody, W., & Perera, M. (2016). Impact of Job satisfaction on Job performance of non-executive employees in Hotel industry: With reference to Kalutara district in Sri Lanka.

Weiss, H. (2002). Deconstructing Job Satisfaction: Separating Evaluations, Beliefs and Affective Experiences. Human Resource Management Review, 12(2), 173-194.

Acknowledgement

An anthropological study of '*Rathikāma Bali Yāgaya* (Bali ritual)' in traditional folk medicine to treat infertility

G.A.A.N. Srishan[1], P.N. Abhayasundere[2], A.A.J. Jayasiri[3], W.K.M. Wijayarathne[4], D.M.K.G.K. Dissanayake[5]

Department of Anthropology, University of Sri Jayewardenepura, Sri Lanka.

srishan1119@gmail.com

Abstract

Reproductive processes and the generation of posterity are important for the survival of organisms. As man became accustomed to civilized life, motherhood and fatherhood were considered noble and fortunate things. Accordingly, a married couple without children had to face various forms of social stigma. Because married people who do not have children are believed by people to be a symbol of unluck. Thus, infertility is recognized as a disease and there are various treatments for it. Traditional folk medicine in Sri Lanka also offers various treatments to cure infertility. Among them, the 'Sabaragamuwa Rathikāma Bali ritual' is performed for both men and women. The researchers aim to study this 'Rathikāma Bali ritual' for the curing of infertility in traditional folk medicine and the cultural value given to rituals in indigenous medicine. To achieve these objectives, a content analysis of qualitative data collected using secondary sources is performed here. To alleviate vaginal discharge and vaginitis related diseases in women, the Sabaragamuwa 'Bali adura' (Bali performer) conducts the Rathikāma Bali ritual. An idol is made using clay for this ritual. In this Rathikāma Bali statue, a woman with a naked upper body and with a 'punkalasa' (pot of prosperity) in her right hand and a 'sewla' (Cuckoo bird) in her left hand is moulded. When moulding the Bali statue, the woman's figure is placed on the man's lap. After the introduction of the Bali statue to the patient (baliya pāwā deema), the 'Namaskārā' and 'Vēēdimālāwa' (poems and prose) are recited. In this way, all the rites are performed and the Rathikāma Bali ritual is performed till dawn. They believe that looking at the Bali statue and listening to poetry and drinking local medicine until the next morning will cure the condition.

Keywords: Rathikāma, Bali ritual, folk medicine, infertility, traditional practices

Introduction

Reproductive function is one of the major factors on which the existence of a living organism on Earth depends. Cultural value has been added to human reproduction and childbirth since the beginning of human civilization. To give a better example of this, it can be pointed out that today almost all countries of the world consider "motherhood and fatherhood" as the most precious and noble things. From time immemorial, having children, and being a parent has been recognized as culturally superior as well as a cultural and social need. For that reason, in many societies around the world from time immemorial childless couples have been despised and marginalized. It is imperative that the person who is confined to a cultural framework archive the commonalities of that particular culture, otherwise the relevant society will be stigmatized. Thus, in a society where childbearing, motherhood and fatherhood are highly esteemed, if a couple is childless, they will suffer greatly. In many societies, women suffer more than men. Especially in the case of a traditional Sri Lankan married woman who does not have children, it can be seen that she is called '*Wanda gāni*' (baron woman) or a '*Mūsala gāni*' (unfortunate woman) and may not be allowed to participate in any good deeds. There is evidence that infertility treatments have participated in many parts of the world since ancient times. It is also evident from the Vedic literature that the general population during that time was familiar with the ideas of artificial insemination which involved the manual injection of semen into the reproductive tract of the women (Kalra et al., 2016). Enchantment mixtures (magic portions) created by the sages for the queens of childless kings to make them pregnant was a typical practice during 3500 BC – 500 AD (Sharma et al., 2018). The absence of children in a married couple can be simply referred to as infertility. The World Health Organization calls this condition a disease. There they explain infertility as follows: "Infertility is a disease of the reproductive system defined as the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse." (World Health Organization, 2020). Various medical techniques are used around the world to cure this condition. This includes seeking the help of modern medicine and traditional medicine. Traditional medial

methods have been used in Sri Lanka since ancient times for infertility as well as for fetal care. This medical practice is called '*Desheeya Chikithsa*' (indigenous therapy) or '*Sinhala Vedakama*' (Sinhala medicine) (Uragoda, 1987). Traditional folk medicine in Sri Lanka uses four modalities of treatment to cure a disease. These include local medicine, food, social practices and rituals. All four of these treatment modalities are used in traditional folk medicine to cure infertility. This research focuses on the '*Bali Yāga*' (performing bali rituals) under rituals. Traditional folk medicine uses various rituals to cure infertility and '*Bali Yāga*' is a unique cultural feature. According to the belief of the Sinhalese people, some diseases are caused by the influence of bad planets (Leslie, 1977). Unlike other rituals performed by the ritual specialists, *bali* are virtually tailor-made for each individual case. Bali are always organized according to the patient's (*āthurayā*) condition and the planetary forces most likely to impinge on his or her life. In other words, the size of the ritual is directly linked to the individuality of the patient and the misfortune suffered (Silva, 2000). If a person becomes ill due to these reasons, the traditional medical system also prescribes the treatment to be done for it. Among them, '*Bāra*' (vows), '*Hāra*' (making offerings), '*Bali*' (performing bali rituals), and '*Thovil*' (exorcism) are the major forms (Kusumarathne, 2005). It is specifically aimed at the evil eye, evil mouth, etc. and as well as to eliminate the dangers to mankind caused by planetary defects. Indigenous physicians knew that such defects were difficult to cure with medication alone. Therefore, they have taken steps to perform rituals such as *Bali rituals* for these ailments (Sedarman, 1964). In this research, the researchers have focused on the '*Rathikāma Baliya*' which is being carried out exclusively in the Sabaragamuwa Province of Sri Lanka. The researchers aim to study this '*Rathikāma Bali* ritual' for the curing of infertility in traditional folk medicine and the cultural value given to rituals in indigenous medicine. *Rathikāma Bali* ritual is unique in that they treat infertility of both men and women by eliminating mental conditions and giving other medications. These rituals are valued as an intangible cultural heritage of Sri Lanka as well as a valuable medical treatment.

Materials and Methods

This research has been done using the content analysis methodology that comes under the descriptive research category. Only qualitative data is used for this research. That is because qualitative data contribute more to the achievement of the research objectives. The research is based entirely on secondary sources. It also uses literature as a method of data collection and data from people who have studied the subject.

Results and Discussion

Sri Lanka is an island in the South Asian region. It is a well-known fact that in the last two thousand five hundred years of its history, Sri Lanka has been able to create a unique compendium of knowledge in the field of traditional medicine (Abeyrathne, 2019). There are hardly any records on the state of medicine in pre-historic times. One view is that any knowledge of medicine that the early inhabitants had was confined to an acquaintance with the empirical use of a few drugs, which they knew by experience to cure some of the ailments to which they were subject (Uragoda, 1987). In a multicultural country like Sri Lanka, there are many different medical practices (Jayasiri and Premaratne, 2011). Evidence has revealed that there was an inherited medical system in Sri Lankan society. It dates back to the time of King Ravana. The traditional medicine of Sri Lanka is known as the indigenous system of medicine that existed before the advent of Ayurveda (Uragoda, 1987). From time immemorial, having children has been considered a symbol of good luck in Sri Lankan culture. The woman with children was believed to be a symbol of fertility. With the influence of Buddhism in Sri Lanka, a Buddhist culture emerged. Motherhood and fatherhood were valued in that. The absence of children in such a cultural environment led to social stigma. Infertility can be caused by various diseases of a married couple. After identifying these diseases, those who are infertile receive various treatments to have children. Indigenous medical treatments are widely used here. Indigenous medicine uses four main therapies to cure disease. They include indigenous medicine, food, social practices, and witchcraft. Here, we can identify several *Bali* rituals that fall into the category of witchcraft. Among them, the

Rathikāma Bali ritual performed in the Sabaragamuwa Province is special. The main reason for this is that this ritual treats both men and women. Other *Bali* rituals made for infertility have been made exclusively for the female. Also, the *Rathikāma Bali* ritual is performed in secret. In the indigenous medical system, the patient's weakness is identified after diagnosis. Infertility is a condition that can affect both men and women. In indigenous medicine, the man or woman is treated with drugs and rituals after being examined by a traditional healer. Traditional folk medicine believes that diseases are caused by planetary errors. There are several ways to avoid the dangers posed by the Sun and the Moon and other planets. At the same time, performing rituals for deities associated with planets is considered to be a sacrificial system (Kumaratunga, 2006). Five major '*Graha Bali* (planetary *Bali*) ritual traditions can be identified in Sri Lanka. They are Kandyan, Low Country, Sabaragamuwa, Uva, and Nuwarakalaviya regional traditions (Kumarathunga, 2006). There are three main types of sacrificial offerings. These are the '*Mal Bali*', the '*Mati bali*' or '*Ambum Bali*, and the '*Thira bali*' or '*Kada Bali*. The method of decorating in the form of offerings using banana leaves and barks, *gop* leaves, and flowers is called '*Mal Bali'*, and the method of making large *Bali* statues using '*Thubas mati'* (clay) and painting on clay tablets is called '*Mati bali*' or '*Ambum Bali'*. The practice of painting on cloth and offering *baliya* is known as '*Thira Bali*' or '*Kada Bali*' (Kumaratunga, 2006). Various *Bali* rituals for the curing of infertility and the preservation of the womb can be found in traditional folk medicine. Of these *Bali* rituals, the *Rathikāma Bali* ritual is unique. To alleviate vaginal discharge and vaginitis related diseases in women, the Sabaragamuwa '*Bali adura'* (Bali performer) conducts the *Rathikāma Bali* ritual. The word '*Rathikāma*' is made up of the words '*Rathi*' and '*Kāma*'. '*Rathi*' means lust, love, *mewundama*, the consolation of the five senses (*Pancha indriyan*), and '*Kāma*' means desire. '*Rathikāma*' thus means 'excessive desire for intercourse' (Kumarathunga, 2006). For this ritual, a clay idol is made. Therefore, *Rathikāma baliya* belongs to the category of '*Ambum Bali*'. It is beautifully crafted and the main feature of this *Bali* ritual is the '*Bali rūpaya*' (*Bali* statue). The carving of the *Bali* statue is done following the rituals of obtaining clay and adjusting the colours. They are practised by *Bali* performers. In this *Rathikāma Bali* statue, a woman with a naked

upper body and with a '*punkalasa*' (pot of prosperity) in her right hand and a '*sewla*' (Cuckoo bird) in her left hand is moulded. When moulding the Bali statue, the woman's figure is placed on the man's lap. *Rathikāma Bali* ritual is performed for childbearing. Fear of sexual intercourse, nausea, fear of illness such as vaginitis, dizziness, having sex with red and black men in dreams, various gynaecological conditions from puberty onwards are symptoms, and it has been the custom of the Sabaragamuwa *Bali adura* (*Bali* performer) to perform the rites of *Bali* ritual on the name of the patient when the symptoms of mental illness, cough, nausea, loss of appetite or frequent panic are not completely cured by drugs or *Yanthra* (diagrams worn for health problems). They believe that it will help them to maintain a good marital relationship and have successful children (Kumarathunga, 2006). *'Rathikama baliya'* is also performed for men. Male infertility is one of the most common causes of the problem. The uniqueness of this *Bali* ritual is that it can be performed on both men and women if they have some disease related to infertility. Thereby, it is used to treat men's fear of intercourse, nausea, and nightmares as well. The conditions mentioned here are the reasons why both men and women do not have a good marital relationship. Failure to conceive due to such conditions is a major cause of infertility. According to traditional folk medicine, when this treatment is performed by a *Bali* performer the mind of the patient is adjusted. That is, to avoid the aforementioned ailments and maintain a good marital relationship and create a desire to have children. *Bali* statue is a fundamental element of the *Bali* ritual's rites. If the patient is a woman, the statue is made according to the height, width and other measurements of the patient. If the man has a disease related to infertility, the *Bali* statue is adjusted to match his measurements and body features. There are many poems sung for the occasion. The following two poems describe how the *Bali* statue of *Rathikama bali*ya is moulded.

Sath viyathak diga massa badinnē - (A seven-spans-long gantry is tied)

Tun viyathak masi pululada gannē - (The width of the gantry is three spans)

Himi laga kanyā ruwak ambannē - (A female figure is sculpted near the male)

Athare kanyā ruwa sathapannē - (The female figure rests on the man's lap) (Kumarathunga, 2006).

Sirasē nil kes wetiya mudalā - (The blue-like hair that has been released)

Mal pethi kottē isaka thabālā - (The head rests on a pillow made of flower petals)

Gana ran athirillē sathapēla - (Lying on a gold blanket)

Mē lesa rathikam baliya sarālā - (In this way *'Rathikāma baliya'* has been created) (Kumarathunga, 2006).

The traditional '*Bali adura*' was skilled at making the '*Bali* statue' to resemble the patient. After the *Bali* statue is done, everything needed for the *Rathikāma baliya* is prepared. The patient is then subjected to the ritual of '*Bali pāwādeema*'. It means that the *Bali* statue is introduced to the patient after singing the '*ambum kavi'* (poems) for each *Bali* rite (Kumaratunga, 2006). The *Rathikāma Bali* ritual begins with the performance of the '*Pūrwa yāga chārithra*' (pre-Bali rituals) [the rituals performed by the chief *Bali adura* (chief Bali performer) and his assistants on the day before the Bali ritual] and the '*Handā samayē chārithra*' (evening rituals). After the introduction of the Bali statue to the patient (*baliya pāwā deema*), the poems '*Namaskārā*' and '*Vēēdimālāwa*' are recited. In the performances of *Bali*, these three phases can be identified by distinctive ritual actions and performances. in the first phase, the patient is introduced to a pre-constructed ritual arena. He/ she is separated from the mundane world. There is a sequential introduction to the various objects to be used in the ritual through their descriptions in verse. The patient (*āthurayā*) is instructed to see, feel, touch, hear and smell certain things. Both *adurā* and the *āthurayā* are gradually transformed into a state of maximum preparedness. In the second phase, requests and offerings are made to all possible sources of relief and removing a patient's *dōsā*. In the third phase, the patient is separated from the ritual space and he or she is returned to the real world (Silva, 2000). In this way, all the rites are performed and the *Rathikāma Bali* ritual is performed till dawn. They believe that looking at the

Bali statue and listening to poetry until the next morning makes the sick woman or man want to have intercourse.

Rathikam yāgaya kala āthura hata - (To the patient for whom the *Rathikāma baliya was* performed)

Nithiyen sama dos nothibeyi ada sita - (Inevitably from today all ailments will be gone)

Ruthiyen dhola dun sama devi balayata - (By the power of all the gods for whom the sacrifices were performed)

Nithiyen sama dosa duru weyi ada sita - (From today all ailments will inevitably disappear) (Kumarathunga, 2006).

In this way, the mind of the patient is healed by chanting poems and offering sacrifices to the demons that make people sick. Thus, the rites of the Bali ritual vary according to the patient's condition. Finally, a rite called '*Bali hellēēma*' is performed and the *Bali* statue is smashed. That is, the board which was used to make the '*Balirūpaya*' (*Bali* statue) is tied with a rope to the leg of a cow and the cow is chased away. Then the *Balirūpaya* breaks due to the fall. It is believed that it removes the evil eye of the person who created the *Balirūpaya*. Infertility sufferers are treated with local traditional medicine. Another speciality of this is that the *Rathikāma baliya* heals the minds of patients and enhances their sexual energy under the local folk medical system and provides medicines and food for it. It heals pre-existing weaknesses. At the *Bali* ritual, the patient is given king-coconut water mixed with '*Ingini Ata*' (clearing nuts) to drink after chanting. Decoctions, as well as medicinal porridges, are also given to the patient after the *Bali* ritual. Also, the patient is made aware of the habits that are needed to be practised. In this way, traditional folk medicine provides treatment for those suffering from infertility and it should be noted that this '*Rathikāma baliya*' in the Sabaragamuwa Province is currently on the verge of extinction due to various reasons.

Conclusion

Indigenous Traditional Medicine Has A Large Space For Witchcraft. The '*Rathikāma Baliya*' Is Very Unique Among The Various Treatments Available In Indigenous Medicine To Cure Infertility. That Is Because It Is Performed On Both Men And Women. Also, It Heals Patients Mentally. Therefore, Their Ailments Heal Faster, Which Is Because Mental Well-Being Causes The Body To Begin To React Better Towards The Drugs. This Allows Patients To Recover Faster. Thus, It Is Clear That The *Rathikāma Baliya* In Traditional Folk Medicine Is A Very Valuable Treatment For Infertility.

Recommendation

The '*Rathikāma baliya*' and other rituals in traditional folk medicine are also valued as cultural heritage. Due to the neglect of such intangible cultural heritage and the actions of fraudsters, these therapies are becoming extinct. Researchers suggest that the time has come to formulate a program to protect such valuable cultural heritage through state-level intervention.

References

Abeyrathne, R.M. (2019). Current Trends in the Popular Sector Traditional Medicine in Sri Lanka. Proceedings of the Pakistan Academy of Sciences B. Life and Environmental Sciences-(Special Issue), 56 (3), 27-36. https://www.paspk.org/proceeding/proc-of-the-pas-b-56-no-3-special-issue/

Disanayake, M., (2010). The art of Sinhala dance (*Sinhala narthana kalawa*). S. Godage & brothers.

Jayasiri, A.A.J. & Premarathne, M.G.L.M. (2011). Medical Sociology and Medical Anthropology 1 (*waidya samaja widyawa saha waidya maanawa vidyawa 1*). An author publication.

Kalra, B., Baruah, M.P. & Kalra, S. (2016). The Mahabaratha and reproductive endocrinology. The Indian Journal of Endocrinology and Metabolism, 20 (3), 404-407. https://scholar.google.com/scholar

Kumarathunga, S. (2006). Sabaragamuwa *Bali* ritual Order (*sabaragamu bali yaga piliwela*). Deepani Publications.

Kumarathunga, S. (2006). The ancient rites of Sabaragamuwa (*purana sabaragamuwe daraka wath piliweth*). Sooriya Publications.

Kusumarathna, S. (2005). Indigenous medicine in Sri Lanka. Sarasavi Publishers.

Leslie, C. (1977). Asian Medical System – A Comparative Study. University of California Press.

Mayadunne, S., (2019). The concept of Yaksha in the Sinhala belief system (*sinhala vishwasa paddathiye ena yaksha sankalpaya*). S. Godage & brothers.

Sharma, R.S., Saxena, R. & Singh, R. (2018). Infertility & assisted reproduction: A historical & modern scientific perspective. The Indian Journal of Medical Research, 148, 10-14. Doi:10.4103/ijmr.IJMR_636_16.

Sedarman, J.E., (1964). Sacrifice birth in Lanka (*lankawe bali upatha*). M. D. Gunasena & Co. Ltd.

Silva, D.A.P.D., (2000). Globalization and the transformation of planetary rituals in southern Sri Lanka. International Centre for Ethnic Studies.

Uragoda, G.C. (1987). *A History of Medicine in Sri Lanka*. Sri Lanka Medical Association.

World Health Organization. (2020). Infertility definitions and terminology. World Health Organization. https://www.who.int/teams/sexual-

The First Record of The Archeoastronomical Bind Rune Associated with Petroglyphs in Danigala Circular Rock, Sri Lanka

Aravinda Ravibhanu Sumanarathna[1], Majda Aouititen[2], Bernie Taylor[3], Geeth Sameera[4], Jinadasa Katupotha[5], Aruna Bandara[6]

[1,2,3]Department of Research & Innovation – South Asian Astrobiology & Earth Sciences Research Unit of Eco Astronomy Sri Lanka, Colombo, Sri Lanka.

[2]Beijing Forestry University School of Ecology and Nature Conservation, Beijing, China.

[3]Before Orion, Portland, Oregon, United States of America.

[4]Geological Survey and Mines Bureau, 569 Epitamulla Road, Pita Kotte, Sri Lanka 10100.

[5]Department of Geography -University of Sri Jayewardenepura, Nugegoda, Sri Lanka

[6]Central Cultural Fund- Polonnaruwa, Sri Lanka.

Email: aravinda@ecoastronomy.edu.lk

Abstract

Danigala Rock is a unique geological site situated near Kandegama at Polonnaruwa district. The aerial view of the rock shows a semi-circular shape, which was affected by geological weathering. The northwest slope part of Danigala inselberg has interesting petroglyphs discovered in Chithra Lena (7°41'0.44"N | 81°12'45.66"E). These symbols are relatively new and, for the first time, discovered in Sri Lanka during an archaeoastronomical survey conducted by Eco Astronomy Sri Lanka in a corporation with Central Cultural Fund (Polonnaruwa-Alahana Parivena Project). These petroglyphs, now perceived and assessed as art, are mute science prints of ancient cultural vestiges of a bygone society. The predominant forms found are partially similar with few forms found in some sites in Sri Lanka, but with distinct differences in the engraving process. Notably, samples of the bind rune coding of Danigala petroglyphs are quite similar to bind rune's symbols of Shamanic cultures. Besides, the engraving technique is remarkably similar to the technique used in the petroglyphs of Edakkal Caves in India. This paper is an attempt to document and analyze this bind rune coding in purpose to uncover the archaeo-astronomical meaning and the historical beliefs.

Keywords*: Danigala, Circular Rock, Petroglyphs, Bind codes, Sri Lanka Archaeoastronomy.*

Introduction

Danigala contains an enormous wealth of geodiversity, rich with geological and geomorphological formations dating from as far back as the Precambrian era. These features have been a treasure trove of discovery in the fields of archaeology, astronomy, biodiversity, and cultural artefacts. On 28 July 2020, a new type of petroglyph was discovered at Danigala Circular Rock alongside featuring other engraved symbols. Some of the engraving symbols are recessively close to the linear compounds found in Dorawakakanda cave and Hakbelikanda cave (Somadeva 2012). However, none of the petroglyphs discovered is systematically similar to any previous petroglyphs discovered so far in Sri Lanka. We theorize that the petroglyphs are bind runes coding that present extraordinary value to ancient anthropomorphic research. Although we noticed some resemblance between the petroglyph's symbols and bind coding, the symbols discovered at Danigala Circular Rock show similarities to the Funnel Beaker Culture's stone slabs discovered in Sweden By Burenhult and his team (Burenhult 1981; Larsson 1985; Larsson 1992). These stone slabs originate from a settlement layer belonging to the Early-Middle Neolithic transition (c. 5200 BP) at Hindby Mosse, Western Scania, Sweden (Burenhult 1981; Burenhult 1982). In this, the rock art discovered at Danigala shows clear distinctions from other examples found in Asia. The rock art found in Cheonjeon-ri rock engravings in Korea features images depicting nature, represented as transformed geometric shapes (Jang 2003). Recent discoveries from Russian Far East have revealed similar rock art sites, dated between 14,000-13,000 BP and Sikachi-Alyan; 13,000 BP. These sites revealed in the Amur-Ussury Show a specific iconographical style. Rock Art in Far Eastern Russia (Devlet 2016), similar to the Danigala petroglyphs. Also, the typicality of the engraved rock art throughout Lianyungang includes whereas cup-shaped cupules are mainly in Jiangjunya; and other cupules are mostly "shallow cupules" which is associated with upper Neolithic people culture in the Southeastern Coast of China (Wenjing 2019). Moreover, a cluster of around 200 engraved boulders was discovered near Sa Pa in Lao Cai province, a popular resort town previously colonized by France located in the northwest of Vietnam.

The highland environment, similar to many European climates, is still inhabited by the highland Hmong people. These petroglyphs found near Sa Pa in Lao Cai province belongs to the late iron age (Lao Cai and Ha Giang Provinces, Northern Vietnam: Engraved Boulders) (Tan 2013). Relevant to the South Asian region, Edakkal caves, Wayanad, Karnataka in India representing unique engraved bind runes coding, which approximately date back to the Middle Neolithic era (Kumar 2013). Many types of petroglyphs partially or dominantly correspond to some of the bind codings of Dhanigala Chiththra Lena's petroglyphs. We are looking to document this discovery via brief and systemic processing.

Methodology

Study area

Danigala Circular Rock [Lat: 7°40'50.24"N | Lon: 81°12'48.32"E], a unique geological rock situated near Kandegama in the Polonnaruwa district. We surveyed the northwest slope of Danigala inselberg on July 28th of 2020 (7°41'0.44"N | 81°12'45.66"E | altitude 278m), recording geographical coordinates by GPS device.

Monitoring Strategy

Our team used a Sony Alpha 58 camera with a resolution of 5456 x 3632 pixels with RAW format capabilities, allowing for a wider room in photo post-processing. The rock artwork found there was carefully measured using a ruler and photo stitcher app for further analysis.

Cluster analysis

Both the pictures and the measurements were firstly compared with rock art found at other sites in Sri Lanka. The team decided to extend the comparison process to other petroglyphs sites discovered previously in Asia, Europe and Africa, including samples of bind coding. We relied mainly on systematic comparisons of petroglyph geometrics and the process of engraving technique used. Relative dating was established through geological and prehistoric data

Geological Setting around Danigala Circular Rock

Danigala Circular Rock is an inselberg of isolated rocky outcrops generally consisting of Precambrian formations (fig. 2). This unique harbour station is geologically situated in the Vijayan Complex; a part of the geological subdivision of Sri Lanka (fig.1). Vijayan Complex includes, amphibolite-facies suite mainly consists of amphibolite facies granitoid gneisses, migmatites, minor meta-sedimentary xenoliths and calc-silicate rocks (Cooray 1984, 1994; Dahanayake and Jayasena, 1989). Partially called bare rock mounds or turtleback shaped inselbergs are scattered in the II - Second Planted Surface (Katupotha, 2013). This kind of inselberg (fig. 2) has shown great resistance to erosion due to its composition of granitic rocks containing large proportions of quartz, one of Earth's toughest rock-forming minerals.
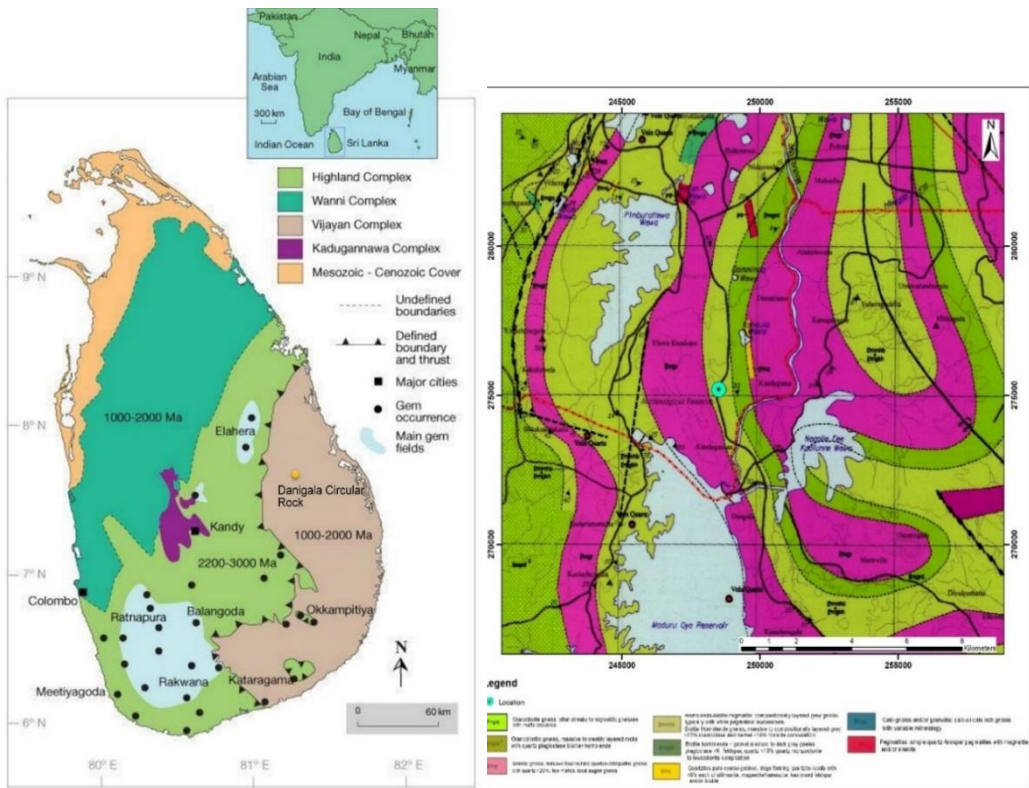
Images and Preliminary Reading

Fig.1. (Right) Depicts the Main Geological Zones, includes relative dating (left side) (©Cooray 1984). Map showing the lithotectonic subdivision of Sri Lanka (After Cooray, 1994).

Fig. 2. Aerial view of Danigala Circular Rock (Image © Eco Astronomy SL and CCF-Polonnaruwa).

Fig.3. (Left) Danigala Chithra Lena -

Fig.4.1. One of the complete petroglyphs found in the Left side wall, representing anthropomorphic figures (Image © Aravinda Ravibhanu) / Reconstructed image via photo stitching app.

Fig.4.2. Left side wall at the middle of the liner chamber representing anthropomorphic figures like ladders (Image ©CCF-Polonnaruwa and Eco Astronomy SL).

Fig.4.3. The left side wall of the liner chamber representing anthropomorphic figures like bows & arrows (Images ©CCF-Polonnaruwa and Eco Astronomy SL).

Fig.4.4. Left side wall at the dead-end of the liner chamber representing anthropomorphic figures (Image ©CCF-Polonnaruwa and Eco Astronomy SL).

Fig.4.5. The left sidewall of the liner chamber representing anthropomorphic figures like crooked bind runes (Images ©CCF-Polonnaruwa and Eco Astronomy SL).

5.1. Complete petroglyphs at the left side wall, representing anthropomorphic figures of a group of healers, visits friends and dreams | Bind Code (Image © Aravinda Ravibhanu).

5.2. Complete petroglyphs at the left side of the wall, representing anthropomorphic figures of worshipping and ladder technique of human spiritual activities (Image © Aravinda Ravibhanu).

5.3. Complete petroglyphs discovered at the left side wall, representing anthropomorphic figures of blessing hunter (Image © Aravinda Ravibhanu).

5.4. Bind code representing injured human trying to self-healing, worshiping, and sacrifice or giving to giant marabou stork (extinct) ? or bird of Accipitridae family (need more citations) (Image © Aravinda Ravibhanu

Results

The Danigala rock-shelter contains an extraordinary variety of petroglyphs symbols similar to those found in Edakkal Caves, Wayanad, Karnataka in India. These petroglyphs have not yet been entirely decoded or assembled into a single image. In the left wall of Danigala Chithra Lena, we discovered a clear representation of the first petroglyph (fig. 3-5.4) and the engraving symbols composition are similar to the petroglyphs encountered in Edakkal Cave. The petroglyph's wall, approximately 25ft x 16 ft including the left side of the single linear chamber, has suffered from weather erosion (fig. 3 right). The distances between the two granitic walls of the linear chamber have represented less than 30cm width via the bottom of the shelter. Individual boulders can be seen on the top of the walls as a sort of hood; similar to the shelter Danigala Chithra Lena but not fully open to the sky (fig. 3) like the case observed in Edakkal Cave. These types of geological formations are natural caves that may have formed after earthquakes or by slower erosive processes (Shyju, 2016). Most of the engravings are found only on the left side of the rock shelter walls, containing figures which at first glance to be humans, peacocks? or Giant marabou stork (extinct) ? or bird of Accipitridae family, plants, dogs, ladders, arrows, bow, and geometric signs (Need more decoding and analysis) (fig. 3-5.4). Some of the geometric signs and bind code may represent counters related to astronomical symbols (Taylor, 2017). At the terminus of the same chamber, there is another petroglyph (left side) as a separate wall, with multiple additional anthropomorphic fingers, what appears to be an incomplete ladder, animals, and plants (fig. 4.2 and 5.2). We hypothesize that the two granitic walls belong to the same rock which has been separately affected by geological weathering. We believe that the complete decoding of the petroglyphs will be quite challenging due to the variety of shapes and symbols at this site.

Discussion & Conclusion

The people who created the engravings did not execute it as a work of art as we perceive it today. It was a reflection of their beliefs and practices. Its true meaning

will likely remain a mystery for the foreseeable future beyond the interpretations we can make. We observed that these bind runes show similarities between those found at Aztec and Shamanic (Indian) cultural sites. We've identified a few possible, generalized interpretations of some bind runes as Mastermind, Day, Possession, Open, Crooked, Animals, Humans, Plants, Birds, Bow and arrows, Self-healing, Dreams, Giving, Purifications, (fig. 3- 5.4). This area was likely a place of worship and veneration for the Neolithic and Megalithic aboriginals who once inhabited the region. Considering the dating of similar engravings processed and discovered out of Sri Lanka, the ruins likely date to around relatively represent 5,000-3,500 BP. The main anthropomorphic figures at Danigala do not appear to be carved with pure or traditional beliefs and iconography of the gods worshipped in the temples. Instead, they appear to be reflective of a ritual system built around beneficial ancestral spirits who could be approached and appeased in exchange for protection from evil spirits, diseases, and calamities. The petroglyphs might also represent deities of the Vedda people at Girigama as symbols of ritualistic offerings. Many of the symbols carved adjoining the main figure has a votive value, some possibly denoting death and the transmigration of the soul into the afterlife. Other symbols include anthropomorphic representations of animals. These animals were totems of the Girigama Vedda or Danigala Vedda—Girigama being the ancient name for the Danigala area. Anthropomorphic figures of Danigala Chithra Lena Petroglyphs though linear in delineation, are quite articulate in execution. The outline of the figures appears to have been first outlined and subsequently etched or grooved out afterwards. Most of the figures are generally made using single grooved lines, though figures with grooved double lines were also encountered.

The double-engraved lines of the Danigala Chithra Lena Petroglyphs appear to be an engraving method unique to its creators. Recent studies have concluded that the local Kurumba tribesmen living near the area have no explicit attachment to or reverence for these engravings, suggesting that an outside group was responsible for the Eddakal engravings. There was some possible level of migration between Sri Lanka and India via the Adam's Bridge sandbar, in consideration of the many fluctuations

of sea level during the late Holocene around the Sri Lankan region. Some possible dates representing periods when sandbar was partially open include: 5830 ±90 and 6000±90 BP | 5590±80 and 5840±80 BP| 5910±70 and 5600±70 BP.19 Focusing on average fluctuations in South Asia, around 11,500 yr BP-12,800yr BCE, this was the most dominant period of migration. As the relative sea level has been dropped by more than 25m ±5m on average from current sea levels, we believe that the Adam's Bridge sandbar must have been dominantly opened during this time. Curiously, representations of ladders or stretchers were found in multiple instances at this site, wheels found to be absent (Eddakal has bind ruins of wheels). To draw an analogical systematic comparison with Buddhist art, the representation of Buddha's descent from heaven is also represented by a series of steps. Recently research has photo-documented evidence of bamboo stretchers or ladder-like objects used in the present day by the Kadar tribe group in Kerala to transport the deceased to the burial ground. Such ladder imagery was quite usually represented amongst Vedda and other tribes as well.

This stretcher would then be was abandoned over the grave along with other utilitarian objects, and over the head portion of the deceased would be planted a stone. It is interesting to note that most of these emblems are found adjoining and directed towards the most substantial anthropomorphic figures as though in reverence to it. The connection between ladder engravings with death and the afterlife, as well as a potential connection with later Buddhist imagery, is highly worth further investigation.

The location of the Danigala inselberg itself is awe-inspiring—there is a mystic feel to the ruins that was felt even during its examination. Deeper exploration of the burial pits, microlithic, potteries, and other prehistorical factors, can provide new directions to the archaeological studies in this area. Further study of the runes is necessary to determine any deeper meaning. These petroglyphs remain as mute cultural vestiges, archaeoastronomical artefacts of a bygone society now perceived and assessed as art. Behind the art lie the religious beliefs of its practitioners and creators, as of yet unseen in the modern-day. As the creators of the glyphs have disappeared from the area, the

true beliefs and meanings envisaged by its creators will likely remain obscured in mystery to modern researchers. Nevertheless, the site and its bygone creators remain a fascinating topic of inquiry, for which future studies are certainly warranted.

Acknowledgement

References

Burenhult, G. 1981. *"Stenåldersbilder. Hällristningaroch stenåldersekonomi."* Stockholm: Stockholm University.

Burenhult, G. 1982. "*Arkeologi i Sverige, Bind 1*." Höganäs.

Cooray, P.G. 1984. "***An Introduction to the Geology of Sri Lanka (Ceylon)."*** National Museum of Sri Lanka, Colombo: 340.

Cooray, P.G. 1994. "The Precambrian of Sri Lanka: a historic review. In: Raith, M., Hoernes, S. (Eds.), Tectonic Metamorphic and Isotopic Evolution of Deep Crustal Rocks, with Special Emphasis on Sri Lanka." *Precambrian Research 66*: 3–18.

Cunningham, A. 1879. *"The Stûpa of Bharhut: A Buddhist Monument Ornamentedwith numerous sculptures illustrated of Buddhist legend and history in the third century B.C."* Indological Book House in Varanasi xiii, vii, 143 p.

Dahanayake, K., H.A.H. Jayasena., B.K. Singh., R.S. Triwari., and Tripathi. 1989. *"A Permo-Triassic Plant Microfossil Assemblage from Sri Lanka, Review of Paleobotany and Palynology."* 58:197- 203.

Dahanayake, K., N. Kulasena., G.V. Prasad., K. Dutta., and D.K. Ray. 2011. "Sedimentological and 14C dating studies of past tsunami events in Southern Sri Lanka." *Natural Hazards*, 63(1):197-209.

Devlet, E. G., and A.S. Pakhunov. 2016. "Rock Art Studies in Northern Russia, the Urals and the Far East 2010-2014." *Rock Art Studies: News of the World v,* 97-114.

Fawcett, F.1901. "Notes on the rock carvings in the Edakkal caves, Wayanad." *Indian Antiquary* 30:409-421.

Hettiarachchi, K. 2020. *"An inscription reading behind the Dhanigala Dhananjiya Rajamaha Viharay,,Kandegama."* (Unpublish).

Jang, Seog Ho. 2003. *"Survey Report on National Treasure No.147 Cheonjeon-ri Square Stone, Ulsan."* Korea's Prehistoric Art Research Center.

J, S. P. 2016. "A Study on Heritage Preservation and Tourism Development at a Prehistoric Site in Kerala Through Community Engagement." *SSRN Electronic Journal.*

Katupotha, J. 1989. "Coastal landforms during the Holocene Epoch in Sri Lanka: are they comparable to those in Brazil and Venezuela, Ext. Abs." *International Symposium on Global changes in South America during the Quaternary*, Sao Paulo (Brazil) 188-191.

Katupotha, J. 1988a. *"Hiroshima University Radiocarbon Dates 1: West and South Coasts of Sri Lanka."* 30(1): 125-128.

Katupotha, J. 1988b. *"Hiroshima University Radiocarbon Dates 1: West and South Coasts of Sri Lanka."* 30 (3): 341-346.

Katupotha, J. 2013. "Palaeoclimate change during Glacial Periods: Evidence from Sri Lanka Journal of Tropical Forestry and Environment." Survey Department of Sri Lanka, 2007: *National Atlas of Sri Lanka* 3(1): 42-54.

Katupotha, J. 2013. "Planated Surfaces and Erratic Boulders of Sri Lanka." *Proceedings of 29th Technical Sessions of Geological Society of Sri Lanka* 91-94.

Kumar, A. 2013. *"Decoding the meaning and beliefs associated with petroglyphs in Edakkal rock shelter, Kerala, India."* xxv Valcamonica Symposium 337-342.

Kurian, B. 2013. "Mahadevan, Iravatham. 1998." *The Earliest Inscriptions of Kerala Presidential Address* xxiv Annual congress of the Epigraphical Society of India held at Trichur.

Larsson, L. 1985. *"En kustboplats från tidlig bondestenalder i södra Skåne."* Ale 4: 1-14.

Larsson, L. 1992. "Neolithic Settlements in the Skateholm Area, southern Scania." Meddelanden från Lunds Universitets historiska museum 5-44.

Premakumara, De Silva., and A. Punchihewa. 2011. "Socio- Anthropological Research Project on Vedda Community in Sri Lanka." *Journal of Ministry of Cultural Affairs*, Sri Lanka.

Mann, T., M. Bender., T. Lorscheid., P. Stocchi., M. Vacchi., A. Switzer., and A. Rovere. 2019. *"Relative sea-level data from the SEAMIS database compared to ICE-5G model predictions of glacial isostatic adjustment."* Data in Brief, 27, 104600.

Somadeva, R. 2012. *"Rock Paintings and Engraving Sites in Sri Lanka."* Colombo: Postgraduate Institute of Archaeology.

Sumanarathna, A.R., B. Madurapperuma., J. Kuruppuarachchi., J. Katupotha., S. Abeywardhana., and P. Jayasinghe. 2016. "Morphological Variation and Speciation of Acavidae Family: A Case Study from Fossil and Living Species of Batadombalena Cave Prehistoric Site in Sri Lanka." *Annals of Valahia University of Targoviste, Geographical Series 16*(2): 59-68.

Sumanarathna, A.R. 2016. "Geology of Sri Lanka." *Journal of Eco Astronomy Sri Lanka - Special report*.

Sumanarathna, A.R. 2020. "Geology of Sri Lanka." *Journal of Eco Astronomy Sri Lanka - Special report – 02*.

Sumanarathna, A.R., A. Bandara., J. Katupotha., and M. Aouititen. 2020. "Archaeoastronomy Sri Lanka." *Journal of Eco Astronomy* (2020). Special report-03.https://www.researchgate.net/publication/344097947_Danigala_Coding_Sri_Lanka

Sumanarathna, A.R., et al. 2017. "An Assessment Of Geological Formation Of The Rakwana-Pannila Mountain Of Sri Lanka." *Journal of Eco Astronomy* (2017), 1(1): 32-42.

Sumanarathna, A.R., J. Katupotha., K. Rajapaksha., and M. Aouititen. 2020. "Comparative Systematic Analysis of Proxy to Indicate Younger Dryas Cooling in Late Pleistocene in Sri Lanka." Research Symposium 2019: The Ocean University of Sri Lanka.

Taylor, B. 2017. *"BEFORE ORION: Finding the Face of the Hero."* Kindle Edition (Kindle Edition ed., Ser.5). Aquila Media Group 1-598.

Tan, N. H., and P.S. Taçon. 2013. "Rock Art and the Sacred Landscapes of Mainland Southeast Asia." *Rock Art and Sacred Landscapes*, 67-84.

Wenjing, Zhang. 2019. "Rock Art in Northern China, Eastern China and Mongolia. Edited

Clottes, Jean & Smith, Benjamin (2019) Rock Art in East Asia: A Thematic Study." Documentation. ICOMOS International, Paris, 148p. ICOMOS Thematic studies, ISBN 978-2-918086-27-7 (e-book).

Roman Artistic Motifs Found on the Sculpture of Eastern Frontispiece of Abhayagiriya

A. Biyanwila

M.Phil. (Reading), Postgraduate Institute of Humanities and Social Sciences, University of Peradeniya, Peradeniya, Sri Lanka

ayeshibiyanwila@gmail.com

Abstract

Ancient art is neither compact nor concise. It inspires and is inspired incessantly. Ancient Sri Lankan Art does not escape this truth. The presence of Indian influences such as Andhra, Gandhara, Mathura, Amaravati in Sri Lankan art has been discussed extensively. This paper discusses the Roman artistic influences on sculpture found at Eastern Vahalkada/frontispiece/Aika or Frontispiece of Abhayagiriya, Anuradhapura. The Roman motifs of candelabrum, cupids and griffins found at Abhayagiriya which is also composed of Acanthus foliage reminds us of ancient Roman art. This paper will analyze the said motifs extensively and it will compare each of the above motifs with the original forms and iconography to show the intended inspiration from the Roman artistic tradition. The analysis of the artistic motifs would then prove a possibility of cultural exchange between Ancient Sri Lanka and Rome which have rarely been discussed. This presence could not be missed, when it is supported by the historical proof of the presence of trade and political links between Sri Lanka and Rome. Hence, this paper will be studying a single case that will study Roman influences in Ancient Sri Lankan art and it will suffice to show that no form of art is exclusive but open and inspirational.

Keywords: Abhayagiriya, Frontispiece, Artistic Motifs, Roman Art, Sri Lanka

Introduction

The Abhayagiriya Stupa in Anuradhapura was built by King Valagamba who is also known as King Vattagamani Abhaya (109 and 89-77 B.C.). The stupa and the monastery surrounding was donated to a monk named Kuppikala Mahatissa, which donated the first personal donation done to a Buddhist monk. Chapter 33 of Mahavamsa describes, "When two hundred and seventeen years ten months and ten days had passed since the founding of the Mahavihara the king, filled with pious zeal, built the Abhayagiri-vihara. He sent for the (two) others, and to the *thera* Mahatissa, who had first assisted him of the two, he gave the vihara, to do him honour. Since king Abhaya built it on the place of the *arama*. of (the *nigantha*) Giri, the vihara received the name Abhayagiri (*Mahavamsa*, Chapter 33).

The author of *Mahavamsa*, further states that "a *thera* known by the name Mahatissa, who had frequented the families of laymen, was expelled by the brotherhood from our monastery[1] for this fault, the frequenting of lay-families. His disciple, the *thera* who was known as Bakalamassutissa, went in anger to the Abhayagiri (vihara) and abode there, forming a (separate) faction. And thence forward these *bhikkhus* came no more to the Mahavihara: thus, did the *bhikkhus* of the Abhayagiri (vihara) secede from the Thera (*ibid*). Hence it could be assumed that monk Mahatissa was accused of accepting this personal gift and was banished from Mahavihara.

Though the stupa is said to be built during the reign of Valagamba, a slab inscription found at South *Vahalkada/frontispiece* of the Abhayagiri stupa states that the four Vahalkada/frontispieces of the stupa have been built by King Malu Tissa or Kaniththa Tissa (164-198 C.E.) (Wickremasinghe,1912).

The research aims to answer what Roman artistic elements can be found on the said section of the frontispiece of Abhayagiriya. In answering this, the author aims to

---

[1] Mahavihara

discuss three main artistic elements found on the pillar of the frontispiece. These being, the candelabrum, griffins and cupids. In return, it will show how foreign artistic traditions influenced the prevalent local traditions of art.

This paper will discuss the presence of Roman artistic influence on a sculpture found at a stone pillar of the Eastern *Vahalkada/frontispiece/aika* of Abhayagiri Stupa (Fig. 1). According to Bopearachchi, 'conserved in situ for more than one hundred years, this relief does not seem to have been understood by those who published it (see S. Paranavitana,1959, p.127 and U. von Schroeder, 1990, p.82 and recently, T.G. Kulatunga, 2014, p.143-5)'. He also states that J.G. Smither (1993, pl XLIX) and A. Seneviratna (1994, p.152) illustrate the pillar but have failed to 'discuss its iconography' (Bopearachchi,2020, pp.77-80). The related archaeology has been recorded throughout history as mentioned above. But, it could be assumed that these particular sculptures related to the eastern frontispiece of Abhayagiriya have not been studied extensively based on their Roman influences. Hence, this paper tries to identify the presence of Roman inspiration deducing that certain Roman artistic motifs have been used in beautifying a single pillar at the eastern frontispiece of Abhayagiriya. This will provide much space for a discussion in studying Roman artistic influences in the ancient art of Sri Lanka.
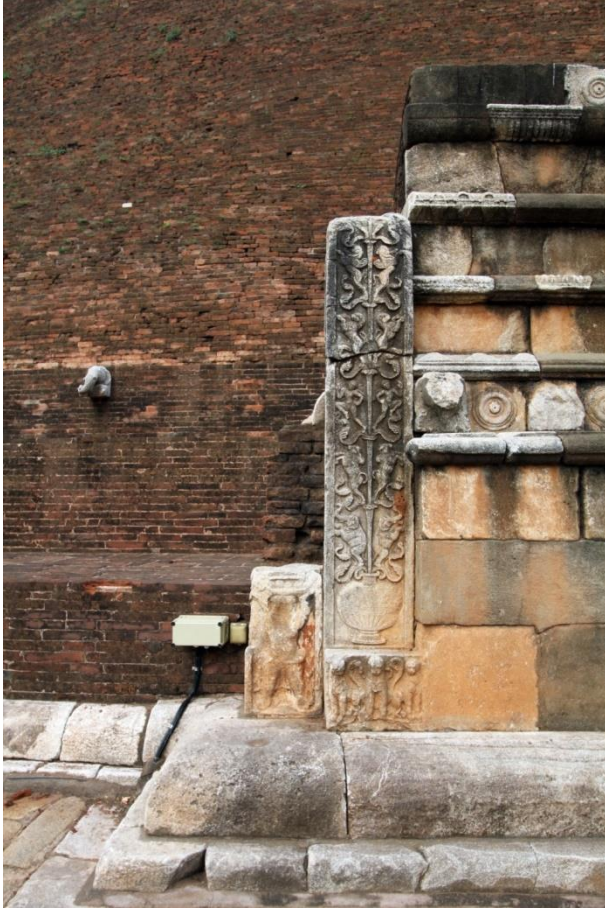
Figure 1: The Eastern Vahalkada/frontispiece/Aika of Abhayagiri Stupa

Materials And Methodology

This research uses qualitative research methods to arrive at conclusions and results. This paper will do a formal analysis of the Roman artistic features found at a stone pillar at the eastern *Vahalkada/frontispiece* of Abhayagiri Stupa, Anuradhapura which is believed to be built around 164-198 C.E.(Fig.2). To identify the traits of Roman origins of the said motifs, the author uses several examples from the ancient Roman world which displays the utility of the motifs. The stone pillar is of Dolamite and its height is 265 cm, Width 47 cm. (Bopearachchi, 2020). And a historical analysis of the Roman artistic motif of candelabrums, cupids and griffins will be done

using several artistic depictions from Ancient Rome. Hence, the researcher tries to show the presence of roman artistic inspirations in a stone pillar that dates back to the Anuradhapura era of ancient Sri Lanka.

Figure 2: Griffins and Cupids, the Eastern Vahalkada/frontispiece of Abhayagiri Stupa

Results and Discussion

The formal analysis of the relief on the pillar from the Eastern *Vahalkada/frontispiece* of Abhayagiri Stupa can be commenced by studying the prominent basic features. Foliage emanates from a pot which is usually termed a *Purnagata* or *Punkalasa* and besides this foliage are depicted several pairs of animals and a pair of human figures. First, in the lowest corner, is a pair of elephants standing with their hind legs and then are the humped bulls raising their front legs and standing in hind legs as the elephants. Then appears a pair of human figures, identified here as the cupids. They are winged and with curly hair. Any form of clothing is not visible as in the Roman depictions of cupids. Following the cupids, appears a pair of lions and then finally the mythical creatures, who are identified as griffins. These mythical creatures are winged and are

composed of a body of a lion and the head of a bird similar to an eagle. With the pair of griffons, the candelabrum ends. The paper will now discuss the Roman artistic motifs of the stone pillar at the Eastern *Vahalkada/frontispiece* of Abhayagiri Stupa, Anuradhapura in detail.

First, the motif called candelabrum will be discussed. Candelabrum is the plural of candelabra (Latin), describing the equipment which has been used to hold candles[2]. It is composed of a shaft to hold candles. The candelabrum would have been used in ancient Roman households. The household usage would have necessitated its ubiquitous artistic use in ancient Roman art and architecture. The motif of candelabrum in the paintings of Pompeii (A. Babet,1999, pp.76 and 81) are more artistically rendered than that of Abhayagiriya. The refinement of the Roman candelabrum is absent in the motif found at Abhayagiriya though some inspiration owing to Roman tradition is evident. The candelabrum in the paintings of Pompeii is more intricate, sometimes with female representations (Fig. 3).

Figure 3: Candelabrum, Painting from Pompeii

National Archaeological Museum, Naples

---

[2] Encyclopedia Britannica, Available at:

https://www.britannica.com/technology/candelabrum

The second Roman motif, which will be discussed here is the motif of Cupids or Eros who later became Cherubs in Victorian art. A pair of cupids can be seen as the third image from the lower end, emanating from the candelabrum with wings, of curly hair and are halfway in flight (Figure 4.1). The Cupid or Eros is popularly believed as the son of Aphrodite or Venus. The Latin term, Cupīdō [kʊˈpiːdoː], means "passionate desire" (de Vann, 2008, p.155). He stands for passionate love and he accompanies the goddess of love with a bow and arrows often shooting arrows at men and women making them fall for their loved ones. These figures have been recurrent in the tradition of art throughout history and especially, according to Charles Brian Rose, the motif was highly popular during the reign of Augustus Caesar (63 BC-AD 14) where he states, "often included cupid personally transferring the weapons to his mother was especially popular after Actium[3]" (Rose, 2005). Hence, it could be assumed that the popularity of cupid as an artistic motif has been entered the ancient artistic traditions utilized at Abhayagiriya through a medium of direct acquaintance with Rome. And these images which were used in ancient Roman art were inspirations for later western traditions of art including colonial art and architecture (Fig.4.2). Such depictions of cupids could be found in Colonial architecture in Sri Lanka as at the Coffee Planters' Fountain (Biyanwila, 2019). Before the advent of colonial art and architecture, the only instance that we could find a depiction of cupids is at the eastern frontispiece of Abhayagiriya. If these elements were highly popularized during the era of Augustus and later, this element would have probably stood to signify the Augustan legacy. Hence, the cupids have been used to denote the political supremacy or the executive aspect of the government.

---

[3] A naval battle in the last war of the Roman Republic, fought between the fleet of Octavian (Augustus) and the combined forces of Mark Antony and Queen Cleopatra of Egypt. It took place on 2 September 31 BC. (Dio Cassius 50:13)

Figure 4.1: Detail of Cupids at the Eastern Vahalkada/frontispiece of Abhayagiri Stupa

Figure 4.2: Cupids, Painting from Pompeii
National Archaeological Museum, Naples

As the third element, the motif of griffins will be discussed. The column under discussion at the Eastern Vahalkada/frontispiece of Abhayagiri Stupa depicts a pair of griffins, turned in opposite directions with their forelimbs raised. They appear at the uppermost section of the candelabrum (Figure 5.1). The griffins are winged lion-like figures with heads of birds. The word griffon, griffin or gryphon has been derived from Latin *gryphu*. According to Stephen Friar, "Griffin of the animals in mythology the griffin or gryphon is the most magnificent. The lion is the king of the beasts and the eagle the king of the birds, but in the griffin the majesty of the two creatures is joined together. Its head, wings and talons are those of an eagle, to which are added a pair of sharp ears, as it has very acute hearing. Its body, hindquarters and tail are

like a lion, and thus it combined the strength and vigilance of both animals in one. The griffin was associated with the Gods in Minoan, Greek and other civilizations of the Near East. It was an animal of the sun and pulled Apollo's chariot across the sky, but it had a double role, and also pulled the chariot of Nemesis, the God of Justice. *Griffins guarded the gold mines* in the mountains of Scythia, and were always at war with the one-eyed Arimaspians, who tried to steal the gold to adorn their hair." (Emphasis Added) (Friar, 1987).

As emphasized earlier, the significant characteristic of griffins is that they are well-known guards of wealth. Hence, it proves the idea that motifs were used at *Vahalkada* /frontispieces to denote guardianship to wealth associated with the stupa, "the prominence given to the following motifs; *Kubera* with his two main attendants, *Sankanidhi* and *Padmanidhi*, zoomorphic *Nagas*, anthropomorphic *Nagaraja* and *Nagini* and *Cakravartin* as the universal king making coins drop from the sky. In short, the motifs are all gods, kings, reptiles *associated with wealth*" (Emphasis Added) (Bopearachchi, 2020). Hence, it could be assumed that the artist who included Roman artistic motifs here, abided by the previous and contemporary local tradition of including motifs associated with wealth. The figure as stated before is a legendary creature with the body, tail and hind legs of a lion and the head of a bird. These mythical creatures have been depicted in ancient frescoes of Pompeii, now in the Naples National Archaeological Museum (Fig. 5.2). The similarity between the two instances provides proof of the relationship between the two.

Figure 5.1: Detail of Griffins at the Eastern Vahalkada/frontispiece of Abhayagiri Stupa

Figure 5.2: Detail of Griffons, Painting from Pompeii, National Archaeological Museum, Naples

Conclusion

The stone pillar at the Northern *Vahalkada/frontispiece* of Abhayagiriya Stupa, Anuradhapura has been recorded in history by several archaeologists and art historians. But its inspirations of ancient Roman artistic traditions have never been discussed. This paper discussed three artistic motifs present in the said stone pillar analyzing, giving examples from Roman Artistic traditions. The description would provide the readers with a preliminary reading of the presence of foreign artistic traditions with special reference to Roman artistic influences. It shows how the artist has usurped the foreign elements in beautifying the local art by retaining the traditions associated. Such is visible in identifying the use of the motif of griffins on the column

at the frontispiece of Abhayagiriya, under discussion. Though the element is clearly of foreign origin, it has been used to denote the same idea that of guardianship of wealth as done with the more oriental motifs of *Nagarajas, Kubera, Sankhanidi and Padmanidhi*.

Recommendations And Acknowledgments

The author extends sincere gratitude to Professor Bopearachchi for providing necessary details, pictures for the study and guidance throughout the research.

References

Biyanwila, A. (2019). *Art of A Heritage: An analysis of the   ornamentation and the foreign artistic influences on the coffee planters' fountain in Kandy,* [Manuscript submitted for publication]

Bopearachchi, Osmund (2020). *Roots of Sri Lankan Art.* Department of Archaeology, Colombo.

De Vann, Michiel (2008). *Etymological Dictionary of Latin and the other Italic Languages,* Leiden.

Dio Cassius, (1917). *Roman History,* of the Loeb Classical Library edition, Vol. V

Encyclopedia Britannica (2011). Candelabrum. In Britannica.com. Retrieved January 5, 2021, from https://www.britannica.com/technology/candelabrum

Friar, Stephen (1987). *A Dictionary of Heraldry*, Crown Publishers, New York

Mahawamsa, (Geiger, Wilhelm Trans.) (1856-1943). Pali Text Society, London

Kulatunga, T.G. (2014). *Purana Abhyagiri Vihāraya* (in Sinhala), Central Cultural Fund, Colombo.

Paranavitana, Senarath (1959). Chapter IX. Civilization of the early period: religion and art. In H.C. Ray (Ed.), *History of Ceylon*. (Vol. I) Ceylon University Press, Colombo.

Rose, Charles Brian (2005). *The Parthians in Augustan Rome,* American Journal of Archaeology, (Vol.109).

Seneviratna, Anuradha (1994). *Ancient Anuradhapura*, Archaeological Survey Department, Colombo.

Smither, G. James (1993). *Architectural Remains, Anuradhapura*, *Sri Lanka*, revised and edited Culture, Colombo.

von Shroeder, Ulrich (1990). *Buddhist Sculptures of Sri Lanka*, Visual Dharma Publications Ltd., Hong Kong.

Wickremasinghe, Don Marno De Silva (1912). *Epigraphia Zeylanica*, (Vol. I). London.

Role of Information Technology in heritage tourism: UNESCO World Heritage sites of Sri Lanka

A[1] Abeysinghe, A[2] Abeysinghe

[1]Sri Lankan Aviation College

[2]Software Engineer, DMS Electronics

arundathie81@yahoo.com

Abstract

Heritage and Information Technology (IT) may seem inconsistent at first. But IT has a significant role in heritage tourism. IT provides effective resources by which heritage tourism has evolved as a modern tool without harming its cultural and heritage identity. IT applications in heritage tourism include many disciplines of computer science from workflow to archaeological discovery as well as to scientific preparation. As such, there are diverse areas of cooperation as well as interaction at different levels. The use of IT as a tool in heritage tourism has paved the way for a three-dimensional (3D) model with the use of input data such as photos and scans. At the same time, computer graphics have created accurate visual creations. Several applications of IT in heritage tourism such as 3-D Modelling, database management of records, online reservation systems, Content Management and marketing via websites and social media can be identified. In this age of Information Technology and with the fast access of information, tourists at present require fast and accurate information and they have a thirst for knowledge about the destinations they visit. Hence, it is the duty of stakeholders of heritage tourism to provide the necessary information for tourists without harming the historical and cultural nature as well as the value of the site while using modern technology and preserving heritage tourism for future generations. This paper will focus on the role of IT in heritage tourism in UNESCO World Heritage sites in Sri Lanka for enriching visitor experiences at World Heritage sites in Sri Lanka during the travel cycle. At present, the majority of tourists local as well as foreign accumulate information about World Heritage sites, make reservations as well as buy services available in relevant sites using search engines.

Keywords: IT-based heritage tourism, World Heritage sites, use of AI in tourism, stakeholders of heritage tourism

Introduction

As outlined in this research, IT has helped to uplift several domains in the context of heritage and tourism to present day baselines. Individuals, businesses and governments of all countries today use IT as an integral part of their routine to efficiently and productively provide services and gain revenue. IT is vehemently used in several sectors of heritage; identification, analysis of archaeological artifacts, content management, content sharing and marketing of tourism-related services. The research also outlines several innovations such as Artificial Intelligence (AI) based schema and sharing economy while highlighting several emerging trends in this domain. Additionally, the research provides several futuristic suggestions to further improve applications of IT and reach masses in the future while preserving current resources.

Current applications of IT in Heritage and Tourism

3d Modelling

3D modelling can be used as a technique for the conservation and experimentation of archaeological artifacts. With the introduction of 3D modelling software such as AutoCAD and Autodesk 3ds Max, IT has enabled archaeology and other tourism-based norms to create computer imagery of materials ranging from artifacts to entire buildings. With the use of this kind of software, it is very easy to create models of existing materials for preservation for the use of future generations as well as for materials that are not easily transportable. Several techniques have been devised recently under this paradigm. Key techniques include laser triangulation, Stereophotogrammetry, Structured light and Time of flight. The process of obtaining a 3D image includes steps of data registration, data integration, model conversion and visualization which can all be performed using 3D modelling software (Pieraccini, Guidi, & Atzeni, 2001). Another key area of improvement recently is the use of 3D laser scanning of buildings as a process of preserving cultural heritage sites (Brizzi, Court, d'Andrea, Lastra, & Sepio, 2006).

Database management of records

After data is analyzed, it is equally important to store such data for future retrieval. The role of IT in this context has been significant with the adoption of database management systems. Database management systems not only help to create, save, update and delete data in a "database", but are the cornerstones in most content management websites today. For example, users today check which areas of a country have the most focus on tourism by analyzing data such as the weather, cost of travel, return on investment for the travel, etc. among a plethora of popular tourist destinations using mobile apps, forums and reviews. If database management systems were not used or were publicly restricted, there would be a minimal opportunity for tourists to obtain information about such sources.

Online reservation systems

A new trend among tourists has been to "book and travel" to a destination. With websites and mobile applications, key service providers in an online reservation such as TripAdvisor and Bookings.com enable tourists, easy access to information and reserve and travel. Coupled with these platforms are the reviews that travellers post. A recent survey found that 57% of young travellers use reviews for booking (eZee Technosys Pvt. Ltd, 2014).

Content Management

Content management in heritage tourism and archaeology is done using websites. Websites enable to easily present information and provide a platform upon which data can be exchanged between parties. Additionally, email and Instant Messaging schemes have soared word of mouth publicity about these tourism sites. A recent trend also involves developing mobile applications and content delivery to easily obtain information.

Marketing via Websites and Social Media

Marketing is another key area where IT has aided Heritage Tourism. For example, online advertising enables service providers in a particular domain to publicize their information globally. Before the introduction of IT-based systems, advertisements

were only available to local communities and had less scope of reach. However, recent improvements in social media and content sharing networks have enabled to reach the masses within a short period at a low cost. For example, Facebook pages and Twitter profiles are used by popular tourist service providers, hotels and restaurants as a medium of promoting their content.

Applications in archaeology

IT has also enabled electronic data acquisition, data analysis and presentation in archaeological projects. With the use of computer-based systems, new archaeological instruments such as electronic Vernier callipers, video imaging systems and logging systems to store data have evolved. The data analysis stage involves using a database to store information and using data mining systems to analyze information pertaining to excavations. Computer Generated Imagery (CGI) and other modelling tools coupled with presentation software enable easy dissemination of information about findings from archaeological excavations. CGI tools are used as information dissemination tools for tourists at leading archaeologically significant sites in Sri Lanka.

AI-Based Schema

As stated in recent researches, (Puyol-Gruart, 2002) several techniques in the domain of AI can be applied to archaeology. Main schemes include KDD (Knowledge Discovery in Databases), VIM (Visual Information Management) and MAS (Multi-agent systems). As stated earlier in this paper, the use of databases assists the efficient management of large archaeological facts that accumulate every day. However, databases in the context of KDD are not used just for CRUD (Create, Read, Update and Delete) of data, instead of towards a data mining system. In this process, data is preprocessed and such data goes through a data mining process to obtain patterns from pre-processed data. For example, figure 1 shows how fuzzy logic can be used, coupled with association rules to determine the era to which a particular artifact belonged.
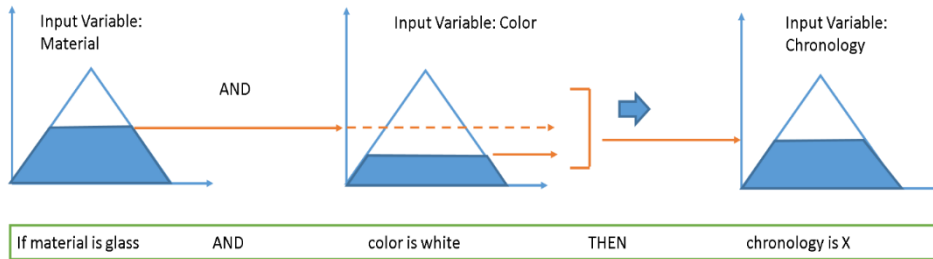
Figure 1: Use of fuzzy logic with association rules to detect the chronology of an artifact

Another key area of research in the domain of KDD is Bayesian networks. In Bayesian networks, the probability of a key event occurrence is evaluated in conjunction with another event(s) to identify an inference. This inference is either a conclusion or a collection of such inferences and they are used to conclude.

The sharing economy

In traditional markets, consumers own the product they purchase, a good or service. However, with sharing economy, peer-to-peer services share their goods or service as temporary endeavours. This is enabled by a platform which "sits" as the intermediary between the consumer and the supplier which forms the basis of the peer-to-peer model. The platform is often a customized website or sometimes a mobile application that acts as the gateway upon which both parties perform transactions. Examples of sharing economy practices include bike and carpooling and hotel rental services such as Airbnb.

With sharing economy, anyone can start their own business and provide services worldwide. This type of business provides opportunities to both local and overseas services and customers have opportunities to obtain services from a trusted provider than from unreliable sources. It enables a common platform upon which transactions can be made. For example, a tourist can reserve a villa in Thailand or a hotel in Hong Kong with Airbnb. A tourist does not have to visit hundreds of country-specific sites to view and book before travelling. All financial transactions are also controlled by one centralized account for the user which in essence increases usability and personalization of services (Juul, 2017).

Emerging trends in IT-based Heritage Tourism

e-Heritage

One of the emerging trends in heritage tourism is e-Heritage. With e-Heritage, each country opts to build a common portal upon which all Heritage Tourism information will be stored and disseminated. For example ICTA (Information and Communication Technology Agency), Sri Lanka has already initiated an 'e-Heritage' project (ICTA, 2017), a search that allows users to filter results by destination, category, building type, address etc. The primary advantage of such an approach is that a potential visitor can search an entire country based on a keyword and some data with a filter criterion. This reduces the time consuming and inefficient task of searching through several websites, forums, reviews, blogs and then baselining a common understanding upon which the travel would be based. Additionally, the credibility of information can be guaranteed as the information will often be managed by the government of a country or a highly trusted institution.

Tourism Entrepreneurship

These new IT-related ventures in tourism create employment opportunities for local communities. As a result of these services, tourist service providers have been able to breach the monopoly, "business-oriented" environments had over the years. The hospitality industry is divided, though not equally between a market of local communities and a market of niche business organizations.

As pinpointed by this study, several new trends can be seen to improve the outcome of this process. For example, many tourism-based websites today involve a translation scheme such as Google Translate to translate website content to a specific language. At the same time, websites today involve using local font typefaces in typing for communities who lack English proficiency. These methods improve customer satisfaction by diminishing cultural and language proficiency barriers in communication. Another trend has been cross-platform data availability and moderation. For example, when a tourist enters his/her details on a website (personal information) and books a hotel, he/she can view or edit the same information using a

mobile application developed for smartphones. This increases customer flow to the tourism market and creates new entrepreneurship in Heritage Tourism.

Virtual Tours

Several companies have improved their presentation of services and also about heritage tourist sites in the form of virtual tours. However, several improvements can be made in this domain to improve the tourist experience. For example, current virtual tours are limited often to a flash video on a website or a video about services and attractions at public places. The majority of present-day travellers have no experience of virtual tours when they visit the aforementioned sites, although they get a firsthand view of the tour. So, virtual tours are important to self-explore a cultural site or service of a service provider in the domain of Heritage Tourism. This can involve key places they should visit which can be displayed on computer screens which they can access by pressing a button and view information about a place or service. Additionally, they can drag a pointer in the screen to view 360° view of the place or panorama of the place and provides ease of use in gathering information on how they should visit the particular site and what they can see in a destination or how they can use the service of a service provider rather than reading booklets or pamphlets about places which are typically available at these destinations. For example, for tourists, virtual tours are available in the World Heritage sites of Dambulla Cave Temple and Galle (Thobias).

Conclusion

In conclusion, IT in heritage sites plays a significant role and in the future, it will be an essential tool as tourists, (local and foreign) will need to access information fast and accurately within a short period. As tourists are interested in knowledge about the site they will be visiting, Sri Lanka Tourism Development Authority and Tourism Bureau Promotion Bureau can play a huge role in this endeavour by promoting Sri Lanka as a destination with UNESCO World Heritage sites by displaying virtual tours, online brochures, pamphlets as well as video and audio clips in several foreign languages including English for the benefit of foreigners who will be visiting Sri Lanka. This type of endeavour will also benefit travel agencies worldwide as they can

promote these sites and Sri Lanka as a World Heritage-listed tourist destination worldwide and attract more tourists with the use of advances in IT. The research believes that recommendations as outlined under futuristic suggestions will ensure further expansion of the applications of IT in Heritage Tourism.

References

3D digitizing of cultural heritage2001*Journal of Cultural Heritage* 63-70

3D Laser Scanning as a Tool for Conservation: The Experiences of the Herculaneum Conservation Project 2006*The 7th International Symposium on Virtual Reality, Archaeology and Cultural Heritage VAST (2006)*1-7GoslarEurographics Association

Computer Science, Artificial Intelligence and Archaeology2002*Computer Applications & Quantitative Methods in Archeaology*1-7CreteComputer Applications & Quantitative Methods in Archaeology

Dambulla Cave Temple - Sri Lanka - 360 degree virtual reality tour.

Experiment of virtual space distance education system using the objects of cultural heritage1999*Proceedings IEEE International Conference on Multimedia Computing and Systems*FlorenceIEEE

eZee Technosys Pvt. Ltd2014*Survey: What Travelers Are Looking For In Online Reviews*

ICTA*ICTA and Department of National Museums launch Sri Lanka Museums Mobile App*

Tourism and the sharing economy

Juul, Maria. The Sharing Economy and Tourism. 1st ed. European Parliament, 2017.

Impact of water scarcity on Agriculture in Mi Oya River Basin

G.V.H.M[1] Madumali, M.M.S.B[2] Manamperi

Department of Geography, University of Sabaragamuwa

Department of Fine Arts, University of Kelaniya.

maheshikausjp@gmail.com

Abstract

There is a finite amount of fresh water on earth and only 3% of the total water in the world is freshwater while less than 1% is readily usable by humans. Water availability varies in time and space. One river basin may be suffering extended drought while neighbouring river basins may be experiencing devastating floods. Water scarcity can be defined as a lack of sufficient water or not having access to safe water supplies. When considering the situation in the Mi Oya river basin, clearly it can be identified water scarcity in this area as mentioned by the definition. Therefore, the purpose of the study is, identify the impacts of water scarcity on agriculture while introducing mitigation methods to the recognized impacts. Accordingly, research problems seek answers for the questions of what are the main fields of agriculture affected by water scarcity and to which extent it impacts agricultural activities in this area. The main objective of the study is to identify the impact of water scarcity on agriculture in the Mi Oya river basin. Both qualitative and quantitative methods were used for data collection through questionnaires, structural and semi-structural interviews, and case studies. As well as a mixed method of descriptive and analytical have been applied for the data analysis and discussion. Accordingly, results proved that paddy cultivation as the main field affected due to water scarcity and at least one season or abandon because of the insufficient water in the area. Therefore, people have to use adaptive methods for water scarcity. Finally, can be concluded that it is very important to recognize these kinds of impacts as we are having an agricultural economy and because of water scarcity considered as a global crisis around the world.

Keywords: Water scarcity, Agriculture, Impacts, Mi Oya River Basin

Introduction

Water is essential for agricultural production and food security. It is the lifeblood of ecosystems, including forests, lakes, and wetlands, on which the food and nutritional security of present and future generations depend. Water is becoming increasingly scarce worldwide. (Pereira et al., 2002a). Accordingly, water scarcity can be defined as, a lack of sufficient water or not having access to safe water supplies. Aridity and droughts are the natural causes of scarcity. More recently, man-made desertification and water shortages are aggravating the natural scarcity while the population is growing and the demand for water faces an increased competition among water user sectors and regions. Not only rainfall is not enough abundant in many regions, thus limiting the number of water resources available, but also the quality of water is increasingly degraded making that water resources unavailable for more stringent requirements. Agriculture is therefore forced to find new approaches to cope with water scarcity but adopting sustainable water use issues (Pereira, 2005). Agriculture is both a cause and a victim of water scarcity. The excessive use and degradation of water resources are threatening the sustainability of livelihoods dependent on water and agriculture. As water becomes scarcer, it is fundamentally important to tackle the issue head-on. (FAO,2016).

Mi Oya is a stream in the North-Western province in Sri Lanka. The basin area of Mi Oya an approximately 1530 km^2 and the total length is about 118 km. The major tributary is called Nanneriya Oya. It contributes about 40% of the total runoff of the main river. Climatically the Mi Oya upper watershed gets about 1200 mm as annual rainfall. It has great variation according to the season. The annual rainfall of the major rain season of the area reports about 1200 mm while in the minimum rain period it will be about 840 mm.
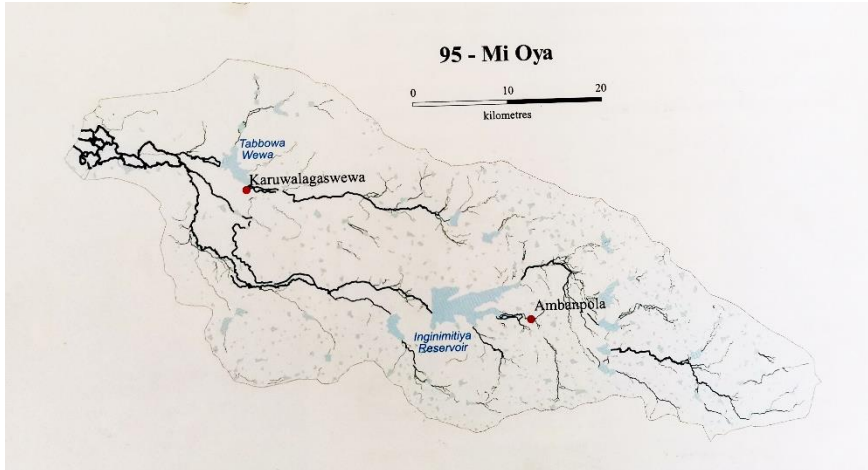
Fig 1.1. Map of Mi Oya River Basin

Under the Mi Oya project of irrigation, all highland area in Kurunegala District has been cultivated under the contribution of the water stored in those sub tanks. Due to the climatic variation of the area, agriculture has been largely affected. Therefore, the study focused on the impacts of water scarcity on agriculture in the Mi Oya river basin. Accordingly, research questions seek answers for questions of,

➢ What are the main agricultural activities affected by water scarcity?
➢ To which extent it impacts agricultural activities?
➢ How it affects people's lives?

Due to water is an essential factor for agriculture, it is very important to managing water efficiently and equitably with a proper mechanism to overcome the issues regarding water scarcity and agriculture. Therefore, the main objective of the study can be formulated as;

➢ Identify the impact of water scarcity on agriculture in the Mi Oya river basin.
➢ Introduce proper strategies to overcome the identified impacts.

Due to having an agriculturally based economy and being a developing country, it is very important to recognize issues related to water scarcity and agriculture in Sri Lanka. Despite water is an essential factor for agriculture, water scarcity has become

great issue in many areas of the country. Because of lacking sufficient water, agricultural activities have been ruined and productivity becomes a loss. Due to that, economic loss can appear. Therefore, needs to be recognized the impact of water scarcity on agriculture while taking actions to mitigate the issues that have been identified. Otherwise, it will impact the whole economy of the country.

Materials and Methods

1.1. Population and Sampling

Altogether there were 112 families which were doing agriculture as their main livelihood activity. Among them, 50 families have been selected as the sample of the research by using snowball sampling.

1.2. Data Collection and Data Analysis

This study is dependent on primary and secondary data, which has been collected by using the below-mentioned method.

| Primary data collection methods	Secondary data collection methods
➢ Observation ➢ Informal discussions ➢ Questioners ➢ photographs	➢ Maps ➢ Satellite images ➢ Aerial photographs ➢ Web sources ➢ Institutional reports

Table 2.1. Data collection methods

Due to the collected data belongs to the qualitative category, descriptive data *analytical method has been used to data analysis in this study.*

1.3. Study Area

Palukadawala area is located in sub-locality, Galgamuwa DSD in Kurunegala District, North Western Province. The Palukadawala tank is covered by an area of 3042672.31 acres and the perimeter of this tank is 10448.32 acres. Accordingly, there are many

land-use patterns around the Palukadawala area. Paddy Field, Home Garden, and Scrub are mainly can be seen. As well as some Marshy lands and rock lands and coconut plantation lands also can be seen in this area.
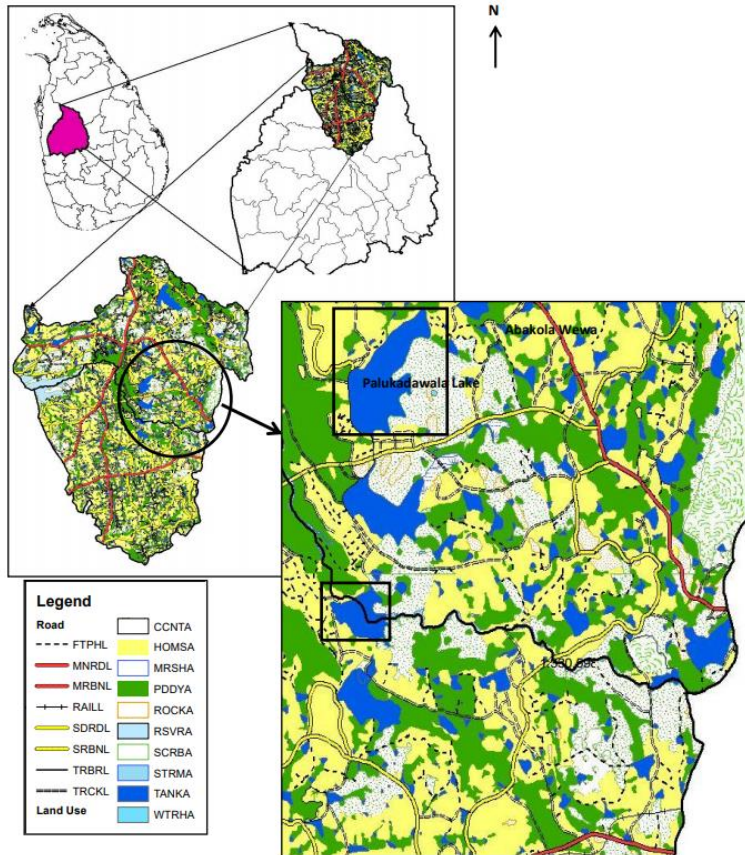
Results and discussion

The impact of water scarcity on agriculture in this area has been identified from several perspectives as the data collected is based on three main tanks as Koan wewa, Maha wewa and Lokurugama wewa.

Tank	Extent(Ac.)	Water Level	
		Current water level	Original water level
Koan Wewa	16 Ac	1'	8'
Maha Wewa	50 Ac	10'	20'
Lokurugama	16 Ac	1'	10'

Table:3.1. The water level of the Tanks

The villagers who are in the Ihallawattha area do their paddy cultivation based on these tanks. The chart shows that there is a huge gap between the current water level and the original water level. As an example, the capacity of the Koan Wewa is about 8'. But the current water level is only about 1". As a percentage it is a reduction of 87.5%. When it comes to Lokurugama wewa it has a total capacity of 10" but now the reduction is about 90%. Maha wewa which is the largest with a capacity of about 20ft. shows at least a half of water reduction. The total capacities of these three tanks are about 38feets, but when considering the present situation there are only 12 feet left. Changing the pattern of the rainfall, the higher amount of groundwater seepage in the dry zone, and the high evaporation and transpiration are the main issues that cause the decreasing the water levels in the tanks.

Tank	Extent(Ac.)	Functionary			
		Working			Abandon
		Yala	Maha	Both	
Koan Wewa	16 Ac	√	√	–	√
Maha Wewa	50 Ac	√	√	√	√
Lokurugama	16 Ac	–	√	–	√
Total	84Ac.				

Table:3.2. The functionality of the Tanks

There have 03 main seasons including Yala, Maha, and intermediate season. Maha is the significant season that can be highlighted in this area. Comparing with the other season Yala is the other prominent and well productive season according to them. As well there have been so many abandon lands regarding paddy cultivation. Those are located very adjacently to those tanks. At this time there hasn't sufficient water capacity to cultivate their in-land, especially the paddy lands. Due to that case, the productivity of the paddy lands has been decreased. Closer to the Koan Wewa, Maha Wewa and the Lokurugama have the same portion of abandoned lands. These days they do cattle rearing in those lands. That is a very significant fact in the study area during the dry zones without rain or any water left in the tanks.

1.4. Paddy land use pattern in Palukadawala area

There four main paddy lands were identified such as Koan wewa, Lokurugama wewa, Moragas wewa, and Ihala Netthipola wewa. The subtotal of these four main investigated land areas is 170Ac while the abandoned portion has been identified as nearly half of the total extent. At the current use of the paddy, land area is lesser than in the past because of deficiency of enough water.

No.	Site name	Extent (Ac.)	Current use			Abandoned Potion (Ac.)	Reasons for Abandonce
			Full	Half	Partial		
Paddy Land							
1	Koan Wewa	25	–	–	√	20	Haven't enough water
2	Lokurugama Wewa	15	–	√	–	15	Haven't enough water
3	Mora gas wewa	100	–	√	–	35	Haven't enough water and labour
4	Ihala Netthipola wewa	30	–	√	–	10	Haven't enough water
Total		170Ac.				80Ac.	

Table:3.3 Paddy land use pattern in Palukadawala area

No.	Site name	Extent (Ac.)	Current use			Abandoned Potion (Ac.)	Reasons for Abandoned
			Full	Half	Partial		
Homestead							
1	Koan Wewa (Banana , chilies, Papaw, Buck-wheat)	2	–	√	–	1/2.	Haven't enough water
2	Ataragalla	1 1/2	–	√	–	1	Lack of technology
3	Bathiyagamuwa	2	√	–	–	1/2.	Haven't enough water
4	Polpitigama	1	–	–	√	1/2.	Haven't enough water
Total		6 .5Ac.					

Table3.4. Homestead land use pattern in Palukadawala area

Here also shown that the total extent is 6.5 Acres. Among them, more than half (4.5 Ac) have been abandoned because of not having enough water.

Conclusion and Recommendation

As water scarcity becomes a devastating issue in this area, human levies have been ruined day by day. Because the main livelihood activity of the people is paddy cultivation and that is the main field largely affected by the deficiency of water. Despite three seasons, only one season has to cultivate by farmers and cultivation has become nonprofitable because of the use of brackish water. Due to the above problems, crop failures can be identified in this area. Most paddy area has become fallow land due to lack of water while six tanks are partially utilized. Accordingly, nearly half of the total paddy area has been neglected by the farmers due to water scarcity. In addition to the water scarcity, lack of enough labour and lack of technology also partially influenced the agriculture of the area.

By going through the conclusion, it can be recommended that,

➢ Identify additional water resources

> ➢ Changing to minimum water required cultivation
>
> ➢ Identify environmental conservation methods for improper land uses
>
> ➢ Legal actions and awareness program
>
> ➢ Maintain proper hydrological system

Framers are engaging with the agricultural activities at the moment can be identified as a limitation of the research. Due to that, some factors couldn't explain by them clearly. The possible application of the research can be identified from several perspectives. For better institutional arrangement and the study purpose, the research can be applied. In addition to that, identify the impact of water scarcity from the root level this can be used further.

References

Bandaranayake, G.M, 2007. *Water Resources Study; Theory Practice and Application*. Colombo: Godage International Publishers.

Mendis, D.L.O (2002). *Water heritage of Sri Lanka*. Colombo: Sri Lanka Pugwash Group.

Oweis, T., & Zhang, H. (1998). Water-use efficiency: Index for optimising supplemental irrigation of wheat in water scarce areas. Zeitschrift f. Bewaesserungswirtschaft, 321-336.

Pereira, L. (2005). Water and Agriculture: Facing Water Scarcity and Environmental Challenges. *Agricultural Engineering International: The CIGR Journal of Scientific Research and Development*, *VII*.

Pereira, L.S, Cordery, I., & Lacovides, I. (2002). *Coping with Water Scarcity* (6th ed.). Paris: UNESCO IHP.

Retrieved 11 February 2021, from
http://unesdoc.unesco.org/images/0012/001278/127846e.pdf

Survey Department of Sri Lanka. (2007). The National Atlas of Sri Lanka (2nd ed.). Colombo. Committee on Agriculture (COAG). (2007). *Agriculture and Water Scarcity: a Programmatic Approach to Water Use Efficiency and Agricultural Productivity Comparing notes on institutions and policies*. Colombo: IWMI.

Food and Agriculture Organization of the United Nations. (2003). *Review of world water resources by country*. Rome.

Gleick, P. (1998). WATER IN CRISIS: PATHS TO SUSTAINABLE WATER USE. *Ecological   Applications*, *8*(3),   571-579.   doi: 10.1890/1051-0761(1998)008[0571:wicpts]2.0.co;2

Hanjra, M., & Qureshi, M. (2010). Global water crisis and future food security in an era of climate change. *Food Policy*, *35*(5), 365-377. doi: 10.1016/j.foodpol.2010.05.006

Shah, T., Hussain, I., & Rehman, S. (2000). *Irrigation management in Pakistan and India*. Colombo, Sri Lanka: International Water Management Institute.

United Nations Convention to Combat Desertification (UNCCD). (2011). *Water Scarcity and Desertification. UNCCD Thematic Factsheet series*. Bonn: UNCCD.

Water for food, water for life: a comprehensive assessment of water management in agriculture.   (2007). *Choice   Reviews   Online*, *45*(02),   45-0867-45-0867.   doi: 10.5860/choice.45-0867

Sustainability of Cultural Heritage Tourism: A Study Based on Cultural Triangle in Sri Lanka

Wijesooriya, M.W.A.T.N

Sri Lanka Institute of Advanced Technological Education

nirmanie@sliate.ac.lk

Abstract

Cultural heritage tourism is one of the fastest-growing forms of tourism. The cultural triangle in Sri Lanka has great potentiality to develop cultural heritage tourism as it consists of unique cultural and heritage attractions including five of the UNESCO world heritage sites. Enhancing Sustainability is the key factor for developing the cultural triangle as one of the sustainable cultural heritage tourism destinations. Through the research, focus to identify how to achieve sustainable cultural heritage tourism in the cultural triangle. The main objective of the study is to achieve destination sustainability and identifying the potentiality for cultural heritage tourism development in the cultural triangle. The research is conducted using the quantitative method and primary data use to test the four hypotheses and to identify the correlation. A structured questioner was given to the non-randomly selected 265 (N) international tourists to represent their perceptions. SPSS was used to analyze the data. The results reveal that the most visited attractions in the cultural triangle and the four hypotheses were accepted. As the major findings identified that stakeholder involvement, economic development, environmental conservation, tourist satisfaction are leads to achieve sustainable cultural heritage tourism development in the cultural triangle, Sri Lanka.

Keywords: culture, heritage, tourism, cultural triangle, sustainability

Introduction

Cultural heritage tourism has become one of the significant sectors of the tourism industry today. Cultural and Heritage Tourism is a tool of economic development that achieves economic growth through attracting visitors from outside a host community, who are motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle/heritage offerings of a community, region, group or institution (Silberberg .,1995). Cultural and heritage tourists stay longer and spend more money than other kinds of travellers thus making such tourism an important economic development tool (ACHP.,2002). Cultural tourists tend to be motivated by 'learning something new', 'hoping to enrich their lives through their travel experience's and 'education and enrichment'(Walker.,2005). As a cultural heritage tourism destination in Sri Lanka, the cultural triangle representing a tremendous cultural and heritage value and the destination provides unique tourism products within a tangible and intangible way. According to the central cultural fund financial reports 2017, there was 994,556 tourist admission tickets sold by the cultural fund. Cultural Triangle consists of the Buddhist Temples, Sculptures, Ancient Monasteries and Stupas while some of them date back to over 2000 years. Also, UNESCO world heritage attractions such as the Sacred City of Anuradhapura, the Ancient city of Polonnaruwa, the Ancient city of Sigiriya, the Ancient City of Dambulla and the Sacred City of Kandy situated in the cultural triangle. According to the Sri Lanka Tourism Development Authority (SLTDA) Annual Statistical Report 2019, the purpose of the visit to Sri Lanka for cultural and religious factors was identified as 0.03% by the international tourists. There were 730,854 international tourists reported to the cultural triangle and 3,288,153,475.22 (Rs) revenue generated in 2019. Also, there were 1,021,881 domestic tourists visited for the cultural triangle and 40,561,880.00 (Rs) revenue generated in 2019 (SLTDA Annual statistical report 2019).

Sustainability is the major factor for the success of any tourism destination and the tourism industry. Sustainability has become almost universally accepted as a desirable and politically appropriate approach to tourism development (Sharpley,.2003). Therefore, to promote the cultural triangle as a cultural heritage tourism destination it should achieve sustainability.

Research Problem

Some researchers have identified the challenges to develop a cultural triangle as a sustainable tourism destination. Udurawana. (2015) stated that almost all the places of a cultural triangle have no enough consideration to retain their tourist than other places. According to the destination Kandy, Sivesan. (2019) stated that lacking infrastructure, lacking community participation, lacking tourists' facilities are the major challenges to sustainable tourism development in Kandy. Also, Udurawana. (2014) stated that tourists' awareness about scared places at the Anuradhapura area was very poor level. Cultural Triangle has become one of the major cultural heritage tourism destinations in Sri Lanka which has the greatest potentiality to promote its tremendous value for the tourists. When developing cultural heritage tourism in the cultural triangle it should promote according to sustainable principles. Muller. (1994) stated that economic wellbeing, the wellbeing of locals, undisturbed nature and protection of resources, a healthy culture, optimum guest satisfaction affects sustainable tourism development. If the tourism destination cannot achieve sustainability it can be affected negatively for the industry such as it will get more negative impacts through the environmental, socio-cultural and economic sectors and it will cause the destruction of the destination. Tourists will not be able to get a satisfied or fruitful experience. Therefore, achieving sustainability is a vital factor for a destination when it promoting for the tourism industry. According to the study, the researcher expects to identify the question **"How to achieve the sustainability of the cultural heritage tourism in the cultural triangle?"**. The researcher focuses to identify the factors which can affect sustainable cultural heritage tourism and approach them in a relevant way to enhance the destination development.

Research Objectives

The main objectives of this research are,

- To enhance the sustainability in the cultural triangle.
- Identify the major cultural heritage attractions in the cultural triangle.
- Identify the target visitor market for the cultural triangle.

- Identify the purpose of visits of the international tourists to the cultural triangle.

Significance of the study

There are different types of stakeholders benefiting from this research. International tourists, local community, resource administrators such as government, Tourist Board, Hotel school, The Central Cultural Fund, Urban Development Authority and also the tourism entrepreneurs such as small-medium entrepreneurs can benefit through this research for developing their products.

Methodology

The research is conducting to identify how to develop sustainable cultural heritage tourism in the cultural triangle and applying sustainable principles. The researcher has used primary and secondary data. The primary data were compiled by a questionnaire to evaluate the factors for the international tourists to decide to select a cultural triangle as a cultural heritage tourism destination and the possibility of achieving the sustainability of the destination. Secondary data was collected from publications, internet sources, annual statistical reports produced by Sri Lanka Tourism Development Authority in 2018 and 2019, Tourism strategic plan 2017-2020-Ministry of Tourism Development and Christian Religious Affairs.

Conceptual framework

For creating the conceptual framework previous literature review has been used by the researcher. According to the study purpose the conceptual framework is designed for achieving sustainable cultural heritage tourism development in the cultural triangle, Sri Lanka.
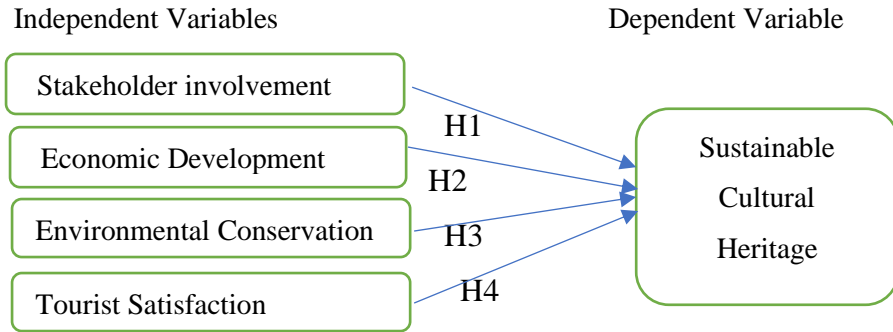
Independent Variables   Dependent Variable

Stakeholder involvement

Economic Development

Environmental Conservation

Tourist Satisfaction

H1
H2
H3
H4

Sustainable
Cultural
Heritage

Figure1: Conceptual framework for Sustainable cultural heritage tourism Development in the cultural triangle, Sri Lanka

Wilson, J., (2010) stated that a deductive approach is concerned with developing a hypothesis based on existing theory, and then designing a research strategy to test the hypothesis. For this research deductive research approach has been used to test the hypothesis. According to the conceptual framework, the researcher developed four hypotheses.

- H1: Stakeholder Involvement leads to achieving the sustainable cultural heritage tourism

- H2: Economic Development leads to achieving the sustainable cultural heritage tourism

- H3: Environmental Conservation leads to achieving the sustainable cultural heritage tourism

- H4: Tourist Satisfaction leads to achieving the sustainable cultural heritage tourism

International tourists who visited the cultural triangle were selected as the target population of the research. Annual statistical reports of SLTDA stated that there were 730,854 tourists' arrivals reported to the cultural triangle in 2019. Therefore, the limitation of the sample size for the study was selected as 265 international tourists. Infinite random sampling method has been used to collect the data. The research instrument is the structured questionnaire. The research questionnaire was developed and administered to explore both the demand-side and supply-side for identifying the

potentiality of cultural heritage tourism development in the Cultural triangle. When creating the questionnaire Nominal and 5-point Likert scales were used. The nominal scale shows the demographic profile of respondents while the Likert scale measures the respondents' preference according to each factor. The data was collected from 01st June to 20th September 2019. As target respondents, international tourists who visit the attractions in a cultural triangle such as Sacred city of Kandy, Sacred city of Anuradhapura, Ancient city of Polonnaruwa, Dambulla Cave Temple and Sigiriya Rock were selected. The researcher used the SPSS to analyse the data collected through the questionnaire. The data was gathered from the questionnaire and to analyze the data, it was entered into SPSS statistic version 23.

Result and Discussion

According to the findings it has proved that the majority of the international tourists visited the cultural triangle for cultural purposes. Most of the international tourists reported from Asia and Pacific, Europe and North America respectively. According to the respondent's data, the researcher has identified the most visited attractions in the cultural triangle. Sacred Tooth Relic 98%, Lankathilaka temple 63%, Gadaladeniya 61%, Gal viharaya 91%, Sigiriya Rock 96%, Ruwanveli Mahaseya 95%, Sri Maha Bodi 95%, Abayagiriya 89%, Dambulla cave Temple 86% reported as the major visiting attractions by the international tourists. Also, to test the four-hypotheses researcher facilitated the Pearson's correlation analysis.

	Independent Variable	Correlation Coefficient	N	Sig. (2-tailed)
Pearson	Stakeholder Involvement	.289**	265	.001
	Economic Development	.258**	265	.004
	Environmental Conservation	.289**	265	.001
	Tourist Satisfaction	.258**	265	.004
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 1- Correlation between dependent and independent variables   Source: Self-survey

According to the results, it can identify stakeholder involvement, economic development, environmental conservation and tourist satisfaction are significant to increase the sustainable cultural heritage tourism, being positively correlated. Therefore, the four hypotheses are accepted.

Conclusion

The study was set out to identify the "How to achieve the sustainability of the cultural heritage tourism in the cultural triangle?". The research limitation to the cultural triangle and target respond group is the international tourists who visit the destination. The researcher achieved all research objectives through testing the four hypotheses. The researcher identified sustainable cultural heritage tourism in the cultural triangle can achieve through enhancing the stakeholder involvement to develop cultural heritage tourism, increasing economic development, more consideration on environmental conservation and increasing tourist satisfaction.

Recommendations

To increase the stakeholder involvement in the cultural triangle, tourist involvement, community involvement, tourism entrepreneurs, tourism administrators should be cooperated when planning the cultural heritage tourism. The local community can work as site guides, interpreters within the destination. It will be beneficial for the tourists to get authentic knowledge of the destination. Community empowerment can achieve through developing the small medium-sized tourism enterprises (SME) relating to the destination such as mats, cane, Ayurveda products, brassware, batik, pottery and handicrafts. Also, it will cause the economic development of the country. Authorities should obtain government assistantships and sponsorships also can establish training centres for the local community to promote their products. The community can increase the revenue through organizing the tradeshows, advertising campaigns and exhibitions for their products. Tourism entrepreneurs should market their products at a quality and affordable price.

Product diversification affects greatly developing the cultural heritage tourism in the cultural triangle and it causes to increase in the level of tourist satisfaction. New

tourism products can be market within cultural heritage tourism such as cycle tours within the cultural triangle attractions, cultural events and festivals, boat tours in Anuradhapura and Polonnaruwa lakes, developing and promoting rural and community-based tourism in Anuradhapura and Polonnaruwa. Environmental sustainability leadership programs and awareness programs can conduct for the students of the schools in the cultural triangle to be aware of the value of protecting the environment. Authorities should create new conservation projects to conserve the environment and the heritage in the destination.

Authorities can build up image development projects with the collaboration of the stakeholders for the cultural triangle. The assistantships of SLTDA and SLTPB can create documentary competition for lesser-known attractions in the cultural triangle. Authorities can give a chance to promote the awarded documentaries for marketing the Sri Lankan cultural heritage. Except for the main cultural and heritage attractions, there are so many lesser-known attractions in the cultural triangle such as Kuttam Pokuna, Ethpokuna, Asokarama, Pratimaghara in Jeetavanarama Moonstones No 01 and 02 in Abayagiriya, Naipena Vihara in Polonnaruwa, Pabalu Vehera, Pidurangala, World Buddhist museum, Kaludiya pokuna and these attractions can use to develop the cultural heritage tourism in Sri Lanka. Therefore, the authorities can promote these attractions using relevant advertising and promotion methods such as magazines and websites. It will cause to increase the motivation of international and domestic cultural heritage tourists to visit the cultural triangle. The above recommendations can be used to promote the cultural triangle as a sustainable cultural and heritage tourism destination in Sri Lanka. Achieving the above sustainable principles leads to conserve the destination and leads to protect it for the future generation.

References

Abuamoud, I. N., Libbin, J., Green, J., & ALRousan, R. (2014). Factors affecting the willingness of tourists to visit cultural heritage sites in Jordan. *Journal of Heritage Tourism*, *9*(2), 148–165.

Banerjee, O., Henseler, M., Maisonnave, H., Beyene, L. M., & Velasco, M. (2017). An integrated model for evaluating investments in cultural heritage tourism in the Dominican Republic. *Tourism Economics*, *23*(8), 1568–1580.

Berry, S., & Ladkin, A. (1997). Sustainable tourism: a regional perspective. *Tourism Management*, *18*(7), 433–440.

Boyd, S. (2002). Cultural and Heritage Tourism in Canada: Opportunities, Principles and Challenges. *Tourism and Hospitality Research*, *3*(3), 211–233.

Cleere, H. (Ed.). (1990). Archaeological Heritage Management in the Modern World (1st ed.). Routledge

Grimwade, G., & Carter, B. (2000). Managing Small Heritage Sites with Interpretation and Community Involvement. *International Journal of Heritage Studies*, *6*(1), 33–48.

Jiménez-Medina, P., Artal-Tur, A., & Sánchez-Casado, N. (2020). Tourism Business, Place Identity, Sustainable Development, and Urban Resilience: A Focus on the Sociocultural Dimension. *International Regional Science Review*, *44*(1), 170–199.

Mckercher, B., & Cros, D. H. (2002). Cultural Tourism: The Partnership Between Tourism and Cultural Heritage Management (1st ed.). Routledge

Terracotta figurines found on the *Diyabate* Rock belonging to the *Thabbowa- Maradanmaduwa* culture

Janaka Athapaththu, Sanidu Devinda, Rangika Nadeeshani, Nirmani Jayarathne, Imashi Hansini

Post Graduate Institute of Archaeology, University of Kelaniya
jmathapaththu@gmail.com

Abstract

Terracotta figurines were discovered throughout Sri Lanka especially in the Northern, North Central and Eastern dry zones, have been traditionally assigned to the Thabbbowa-Maradanmaduwe culture the discovered sites indicate that they are closely connected with river basins, canals, tanks and agricultural landscapes. Terracotta figurines found from Diyabete rock in the Wanni Hathpaththu was the subject of this research and it is a place where archaeological evidence dating back to many ages. The purpose of this paper is to discuss the Terracotta figurines found during the survey of Diyabete rock. Diyabate rock is located in the village of Kattabuwawa in the Maho divisional secretariat in the Kurunegala district of the Northwestern province. It belongs to the dry zone of Sri Lanka. The research problem of this study is, to find out If the Terracotta figurines found during the survey is similar to the Thabbowa Maradanmaduwa culture. The hypothetical-deductive method was used during the research and based on the hypothesis that these terracotta figurines are belonging to the Thabbowa- Maradanmaduwa culture. The data record was created by the non-structural field survey, library survey, taking photographs, drawing, studying 1:50000 metric maps and by taking measurements. Terracotta figurines are found throughout South Asia including Sri Lanka and range in date from the Neolithic Period, through the Early Historic Period and into the present. Accordingly, the geographical features similar to other places in the island where elements of the Thabbowa Maradanmaduwa culture are found can be seen in this place as well. During the study, this makes it possible to believed that the features of this terracotta belong to Thabbowa-Maradammaduwa culture. However, the data obtained from the surface survey carried out here is not sufficient to come to an accurate conclusion and it is necessary to study this site extensively.

Keywords*: Dry Zone, Ritual practice, Terracotta figurines, Thabbova-Maradanmaduwa culture, Folk art*

Introduction

The monadnocks found in the dry zone of Sri Lanka are of great archaeological importance. That dry zone remains of the monadnocks are a major influence on settlements. During the historical period of the country, most of the administrative centres, cities and religious centres were built based on the monadnocks such as *Sigiriya* and *Ritigala.* Most of the tank villages in the dry zone were created based on the monadnocks. This is due to the small tank system created based on the currents flowing from the monadnock. Many of these monadnocks have archaeological evidence from the early historical period to the Kandiyan period. It is feature of some monadnocks to find prehistoric evidence. (yapahuwa,2001)

Figure 1. Out side view of caves on the Diyabate mountain

Figure 2. Diyabate

Terracotta figurines found from *Diyabate* rock in the W*anni Hathpaththu* was the subject of this research and it is a place where archaeological evidence dating back to many ages. The purpose of this paper is to discuss the Terracotta figurines found during the survey of *Diyabate* rock. *Diyabate* rock is located in the village of *Kattabuwawa* in the *Maho* divisional secretariat in the Kurunegala district of the Northwestern province. It belongs to the dry zone of Sri Lanka. The research problem of this study is, to find out if the Terracotta figurines found during the survey is similar to the *Thabbowa Maradanmaduwa* culture.

In the study of Terracotta in Sri Lanka, A.M Horcart first reported on the Terracotta found in the lake "*Thalgas wewa*" in 1924(Horkat, 1922, 23). P.E.P Deraniyagala studied further about Thabbowa- Maradanmaduwa culture based on the areas where they were found. Considered to belong to this culture Terracotta is found in several places on the island (Deraniyagala, 1953), all of which belong to the Northern dry zone of the island. Thus found in Sri Lanka several preliminary studies on terracotta have been conducted by P.E.P Deraniyagala, Shiran Deraniyagala, Nandadewa Wijesekara, Anura Manathunga, Prishantha Gunawardhana (Coningham and Gunawardhana, 2012, 2). So these interpretations of Terracotta culture as well as ideas about chronology a number have been submitted. Terracotta and clay were

found during the survey of the monadnock of the study and reporting of container fragments are based on some research is expected.

Methodology

The hypothetical- deductive method was used during the research and based on the hypothesis that these terracotta figurines are belonging to the *Thabbowa-Maradanmaduwa* culture. The data record was created by the non-structural field survey, library survey, photographing, drawing, studying 1:50000 metric maps and by taking measurements. We did this survey as a team.

A Library survey was done to build an idea of the historical background of the area and to study other previous research on this subject. Studied 1:50000 metric maps and other maps to understand the location and geographical features of the *Diyabate* rock site. The non-structural field survey was used to collect archaeological data on pottery and Terracotta found on the rock and to identify other historical evidence of human activities on the rock. To record the data we used photographing, drawing and taking measurements. It is worth mentioning that the caves we identified on the rock were called Diyabate Rock Cave (DRC) and we named them from DRC 1 to onwards in the order in which they were found. And also we called Terracotta found during the survey as Diyabate Rock cave Terracotta figurines (DRC/TF) and named them as DRC00/TF/00.

Location
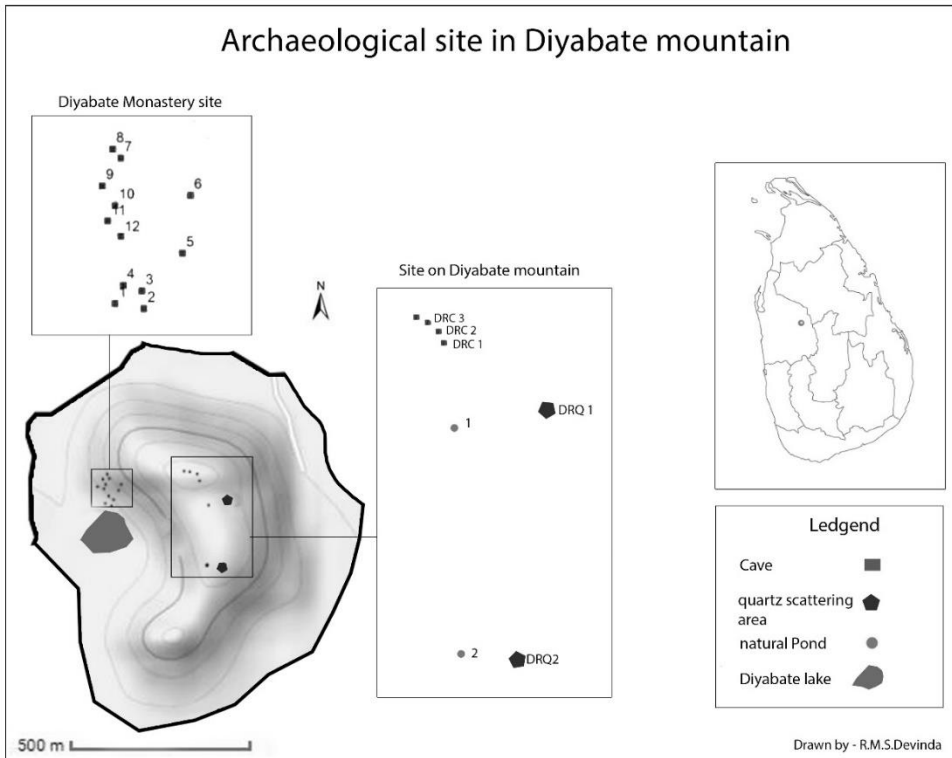
Figure 3. Map of site

The *Diyabate* rock is located in the *Mahawa* Divisional Secretariat division in the *Kurunegala* district of the North-Western province, in Sri Lanka (Latitude 7̇ 50'13", Longitude 80̇ 20'45"). This place is about 145km toward *Kurunegala* from the capital city of Colombo and approximately 6km to *Maho* town located on the Southeast side.

Geographical Background

When focusing on the landscape of the area, it can be referred to as the main plain and consist of various physical features. We can identify Diyabate archaeological site as a monadnock. Monadnock means an isolated hill of bedrock standing conspicuously above the general level of the surrounding area and this is about 840 feet above the surrounding plain. There are several other similar monadnocks located in the vicinity of this such as Yapahuwa, *Thalapath* mountain and *Degodathurawa*. This land has a micro valley nature and small village tanks are being based on such

valleys. Most of these villages are formed at the foot of small hills of the above type. In addition to the main and inter-monsoon winds, the region receives about 1524 mm of annual rainfall from hurricanes. With non-loamy brown soil, a paddy field is found in the vicinity of every small village lake. (Abevikrama, 2008, 17-43)

Historical background

A study of the historical background reveals that it dates back to prehistoric times. Charcoal fragments found during excavations at the Yapahuwa remnant mountain D13 cave near *Diyabate* rock are about 5000 years old according to carbon dating (Pallethana, 2015, 46). In addition, the *Yapahuwa* rock and *Monarakanda* between *Yapahuwa* and *Diyabete* rock in three places, the remains of *Kayikawala* to *Yapahuwa* rock have also been found with and microlithic stone tools made of chert and quartz (Yapahuwa, 2001, 11). Their relatives chronologically it is concluded to belong to the Mesolithic period (Deraniyagala, 1992, 433). The survey by the Central Cultural Fund Yapahuwa project has uncovered microlithic stone tools on *Diyabate* rock and nearby areas (Pallethana, 2015, 46). In that survey, four uncut natural caves at the top of the rock and the surrounding area were explored. Several stone tools and several debris were found among the soil middle of the cave. Near the cave DRC 1 scattering of quartz fragments can be in an area of 300×500 M. During this study, several stone tools were found. Others are discarded pieces in stone tool design. The natural caves here allow several families to live without the hassle of weather. Like a stream of water that forms with rain, two natural ponds have also been created near the cave. Also, the small lake presently in the lower temple seems to have been created naturally. The water coming from that monadnock crosses a small rocky plateau, forming a natural path. It was later converted into an organized structure using a small tank bund. The natural causes suitable for human settlement can also

be deduced from the fact that the historicity of human activities on the *Diyabate* rock seems to date back to prehistoric times.

Figure 4. DRC 1

The second historical background of the Diyatabe mountain is the early historical period. There is a temple complex with 11 drip–lined caves. Here we can see the inscriptions related to the offering of 7 caves (Paranavithana,1970,99). These cave inscriptions mention the cave offering of the parumakas known as 'daraka thisa', and 'amara' and the cave offerings of 'parumaka majjima', the son of 'brahmana moggali'. These are from 3 BC it belongs to the period between 3 AD. Two of the inscriptions at this site are pre-brahmi inscriptions (Dhiranandha,2004,154). One of the other inscriptions mentions a pooja in a monastery by a monk named 'Pussa' is a cave inscription. Also, in the small tank of the temple on the other hand there is a rock inscription written on the rock in the small lake in the temple. It refers to the donation of the 'Punokodaka' tank to the temple by a maharaja named 'Naka'(Ilangasinha,2008,352). The king mentioned here is believed to be the

'mahallaka naga' king who ruled the kingdom of Anuradhapura (Mahanwanshaya, 2012, 152).
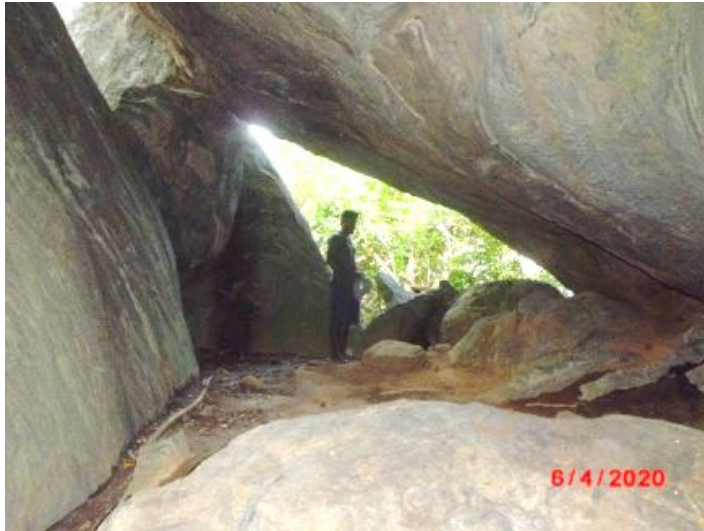
Figure 5. DRC

Accordingly, by this time the Diyabate Mountain belongs to it is possible that an area is densely populated. Yapahuwa the 4 Th kingdom of Srilanka in the middle ages is located 5 km from Diyabate Mountain. Therefore, it is not possible that the land belonging to Diyabate mountain was uninhabited even in the middle age (Disanayake,2011). According to archaeological evidence, the Diyabate temple has been recognized even during the Kandy period. Two small cave temple houses were built during that period. One of them is finished and has a dragon pantheon and sleeping statue and two statues of gods about the art features of the Kandy period. There is also a cave temple with unfinished clay walls. Inside the cave, it is made of clay there are two unpainted Samadhi statues, a standing statue and two deva statues. According to their artistic features, it can be concluded that this unfinished temple also belongs to the Kandy era.

The present Kattabuwawa village which is formed around Diyabate hill was formed during the last period of the British period (Athapaththu,2019,39). Based on the

streams coming from the mountain, three small village tanks have been built around the mountain and the present human settlement has been built based on it. It is a way a continuous human history can be built based on the remnant mountain of Diyabate. As well as it is also clear that several humans activates have taken place based on the Diyabate Mountain.

Previous Research

Clay sculpture has been practised by humans since ancient times. This is mostly used for religious culture. Clay statues were used in primitive witchcraft long before organized religion. (Godakumbura, 1982,5) Originally hand-made, sun-dried clay figurines were used later like clay pots. The images were burned. The clay figurines created at a temperature of $800C^0$ degrees are called Terracotta. (Nishanthi, 2016,232)

Terracotta figurines were discovered throughout Sri Lanka especially in the Northern, North Central and Eastern and Nothern dry zones. As examples Mamaduwa, Ilukwewa, Manawewa, Polonnaruwa, Anuradhapura, Sigiriya, Thalgaswewa, Rajanganaya, Padeniya, Paduwasnuwara, Ampara, Mihinthale and Thabbowa-maradanmaduwa. The distributes is limited to the North Central, North Western and Eastern provinces. The other common factor is the existence of similar geographical background factors. Such as daily weather, agro-economy, reddish-brown Soil Zone. Also, the majority of these terracotta encounters are found in rural lakes or agricultural backgrounds. (Nishanthi, 2016,232)

The first report on Terracotta statues in this way was made in 1921 by A.M Hockett. It is about some Terracotta found in the Thalgaswewa area in Puttalam district (Horkat, 1922, 23) P.E.P Deraniyagala has reported about the statues found later in Thabbowa. Several statues of elephants have also been found among these Terracottas (Deraniyagala, 1953, 133-134) Statues with similar features have been found in Maradanmaduwa Culture. During the Sigiri- Dambulu settlement archaeological research project, Prof. Anura Manatunge reported on terracotta found at Inamaluva and Mnaveva in the Sigiriya area. Among them are animal figures and simple human figures. (Manathunge,1990) Clay images such as female figures, male

figures, animal figures and gender symbols have been found in places belonging to this culture. (Caningham and Gunawardhana, 2012,2) Many images of elephants have been found among the Terracotta figurines belonging to the Thabbowa Maradanmaduwa culture. (Nishanthi, 2016, .232) There is no mention of this art in the historical sources of the Terracotta culture and their art history is more primitive than other classical iconic features. Due to this, it is believed that it was developed as rural folk art and may have been used for some religious purpose. (Gunawardhana, Coningham 2007, 76)

Terracotta figurines of the *Diyabete* rock

Figure.6 A Terracotta statue found in the Anuradhapura Nikawewa beloinging to the Thabbowa Maradanmaduwa culture

Figure 7. DRC1/TF/001and DRC/TF/002

These Terracotta images and pottery fragments are associated with the caves at the top of the *Diyabate* rock. Caves are located at the top of the hill above the *Diyabate* temple. These are some of the caves identified during the survey and named as DRC 1, DRC 2, DRC 3, DRC 4. And also these caves are natural crevices without drips and faced to the west. They are large enough to easily protect a few people from the rain. Through these four caves, the most important one is DRC 1. Near the first cave which is named DRC 1 can find most pottery fragments. Comparatively to it, can't find pottery fragments from the other cave surfaces. When searching carefully during the exploration could find terracotta images from places where the water washed away. By studying the washed place, we can conclude that, under the surface layer of the cave, there can be a lot of pottery and terracotta parts.

Two human-shaped terracotta, two gender-symbol terracotta and some unidentifiable broken terracotta figures were found from this context. A pair of Cylindrical shape terracotta are hand-crafted. Fingerprints can be identified from those. This is DRC/TF/001, DRC/TF/002 also cylindrical shaped and meanwhile, the hand-crafted markers are visible. Its base is fat and is slightly thinner when going up. When observed we can see these two images made with clay-sand mixture course. That and these are handmade and baked. No other code is included and as a male gender symbol Can be concluded. Charles Godakumbura had recorded Many gender type terracotta symbols found from some other places (Godakumbura,1982,7). According

to Godakumbura's opinion, the oldest terracotta type is male gender symbols (Godakumbura, 1982, 7). The other terracotta figure (DRC/TF/003) found here is a human figure and it was created around the rim of a clay pot. Bottom of the pottery rim, there is a pattern of two lines and a dotted line. Below is the terracotta figures that have been created. The figures are first made of clay and then pasted in a clay pot. It is possible that the pot was burnt later along with the clay figures. Clay figures are made by hand. Now can be seen only, the upper part of the figure from the arm. The figure depicts how the arms are designed to be on either side. Even the fingers of its hand are drawn. One hand is drawn like four fingers and the other hand has three lines. It also creates a small bangle at the end of both hands. The head and body may have been made of the same clay ball. Both hands appear to have been designed and pasted separately.

Figure 8. DRC/TF/004

DRC1/TF/004
SCALE   - 1:1
DRAWN BY - Athapththu

Figure 9

The nose and eyes are designed to be visible when designing the head. Its eyes are made of two small clay balls. The nose is represented by a pointed face. Also with these clay figures, the whole clay pot is painted black. On the right side of the clay pot can see the arm part of another clay figure. These are also the features of the DRC/TF/004 clay figure. Below its arms can be seen another part left. Here, too, the

four fingers and the bangle are clearly designed. According to these features, this clay figure can be thought of as a broken part of the above clay pot.

Figure 10. DRC/TF/003
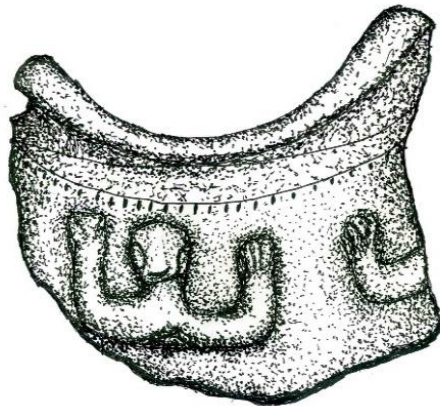
DRC1/TF/003
SCALE   - 1:1
DRAWN BY - Athapththu

Figure 11

Terracotta piece with a similar look has also been received from the Nikawewa area in Anuradhapura (Coningham, Gunawardhana, 2012, 7). Around the pottery, human-shaped clay figurines may have appeared. A complete clay pot depicting a group of similar women holding up their hands has been discovered by the Department of Archeology, the University of Kelaniya and the Department of Archeology, University of Durham, England.

Identifiable terracotta parts are the ones mentioned above, in addition to several unidentified terracottas found. One of them is DRC/TF/005 Terracotta figurine. This is semi-circular. This is designed by placing two semi-circular sections one on top of the other. In addition, several hand-made conical sections are found. Small holes can be seen in the middle of these. Also found are two pieces of terracotta that are suspected to belong to elephant statues.

Pottery

A number of pottery fragments are also found in the DRC 1 cave. They are also found in the washed-out layers of the cave along the waterway. There are a few pieces of black and red ware (BRW), a few pieces of red colour painted ware and pieces of pottery decorated with small lines. Suitable rim parts for getting data were not found and only small pottery fragments were found during the survey. It can be seen that some of the pottery fragments found here have a cement-like substance embedded in them. Mr Charles Godakumbura has reported a terracotta figure with a cement-like substance found in Abethota at Udawala (Godakumbura, 1982, 12). The following is a statistical analysis of the pottery fragments found there.

Parts of pottery	*Type*	*painted*	*non painted*	*total*
Rim	R	5	20	25
Body shape	R	No	NO	13
sherd	BR	NO	9	9
		painted	*non painted*	*total*
Parts of terracotta figure		1	6	7

Figure 12. Received pottery fragments

Conclusion

According to the interpretation of Tabbowa-Maradanmaduwa culture, the Terracotta figurines may have been used for some ritual practice. A.M Hokart believed that this was created with the worship of Shiva (Horkat,1922,23). P.E.P Deraniyagala also agrees that these were remnants of pre-Buddhist religious features (Deraniyagala,1953.133). The basic idea of this terracotta is as a primitive ritual element with folk religious and artistic features that are not found anywhere with Buddhist religious features (Coningham and Gunawardhana, 2012,12). Robert Knox also reports on rural ritual practice using clay figures during the Kandyan period (Knox.2000,153). In Gammadu Shanthikarma, a similar ritual practice, clay idols were not only created but also demolished (Coningham and Gunawardhana, 2012, 12). Many terracotta interpretations mean that the fracture is due to an event like this. It is possible that the terracotta images found on the *Diyabate rock* were used for some religious purpose. It is doubtful whether these natural caves at the top of *Diyabate* rock could have been made a permanent habitat in historical times. Therefore, these caves may have been used for temporary human activities. This is also because the terracotta and pottery fragments are found only in the DRC 1 cave. Also, gender symbols are often used for ritual practices and this may be a remnant of such ritual practices. There are various opinions about the chronology of the Thabbowa Maradanmaduwa culture. According to P.E.P Deraniyagala, these belong to the 2nd century AD (Deraniyagala,1953). It is clear from the fact that the lake was sacrificed at that time that the human settlements were still in good condition by the second century AD. However, Mr. H. Jayathilake believes that these terracotta artefacts belong to the post-Polonnaruwa period as they are found in the vicinity of ancient lakes and are not buried so deeply. Agreeing with this, P. Nandadeva expresses the views of this culture as an ideological element created after the Polonnaruwa period based on isolated rural societies(Nandadeva,1990,221). The other chronology of this terracotta is believed to date from the 7th - 11th century AD. However, it can be concluded that this terracotta also belongs to the Maradammaduwa culture by comparing it with the data of other places where

terracotta is found. This is because the clay idols with similar features to these images are found in other places belonging to the Maradanmaduwa culture. Also, almost all other sources of this culture are farmland, such as lakes or dams. This place is different because it was found in a cave on a hilltop about 250 meters high. But below these caves, it can be seen that a water tank has been created by crossing the water flowing from the monadnock and restricting a boulder. It is clear from the inscription on the lake that it was offered to the temple by King Mahallakanaga (Ilangasinha,2008, 352). Although the lake is now flooded due to silt, there is evidence that the lake was spread near the mountain at that time. Also, since there is a paddy field fed by this tank today, it may have been a major water supply requirement used by the people of this area since historical times. Accordingly, the geographical features similar to other places in the island where elements of the Thabbowa Maradanmaduwa culture are found can be seen in this place as well. This makes it possible to believe that this terracotta belongs to the same culture. However, the data obtained from the surface exploration carried out here is not sufficient to come to an accurate conclusion and it is necessary to study this site extensively.

Reference

Athapaththu, Janaka, (2019) *Wanni Hathpatthuwe Abhichara Wishawasa Ha Jana Adahili*, Maradamna, Godage

Abevikrama, Nanda (2008) *Bhu wishmatha-Kurunegala Sasthriya Sangrahaya*, Palath Sabawa, Wayaba Palatha, Kurunegala, Asliya Printers

Coningham,R,Gunawardana,P,Simposon,I,Strickland,Katugampala.M(2012) Contextualising the Tabbova-Maradanmaduva Culture Excavations at Nikawewa, Tirappane ,Anuradhapura   District,   Sri   Lanka.,   South   Asian   Studies ,https://www.researchgate.net/publication/254359480

Deraniyagala, P.E.P. (1953), Ferro-Lithic or Early Historic Terracotta Statuary and a Cist from Ceylon', Spolia Zeylanica, 27.1, Ceylone, the National Museums

Deraniyagala, P.E.P. (1960) 'The MaradanmaduvaTabbova Culture of Ceylon', Spolia Zeylanica, 29.1, Ceylone, the National Museums

Deraniyagala, P.E.P. (1961), 'Some New Records of the Tabbova-Maranmaduva Culture of Ceylon', Spolia Zeylanica, Ceylone, the National Museums

Deraniyagala, S.U, (1992), Pre History of Sri Lanka, Colombo, Department Of Archaeology

Disanayeke, Senarath, (2011) Yapahuwa

Dhirananda, Hagurankethra, (2004) *Rajya Rajyathwaya Ha Agama*, Warakapola, Ariya Prakashakayo

Godakumburu, C, (1965), Terracotta heads, Colombo Archaeology Department

Gunawardhana,P,Coningham,R,Adhikari,G,Katugampola,Mangala,Namalgamuwa,H,Saladin,M,Simpson,I (2007),Do Terracotta Figuring Suggest a Burial Pattern ,Annual Resarch Symposium ,Faculty of Graduate Studies,Dalugama, University of Kelaniya

Hocart.A.M.(1922-23), Archaeological Survey of Ceylon Annual Report (ASCAR), Colombo, Department of Archaeology.

Ilangasina,Mangala (2008) *Shila lipi - Kurunegala Shasthriya Sangrahaya*, Palath Sabawa,Wayaba Palatha, Kurunegala, Asliya Printers

Knox, Robert, (2000), An Historical Relation of the Island Ceylon, Colombo, M.D. Gunasena

Mahanwanshaya (2011) Nadimala, Budist Cultural Center

Manatunga,A (1990),'The'Maradanmaduva-Tabbova' Culture terracottas found at Manavava in the vicinity of Inamaluva', in The Settlement Archaeology of the Sigiriya Dambulla Region, Colombo,PGIAR

Nandadeva, B.D, (1990) 'A catalogue of some selected terracotta objects from Manavava', in The Settlement Archaeology of the Sigiriya-Dambulla Region, Colombo, PGIAR

Paranavithana, Senarath (1970) Inscription of Ceylon, vol-1, Department of Archaeology, Colombo

Pallethanna, Thilina (2015) *Yapahuva aevata puraviddiya saha manava viddiya gaveshanaya* (unpublished) Yapahuva project, Central Culture Found

Yapahuwa, (2001) Department of Archaeology, Colombo

Recently discovered Upper Paleolithic and Mesolithic Sites of Jodhpur district, Rajasthan, Western India: A Report based on preliminary observations

Astha Dibyopama

Department of Archaeology, Deccan College Post Graduate and Research Institute,

astha2sep@gmail.com

Abstract

Intensive and extensive exploration of archaeological explorations were carried out in the Jodhpur district of Rajasthan Western India, by Dibyopama (2010). As the result of these surveys, two Upper Paleolithic and four Mesolithic sites were discovered. This is a significant contribution to the overall Archaeology of the Jodhpur district. This paper presents a preliminary report on the Microliths found in the Jodhpur district of the Rajasthan. Sites are located near the dry channel in the dunes of the Thar Desert. Microlithic tools along with lithic debitage were recovered from few localities in late Pleistocene contexts and some along with historical pottery.

Keywords *Upper Palaeolithic, Mesolithic, Newly discovered archaeological sites, Jodhpur district, Western Rajasthan and India*

Introduction

Rajasthan is well known for the findings of large numbers of prehistoric sites ranging from the Paleolithic to the Mesolithic periods. The Discovery of some Lower Paleolithic, Middle Paleolithic, Upper Paleolithic (Gurha and Nagri site) and Mesolithic sites has also been reported in the district (see Allchin *et al* 1978). Later on, while conducting the Paleoenvironmental projects few Paleolithic Mesolithic and historical sites were also been reported (Deotare *et al*1998, 2004). A systematic archaeological investigation was carried out in the region by Dibyopama (2010) to reconstruct the cultural chronology as well as to throw light on the Archaeology of the Jodhpur district. Only two Upper Paleolithic sites were reported in the Jodhpur district earlier - *Gurha* and *Nagri* (Allchin *et al* 1978). More than twenty Mesolithic sites were reported in the district earlier. There are two Upper Paleolithic and four Mesolithic sites are the latest discovery of Dibyopama (2010). Preliminary observation of stone tools and Microliths recovered from newly discovered Upper Paleolithic and Mesolithic sites from Jodhpur district are below –

Map-1 Google Earth satellite images showing the study area and location sites

Geographical Settings of the discovered Sites of the research area

Two Upper Palaeolithic sites and four Mesolithic sites are situated in the Phalodi Tehsil of Jodhpur district. Archaeological sites of Phalodi Tehsil were found buried on the pediment of intermittent sloppy valleys and well preserved and stable landforms, which are very suitable for the establishment of any cultural and archaeological site at places. Another character of this area is the presence of blocked drainage lead to a high water table. Even without watering crops can grow very well in the areas of blocked drainage. So, the landscape near the blocked drainage was the preferred area for ancient inhabitants.

Phalodi Industrial area

Mesolithic and Early Historic/Rang Mahal site is located 500m southeast of the Phalodi town and known as an Industrial area, situated in Phalodi Tehsil of Jodhpur district. It is located on the southern bank of the dried seasonal stream; it is extended E-W 500m and N-S 800m, the thickness of archaeological deposit 3-5 ft in height from the surface. Microliths, core and blades etc, were found scattered on the surface of the site. Though it is a multicultural site but focus will be given to Mesolithic occupation. Archaeological findings of Mesolithic phase – Microliths and core debitage (Dibyopama; 2010)

Description of Microliths recovered from the site is following

1. Core rejuvenation flakes – Chert (Fig.5)
2. Flakes with cortex – (Fig. 5)
3. Core in situ on the surface of Archaeological site Phalodi Industrial Area (Fig. 2)
4. Core in situ on the surface of Archaeological site Phalodi Industrial Area (Fig. 3)
5. Chopper in situ on the surface of Archaeological site Phalodi Industrial Area (Fig. 4)

Figure 1 - General View of Archaeological site Phalodi Industrial Area

Figure 2 – Core in situ on the surface of Archaeological site Phalodi Industrial Area

Figure 3 - Core in situ on the surface of Archaeological site Phalodi Industrial Area

Figure 4 - Chopper in situ on the surface of Archaeological site Phalodi Industrial Area

Figure 5 – Microliths from Site no.2

Site no. 4 (Khinchan village)

Upper Paleolithic, Mesolithic and Early Historic/Rang Mahal site is located 1km southwest of the Nagaur highway behind Khinchan village and Southern bank of seasonal River, Phalodi Tehsil of Jodhpur district. The extent of the archaeological site is E-W 200m and N-S 50m. Surroundings environment of the site - eastern and western side rows of dunes, Southern side private land and Northern side Khinchan village. The site is situated on a dune almost 10m of height from nearby dry seasonal stream. Scatter of Microliths observed over stable surface of a dune. Archaeological findings – Blade and Microlithic debitage (Dibyopama; 2010).

Description of Microliths recovered from the site is following

1. Blade – Banded agate – no retouch the only blade – left lateral side there is the cortex, edge or utilization mark observe on both lateral side of the blade, Microliths seems to be Upper Paleolithic because the size of the blade more than 4cm, Mesolithic tools are usually less than three centimetres. (Fig.9).

2. Parallel sided blades with retouched, denticulate edge. seems to be Upper Paleolithic because the size of the blade is more than 4cm, Mesolithic tools are usually less than three centimetres (Fig no.8)

3. Flake core rejuvenated (Fig.10)

Figure 6 – General view of Site no.4 Archaeological site (Khinchan Village)

Figure 7 – Blade on the surface of Archaeological site Khinchan Village

Figure 8 – Upper Paleolithic Blade from site no. 4

Figure 9 – Flake core rejuvenated

Site no. 5 (Khinchan village)

Upper Paleolithic, Mesolithic and Early Historic Rang Mahal site is located 4 km southwest of the Nagaur highway near Khinchan village. The latitude and Longitude of this site are N 27°08' - 09.1' and E 072°24` -25.0'. The site is extended E-W 500m and N-S 500m site is situated on the highest point of dune approximately 9ft high. Surroundings environment of the site - eastern and western side rows of dunes, southern side private land and northern side Khinchan village. Microlithic tools are scattered on the surface of the middle of dunes and intense spread of microlithic tools are found. Archaeological findings – Microliths (Dibyopama; 2010)

Description of Microliths/tools recovered from the site is following

1. Retouched blade – Retouched on both lateral sides and the kind of retouch, denticulate. Material grey-brown chert – Upper Paleolithic, size modified from original (Fig.13).
2. Crystal scraper – Side end scraper, has utilization marks also (Fig.14).

3. Retouched blade – Material chert retouched from both lateral sides, type of retouches marginal retouch chert (Fig.14)

4. Flakes – Core trimming, flake with cortex-chert (Fig.14)

5. Core rejuvenation flake – chert (Fig.14)

6. Core rejuvenation flake – chert (Fig.14)

Figure 10 – General View of Site no. 5 (Khinchan Village)

Figure 11 - Microliths on the Surface of the archaeological site no.5

Figure 12 – Upper Paleolithic Blade from Site no.5

Figure 13 – Microliths from Site no.5

Site no. 33(Motoi)

Mesolithic and Early Historic Rang Mahal site is located 12km northeast of Phalodi near Motoi village. The latitude and Longitude of this area are N 27°18` - 20.2` and E 072°36` -22.6`. The site is extended E-W 200m and N-S 300m. Microliths like core and blades etc found scattered over the flat stable surface of a dune. The site is surrounded by dunes all around the site. Archaeological findings – Microlithic tools (Dibyopama; 2010).

Description of Microliths recovered from the site is following

1. Blade – No retouch only blade – left lateral side there is the cortex, edge or utilization mark observe on both lateral sides of the blade. Raw material - banded agate (Fig.17).

2. Blade – No retouch only blade – left lateral side there is the cortex, edge or utilization mark observe on both lateral sides of the blade. Raw material - banded agate (Fig.17).

3. Flake core rejuvenated (Fig.17).

4. Lunate/back blade – Backed on the right lateral side and some retouched observed on the ventral side of artifact, this particular tool is made after breaking a blade, raw material agate and chalcedony (Fig.17).

5. Chunk flake – Chert, quartz, crystal core rejuvenated flake (Fig.17).

6. Core with the scar of removing flakes (Fig.16)

Figure 14 – General View of Archaeological site Motoi of Jodhpur district Rajasthan

Figure 15 – Core with scar of removing blades from it on the surface of Motoi Site

Figure 16 – Microliths from Archeological site Motoi

Discussion and Conclusion

Two Upper Paleolithic sites and four Mesolithic sites with the evidence of microlithic tools are an important addition in the Archaeology of the Jodhpur district. Finding beautiful blades of more than 4cm length is an identical finding from both newly discovered Upper Paleolithic sites. With these two newly discovered Upper Paleolithic sites now there are four Upper Paleolithic sites in the Jodhpur district of Rajasthan and it is an important addition, because evidence of Upper Paleolithic sites, not only in Jodhpur district even in Rajasthan is very limited. Microlithic tools from Jodhpur are mostly non-geometric with few exceptions. Variety of Microlithic tools recovered from all four newly discovered Mesolithic sites of Jodhpur district are - broken blade, blade without retouch and retouched blade, lunate/backblade, cores with the marks of removing flakes. Also, different varieties of flakes were observed, flakes removed from core trimming, flake with cortex, core rejuvenation flake, utilized/edged or damaged flake, scraper with utilization marks also, chunk flake. Raw materials of Microlithic tools are from these newly discovered, Upper Paleolithic and Mesolithic sites are - banded agate, chert, quartz, crystal, chalcedony and quartzite. Locally available riverine based raw materials were mostly used for manufacturing the lithic tools of the site. The sites were occupied seasonally by the late Paleolithic prehistoric hunter-gatherer and evidenced with a thin layer of deposits. The landscape near the stable dunes, intermittent sloppy valley and blocked drainage was preferred by ancient inhabitants in this region. Detailed future studies on newly reported Upper Paleolithic and Mesolithic sites can add important information in the archaeology of the Jodhpur district and the overall archaeology of Rajasthan.

Acknowledgements

References

Allchin, B., Andrew Gouide and K.T.M. Hegde 1978.*The prehistory and paleography of the Great Indian Desert*. London. Academic Press.

Deotare, B.C., Kajale, M. D., Kshirsagar, A. A. and Rajaguru, S. N. (1998): Geoarchaeological and Palaeoenvironmental studies around Bap –Malar Palaya ,District Jodhpur ,Rajasthan ,*Current Science*, 75 (3) 316 -320

Dibyopama, Astha, 2010-2011, "Recent Exploration in Jodhpur district of Western Rajasthan, Preliminary observations" *Deccan College Research Bulletine*, Vol. 70-71,pp. 71-76

Indian Archaeology - 1958 –59 : A Review, Archaeological Survey of India, Government of India:1959

Indian Archaeology - 1976-77 : A Review, Archaeological Survey of India, Government of India:1977

Indian Archaeology: 1977 – 78. A Review, Archaeological Survey of India, Government of India:1978

James Blinkhorn, Hema Achyuthan, Peter Ditchfield and Michal Petraglia, 2017 " Paleoenvrionmental dynamics and Palaeolithic occupation at Katooati, Thar desert India" *Quaternary Research* 87, 298- 313, Cambridge University Press.

Misra V.N., 2007: *Rajasthan Prehistoric and Early Historic foundations,* Aryan Books International.

Mohapatra, G.C., SB Bhatia and GK Shahu. 1963. 'The Discovery of a Stone Age Site in the Indian Desert' Research Bulletin (N.S.) of Punjab University, 14 (3-4): 205-223.

List of Map and Illustrations

Map-1 Google Earth satellite images of showing the study area and location sites

Figure 1 - General View of Archaeological site Phalodi Industrial Area

Figure 2 – Core in situ on the surface of Archaeological site Phalodi Industrial Area

Figure 3 - Core in situ on the surface of Archaeological site Phalodi Industrial Area

Figure 4 - Chopper in situ on the surface of Archaeological site Phalodi Industrial Area

Figure 5 – Microliths from Site no.2

 Figure 6 – General view of Site no.4 Archaeological site (Khinchan Village)

Figure 7 – Blade on the surface of Archaeological site Khinchan Village

Figure 8 – Upper Paleolithic Blade from site no. 4

Figure 9 – Flake core rejuvenated

Figure 10 – General View of Site no. 5 (Khinchan Village)

Figure 11 - Microliths on the Surface of the archaeological site no.5

Figure 12 – Upper Paleolithic Blade from Site no.5

Figure 13 – Microliths from Site no.5

Figure 14 – General View of Archaeological site Motoi of Jodhpur district Rajasthan

Figure 15 – Core with scar of removing blades from it on the surface of Motoi Site

Figure 16 – Microliths from Archeological site Motoi

Promoting Peace Through Tourism

Erangi Wijayawickrama

Department of Philosophy, Faculty of Social Sciences, University of Kelaniya

erangiwijayawickrama@gmail.com

Abstract

This paper discusses the relationship between peace and tourism and the way how tourism leads to peace. Tourism doesn't have a direct link with peace. But in several ways, tourism open paths to way for peace. Tourism should be designed and conducted properly to proceed and to maintain peace in society. Tourism in itself is a complex phenomenon. There are many benefits of the tourism industry. Of them implementing peace can be identified as one benefit. Peace means the absence of violence. In society, we can identify the structural violence which happens due to a lack of economic, social, political imbalance in many ways. The main reason for the structural violence is poverty. By implementing the tourism industry in society, it can be used to eliminate poverty by increasing economic development. Then indirectly Tourism has made the path for peace. Tourism is an extremely complex phenomenon through which identities and worldviews are continuously being represented, consumed, reconfirmed, negotiated and modified. This article describes separately peace, tourism and the relationship between tourism and peace. Tourism means a trip or a visit to an unknown place or a new place from the home place. By that tourists will meet different cultural people, and will understand the diversity of cultures as well as will learn the importance of respecting the diversity. This phenomenon also helps to share love and harmony with culturally different people. It will be an initiating point to begin peace in the world.

Keywords *- Peace, Tourism, Structural violence, Economic Development*

Introduction

There is a complex relationship between tourism and peace. Rather than trying to defend an over-simplified concept of 'tourism as an agent for peace' or simply 'tourism as an agent for dispute, inequality, and exploitation of the poor' we should first try and understand before making any judgment. It is not that tourism is 'an agent for peace' but instead are pleading for 'peace-sensitive tourism', a less ambitious expression than the 'peace-through-tourism' idea. The International Institute for Peace through Tourism (IIPT) was founded in 1986, dedicated to 'fostering tourism initiatives which contribute to international understanding and cooperation.' The IIPT has sponsored several conferences and seminars, addressed and attended by representatives from the tourism industry, governments, and environmental and human rights organizations. These have resulted in a range of initiatives concerned with codes of ethics, sustainable tourism and alleviation of poverty.

" Travel has become one of the great forces for peace and understanding in our time. As people move throughout the world and learn to know each other, to understand each other's customs and to appreciate the qualities of individuals of each nation, we are building a level of international understanding which can sharply improve the atmosphere for world peace."

John F. Kennedy

Almost all the people seem to agree that "peace is an essential precondition for travel and tourism and all aspects of human growth and development." (Amman Declaration on Peace through Tourism). This article aims to analyze the relationship between peace and tourism and to describe how tourism can lead to peace. The current situation of tourism shows that it is important for all the actors of tourism to promote tourism sustainably not only for the principled aim of love for humanity of human beings and nature but also for their pleasure and sustainable development. If each actor plays its role, tourism can gradually lead to peace. This article examines

separately how can tourism lead to sustainable peace in society, with examine several current examples.

Objectives of The Study

The main objective of this research was to determine, how tourism can be used as a tool to promote peace. And the sub-objectives of the research were to identify the relationship between tourism and peace and also to identify how tourism can be used to eliminate structural violence from the society.

Methodology

Qualitative data were used to conduct this research and was collected from books, magazines, previous researches and computer sources. Mainly the conceptual analysis was conducted within this research to define and analyze the collected data.

Discussion

This study discusses the main areas according to the objective of the study as mentioned below.

- Defining Peace
- Defining Tourism
- How Peace interconnected with Tourism
- Effect of Tourism in eliminating structural violence

Defining Peace

Peace is a process; a many-sided, never-ending struggle against violence. Both those who accept the need for coercive force, including violence and those who take a non-violent stance, and the many others with views in between, would say that they want peace. Many people understand peace to be absence of war. The absence of war is often described as negative peace and is contrasted with positive peace, which encompasses all aspects of a good society.

Peace is often considered as an opposite word of war as symbolized by the famous Russian novel *War and Peace* written by Leo Tolstoy. Kenneth Boulding defined stable peace as "a situation in which the probability of war is so small that it does not enter into the calculations of any of the people involved (Boulding 1978). Nations are making every effort to keep the peace by defending their society from the threat of war, violence and terrorism through the building of armaments and armies. In this context, peace is defined negatively as the "absence of war."

The pursuit of peace, therefore, is not directed merely to the elimination of war. To continue the analogy with health, if these are regarded as contributors to violence (illness), then tourism offers a range of therapies through which they may be treated. However, this narrow characterization, which does not consider the fundamental causes of conflicts or sustainability of peace globally, is not a sufficient condition for peace. Although implicitly assumed in the often-used metaphor of 'building' peace, peace does not necessarily have to be something humankind might achieve someday.

Defining Tourism

Tourism is nowadays viewed as a vibrant, dynamic industry. Tourism is the practice of travelling for pleasure; and the business of providing tours and services for tourists. Tourism is believed by many people to be "a service industry that takes care of visitors when they are away from home" (Lowry,1994). Tourism is a social phenomenon. Economic elements are the lubricant of better socio-cultural interactions and human-nature relations, and political elements come under the influence of the changes of socio-cultural situation. Therefore, tourism should be examined in this context. The purposes of tourists are business, study, pleasure, leisure or visiting families and relatives. They move voluntarily from one place to another. There are interactions between tourists, business suppliers, host governments and host communities and/or contacts between humans and Mother Nature. Although the nature of tourism might vary from person to person, the common denominator is that all of them seek something new, exotic, and different from what they see in their daily lives.

Tourism has both negative and positive impacts on the globalized world. Of them, tourisms have lots of positive impacts. Tourism has the potential to promote cultural exchange as a means of breaking down the barriers between peoples of different nations. It also gives tourists good opportunities to develop environmental awareness and makes them think about what to do to ensure the sustainable prosperity of the Earth.

There are four main positive economic impacts of tourism. First, tourism increases foreign exchange earnings and contributes to government revenues. Second, host residents are benefited from the facilities and services developed for tourism. Third, tourism leads to significant employment creation. Fourth, tourism facilitates the process of poverty alleviation and income distribution between countries, thereby contributing to a more balanced development of the world economies. Also, tourism can revaluate and preserve local culture and traditions. More and more people are becoming familiar with the local culture and know the advantages and problems of that culture. Tourism can be a driving force for giving locals a motivation for boosting the development and maintaining their pride. Important benefit of tourism is can be a means of reducing tension and promoting harmonious relations. It brings people into contact with each other and provides cultural exchange between hosts and guests.

How Peace Interconnected with Tourism

According to the definitions of tourism and peace, it can be identified that tourism works for suspension of war, elimination of structural violence and action for the improvement of global issues. Tourism has its role to operate as a helping hand to enforce the track one diplomacy. It is sometimes utilized as a method of reducing political tension, achieving reconciliation in divided societies, preventing moving back into a state of war. And in another case, tourism promotes mutual understanding, business opportunities and people-to-people contact between the peoples of conflicting countries, which create an opening for the initiation of negotiations toward peaceful relationships. "Tourism operates at the most basic level of track two diplomacies by spreading information about the personalities, beliefs, aspirations,

perspective, culture and politics of the citizens of one county to the citizens of another (Amore, 1988). The contact model of social psychology, which supposes that "contact among individuals from diverse groups enhances understanding and acceptance among the interacting parties and therefore reduce intergroup prejudice (Pizam, Fleischer, Mansfeld 2002). The sharing of common goals, voluntary and intimate contact and the absence of negative personality structures are integral in the development of positive attitudes for tourists. It must be stressed that this positive attitude change is amongst tourists and has not been evaluated for the other parties involved in the contact situation; the host community. Poorly developed tourism has a distinct ability to deliver positive outcomes to tourists at the expense of the host community. Attitude change is an important factor but it cannot be taken in isolation if tourism is to be regarded as a genuine force for peace. It must work in conjunction with other strategies to alleviate the recognized negative impacts associated with tourism. Tourism might generate all the goodwill in the world but it will be of little value in developing peace if poverty, pollution and social domination remain rampant. When understanding how positive attitude change occurs is integral in developing experiences that assist tourism to become a force for peace.

Tourism, like peace, can be broken easily. There are many examples of how a political crisis, security threats, financial collapse, natural disaster or military conflict can seriously damage and even destroy tourism in a particular region, country or destination. Peace, as we all know, is equally weak, depending as it does on human relations. Prejudice, misconception and intolerance are root causes of the destruction of peace. That is why tourism is an associate of peace. Tourism establishes contact between visitor and host, between different cultures, between peoples and places. How can anyone feel enmity for someone who has received him and made him feel safe and welcome? To travel, cross borders, visit new places and encounter different cultures, is a learning process that leaves the visitor wiser and more tolerant. By breaking down the divisions between people, tourism contributes to a better understanding between the peoples of the world. It opens the eyes of people so that we can see one another as we are equal human beings, each person with his or her own unique culture, values, history, traditions and customs.

Tourism in various forms can play a role through its ability to bring people together. Tourism does have a role in conflict resolution, confidence building and reconciliation, but not in an isolated way. It is too heavily shaped by other cultural or political dimensions in any given society. Thus, peace politics and culture also have an impact on the way tourism is conceived and practised.

Effect of Tourism in Eliminating Structural Violence

Structural violence is the result of the widespread social, political, and economic inequality that exists within a local area as well as in the global space of international relations. Structural violence includes the systems of economic exploitation, political repression and cultural alienation, which deny some people the necessities of life, basic human rights, representation, security, freedom of expression. Poverty is the most typical and explicit form of economic and political structural violence. Understanding sources and patterns of poverty is a significant key to eliminating structural violence. In most cases especially in less developed countries, foreign and private sector interests seize the initiative with tourism development.

Tourism is one of the few sectors in which governments have a strong role in planning, licensing, regulation and marketing, providing an invaluable entry point to influencing the sector at the national level. A community involved in the planning and implementation of tourism has a more positive attitude, is more supportive and has a better chance to make a profit from tourism. One of the core elements of eliminating structural violence is community development, which enables locals to make decisions that consider the long-term economy, ecology and equity of all communities.

Tourism initiate economic development. Poverty can be eliminated through economic development. Therefore, as it doesn't seem a direct link between peace and tourism, it is clear that an increasing economy will affect reducing poverty. As structural violence is highly based on economic conflicts and issues, the Tourism industry can be used as the best tool in increasing the country's economic status.

Kelly, in his 'Peace through Tourism Implementation Guide' names potential areas of action. He lists four broad and overlapping areas in which he hopes that their implementation might have the required effect. He outlines (Kelly 2012)

• "Intergroup contact

• Ethical concerns (respect for the environment and human rights)

• Positive impact of tourism on negative elements of globalization (poverty eradication)

• Awareness raising among suppliers and consumers by codes of conduct, peace parks and tourism education."

There are some other linkages between tourism, as a cultural and social activity supported by a multi-layered industry, and peace, as a process that aims to reduce human violence targeted at other humans and nature through peaceful means (Galtung 2011). Base these linkages on dimensions that stem from the tourism impact but are also an integral part of peace processes. Thus, we distinguish educational, economic, and environmental dimensions as well as the dimension of conflict resolution and reconciliation issues.

Conclusion

Tourism is not a generator of peace, but a beneficiary of it. Therefore, the development of responsible tourism is necessary for this and has a chance of success only because it creates hope through discussions for the people who live in these difficult situations. Potential motives for responsible tourists visiting these regions of conflict could be 'interest in the country', 'support and solidarity', 'a desire to understand the real cause of the conflict' generating new ideas and participating in projects that benefit the country in terms of education, health and empowerment of the youth.

This article has attempted to contribute to the debate on the role of tourism as a force for peace and the creation of hope and international understanding by investigating the role that tourism, and in particular, tourism plays in fostering relations between

divided nations. The mere presence of responsible tourists already contributes to this much-needed principle of hope.

The aim of 'peace through tourism' is to reduce, if not eliminate, the conditions which lead to a perception that violence is necessary. It stems from a belief that the circumstances in which resorting to violence appears to be appropriate can be ameliorated or avoided, and that tourism is one channel for bringing this about. It is also argued in this book that peace through tourism is more likely to be achieved if it is pursued by both governments and individuals. The goal of Peace through Tourism is to move tourism from practices marked by insensitivity, inequity and short-term maximization to a broader view that recognizes long-term obligations to travellers, destination and wider communities, and succeeding generations. At the very least, providers and consumers of travel experiences could adopt the principle, 'Do no harm.'

However, stakeholders in these destinations should be involved in a dialogue in which spaces are created, where responsible tourists in agreement with various stakeholders involved can generate new ideas and projects that are needed for the further creation of hope and peace-building.

References

Ap, J. & Var, T. (1998). Tourism and world peace. In W. F. Theobald (Ed.), *Global tourism,* Boston, USA: Butterworth-Heinemann

Barash, P.(ed.), Approaches to Peace: A Reader in Peace Studies (Oxford, Oxford University Press, 2000)

Boulding, K. (1978), Stable Peace (Austin: University of Texas Press, 1978)

Brown F (1989) Is tourism really a peacemaker? TourismManagement 10(4)

D'Amore, L.(1988b), 'Tourism – The World's Peace Industry', Journal of Travel Research, Vol.27, No.1

Etter, D. (2007). Situational conditions of attitude change within tourism settings: understanding the mechanics of peace through tourism.

Galtung, Johan. 2011. „Konfliktformationen in der Welt von Morgen. "In State-of-Peace Konferenz. Ein Rückblick auf 25 Jahre Friedens- und Konfliktforschung, edited by Bert, Preiss, and Ronald Tuschl, Wien/Berlin: LIT Verlag.

Kelly, Ian. 2012. "Peace Through Tourism. An Implementation Guide."The Journal of Tourism and Peace Research

Khamouna, M. and Zeiger, J.B., 'Peace through Tourism', *Parks and Recreation* (September, 1995), pp.80-86.

Litvin SW (1998) Tourism: the world's peace industry? Journal of Travel Research 37(1)

Pedersen, S. B. (2020). A passport to peace? Modern tourism and internationalist idealism. European Review, 1-14. Pizam, A., Fleischer, A. and Mansfeld, Y. (2002), 'Tourism and Social Change: The case of Israeli Ecotourists Visiting Jordan', Journal of Travel Research, Vol.41

Salazar, N. B. (2006). Building a'Culture of Peace'through Tourism: Reflexive and analytical notes and queries. universitas humanística, (62), 319-336.

Glass Bead Making Technology in Ancient Sri Lanka

1 Buddikasiri P.R.A

2 Madhumali A.K.R

1Graduate Apprentice in Department of Archaeology

2Graduate Apprentice in Department of National Museum

asanka.buddikasiri8@gmail.com

Abstract

Bead making and trading of beads are some of the oldest industries in the world. Beads are small, colourful, symmetrical, and often quite beautiful. They are frequently standardized, inexpensive units that can be arranged in almost endless configurations. They can be seen not only in familiar forms of necklaces and bracelets but also on anklets, headbands, and headdresses. Beads are small, but important finds from Archaeological investigations. Especially, the discovery of beads creates enormous interest among the excavator, researchers and laymen. It provides excellent information to the understanding of various aspects of the human past. While a couple of studies surmise of bead production no study has been confined to study the bead making industry in Ancient Sri Lanka. Therefore, the purpose of this study is to examine if there was a glass bead making technology in Ancient Sri Lanka. It is hoped to study the glass bead making technology of the past based on the archaeological data uncovered through archaeological research conducted in Sri Lanka. This study focuses on the traditional analysis method. Mantai, Kantarodai, Tissamaharama,Kirinda, Abhayagiriya, Ridiyagama Giribawa and Ridiyagama is one of the leading areas in the study of glass beads design technology in Sri Lanka

Keywords: Beads making, Drawn, Glass Beads, Technology, Wound

Introduction

Beads are small, colourful, symmetrical, and often quite beautiful. They are frequently standardized, inexpensive units that can be arranged in almost endless configurations. They can be seen not only in familiar forms of necklaces and bracelets but also on anklets, headbands, and headdresses. Beadwork is used in West Africa on altar mantles, garments for royal status, and coverings for kingly stools. In ancient Asia, beads were scattered like seeds beneath temples to induce bountiful harvests, and among the Kogi of Colombia, beads are part of ritual offerings to ensure the future of newly built houses (Jennifer, 2012, p5). In the Philippines, the practice of placing two beads in a cup at wedding ceremonies still binds marriages (Francis, 1990, p97-107).

Sri Lankan context, there is a dearth of historical accounts on ancient bead production, the origin of sources of raw materials, and the communities involved in the industry. Despite the lack of historical sources on beads thousands of beads are attested from excavations and explorations in Sri Lanka. A probe into literature revealed that previous research on beads found in Sri Lanka is very scarce. Sources of raw materials used to produce this array of beads have not been identified so far. While few studies have taken place on beads aimed at providing typological aspects, some describe trade links discovered by beads. A Handful of studies whilst investigating the beads found in the particular excavations suggest local bead production in Ancient Sri Lanka. For example, based on waste materials found in Gedige excavation Deraniygala (1972) implies there would have been local bead making in Ancient Sri Lanka. Coningham (2006) providing more concrete evidence based on Anuradhapura Salgahawatta British Sri Lankan Excavations hypothesized about bead-making at the site. Although not much attention is paid to Ancient Ruhuna until recent past an archaeological perspective, thousands of beads attested from the sites such as Ridiyagama, Akurugoda and Godawaya etc. indicate that beads have played a significant role in many aspects of the life of the community of Ancient Ruhuna. Therefore, more recent efforts can be seen in discussing the evidence on bead making in Ancient Ruhuna by scholars such as Bopearachchi (1995), Hannibal-Deraniyagala

(2001), and Somadeva (2006). The Tissamaharama Archaeological Research Area is one of the major trading centres in the Southern Province of Sri Lanka and a prominent place for a major beads manufacturing centre.

Materials & Methodology

Glass beads can be pointed out as the main materials of this research paper. In particular, the study will be conducted using bead samples found in recent research in the country. There is a traditional analysis presented through the study of morphology. The analysis was done on many factors like colour, shape, production technology, raw material etc. The traditional analysis focuses on the physical properties of beads. In particular, it is an important milestone in the study of samples of beads found in my research, and in the techniques used to produce the beads.

Glass Beads in Sri Lanka

Beads are small artefacts with a hole at their centre, made for stringing. They are of different shapes, sizes and materials, made of any materials that are solid and durable (Francis, 1982, p713-14.). Beads are very often overlooked due to their small nature. However, the importance of the beads is not laid with the size, colour or material made of but the people involved in them. Studies show that beads have contributed to many aspects of human life and shed light on the different roles of ancient human behaviour. There are several main types of beads found in Sri Lanka. Imported and manufactured beads will be very important. Glass beads and stone beads are the most popular beads found in Sri Lanka.

Glass Bead Production Francis (1991) suggests the production of small monochrome drawn beads (Indo-pacific beads) in Māntai upon the basis of a variety of wasters discovered in the site. According to Francis (1991) beads with longitudinal lines on the surface and round orange flat disc beads were made in Māntai. Considering the size of the hole of the latter, Francis assumes that these beads have been made by slicing a wide glass cane and perforation was made either by chipping or pecking (Francis, 2002, p10-5.). However, these beads are ubiquitous in all Sri Lankan sites and attested in great quantities, hence chemical composition analysis is required to

determine the producers of these beads. In terms of glass bead production, no site has recorded an ample number of glass wasters in Ancient Ruhuna. The possibility of glass production is evident only in Giribawa so far. Glass beads discovered in Ancient Ruhuna, reveal three techniques followed to produce monochrome and polychrome glass beads. They are namely: Drawn wound and multi-technique. Drawn Beads Small drawn beads were known as Trade wind beads in the 1960s and later on they are known as Indo-Pacific Monochrome drawn glass beads or more popularly as Indo-pacific beads. Drawn beads are made in three major steps: glassmaking, tube making and the making of beads from the tubes (Francis, 1990, p1-23). Accordingly, the technique involves pulling a glass rod out of a gather of hot glass and cutting the rods into small segments.

More than 70% and 80% of the glass beads from Akurugoda and Ridiyagama constitute drawn beads of many colours. Upon the finding of 339 unrounded beads in Akurugoda, Hannibal-Deraniyagala, suggests re-heating segmented beads in clay pots. This is an indication of glass working on the site. Because, once the beads are segmented into the desired size, they are re-heated to round up the sharp edges. However, due to the absence of evidence, glassmaking in Akurugodaa was denied, Discovery of unrounded beads indicate the working of glass carried out in the site itself while glassmaking would have taken place in a remote area. It cannot be expected to discover evidence of glassmaking in major urban areas, as glassmakers dwell in remote places located distantly from settlements, to get access to resources required for making glass. However, the occurrence of coloured glass ingots, bangle like pieces that are from failed initial draws, and pieces of perforated and un-perforated tubes discovered in Ridiyagama cannot be disregarded. In addition, two small glass ingots were reported from Polibindivala and Kirinda port.

Fig.1.Glass ingots - Ridiyagama
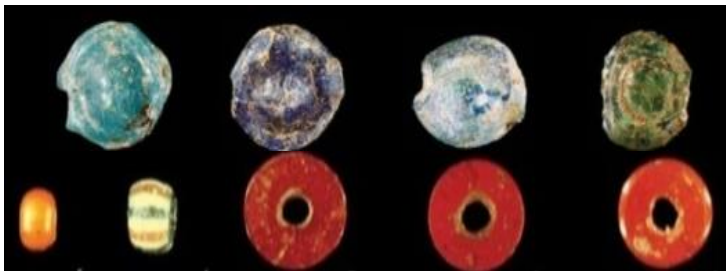
Fig.2.Glass Beads in Thissamaharama

Fig.3. Indo-Pacific Beads in Māntai

Glass Beads Technology

Silica (Si) in the form of quartz sand (SiO_2) is the most common metalloid used in glass. Glass is amorphous, without a crystalline structure (Francis. P; 1988:1989; p.1-21). Because the melting point of pure silica was too high for ancient furnaces to achieve, a flux, generally an alkali (usually soda [Na_2O] or potash [K_2O]) was (and still is) added to lower the melting point. Lime (CaO) or some other stabilizer must also be added. The ancients may not have known this; the lime was nearly always present as an impurity in the sand (Turner, 1956, p10-21). These ingredients are heated for several days, forming a dark, hard substance called "frit." Glassmakers break this up, add some scrap glass (cullet) and perhaps colourants, and then heat the mixture again. As if by magic, it melts and flows, and molten glass results. When glass is first made, it is translucent green because of the universal impurity of iron in both ferric and ferrous states. This colour is called "bottle green," because cheap bottles are made from this untreated glass. Many substances, chiefly metallic oxides, are added to impart various properties to glass. The most common additives are colourants. With only iron or copper and the proper handling of the furnace (blowing air into it, muffling it, or leaving it open) nearly every colour may be archived. Special colourants, notably cobalt (Co) and manganese (Mn), have been used since antiquity. Even tiny amounts of cobalt yield a pleasing dark blue. Manganese in small quantity produces pink, which cancels out "bottle green "and clarifies the glass, earning it the name "glassmaker's soap." Larger amounts produce violet. Antimony, tin, and arsenic were employed as opacifiers. Black glass is usually deep green or violet, made with large amounts of iron or manganese; an organic black glass also exists. Many colourants have been experimented with in recent centuries as the science of chemistry has developed (Weyl, 1959, p10-25). The most important other additives to glass are lead. Lead is a glass former, and glass with 90% lead has been recorded. Lead makes the glass softer, easier to melt and cut, and more brilliant, especially when used with potash. Lead also aids in dissolving other metals added to colour the glass.

Glass bead production needs to be studied with the other cultural material associated with it. The process of bead making involves division of labour and specialization on the various stages of manufacture; for a single artisan is not expected to work through all the stages of bead making, such as the procuring of the material, it is shaping, cutting, polishing, stringing and other stages in bead making. Thus, there is a need to understand and identify the stages of manufacture and its debitage at each stage of production. Accordingly, the above methods will be very important when studying the glass beads technology found in the Archaeology site in Sri Lanka.

Fig.4. A furnace wound bead is being built up –
North India

Wound Technique

Glass is a "super-cooled liquid". The major ingredient in most glasses is silica, which needs a very high temperature to melt. It cools and hardens very fast. This leaves a very short period for the craftsmen to shape it. However, since ancient times, artists have found ways to exercise their creative will in designing/ shaping glass into beads. The furnace wound and moulding technique are regarded as the oldest, simplest and most common method of bead making (Francis, 1992; p15). The general features of the wound methods are seen in the twisted-rope like structure, transversely elongated air bubble, almost horizontal lines and sometimes the presence of more than one colour in the bead (Basa, 1993, p93-100).

Fig.5. Interiors of lamp wound beads – North India

Fig.6. Interiors of lamp wound beads – Mantai

A piece of melted glass is twisted around a metal rod to make wound beads. When the iron rod is cooled beads are removed. Wound beads are characterized by the appearance of different sizes of holes on each side. Glass is heated in a crucible in the furnace. An iron rod (mandrel) is dipped into the glass, and while being taken out, with a dexterous twist, the glass bead is built up. While still hot, it may be shaped with paddles and other tools or other glass may be added for decoration. Ethnographically, we find that beads are produced using this technique in many parts of the world. These are China (various places), Middle East (Hebron, Greece, Bida), Turkey, Egypt (Cairo), Uzbekistan, Afghanistan, India (Purdalpur), Pakistan (Hyderabad) and Nigeria (Francis, 1992, p15). In particular, this method has been used in the production of beads technology in Māntai Port, Sri Lanka.

Distinguishing the beads produced by these two techniques is not easy, as far as ancient material is concerned. However, the internal features in wound beads can provide important clues. A black film of iron oxide from the mandrel is often left behind when a bead is furnace-wound. A powdery deposit may be left when a bead is lamp-wound because the operation requires a separator on the wire to remove the finished bead. As per the difference between drawn and wound beads, in general, is concerned, the air-bubbles present in both is distinct and Sleen mentioned that when

the bubbles are elongated or lying in lines parallel to the perforation, the beads must have been drawn; and when they were elongated perpendicularly to the perforation they must have been wound beads.

The beads are made with ductile glass wound upon a mandrel. The wound material is given shape by rolling it forwards and backwards on a smooth metallic surface (usually a piece of old well-worn railway girder) with the mandrel as an axis. The mandrel is a piece of round steel about a meter long with a conical end.

Fig.7. Shaping the wounds–North India

The former is an oblong piece of iron plate that is used to forge the bead into its final shape. The bead is shaped with frequent use of a form-iron and/or by rolling in a single or multi-channelled through. While still hot, it may be designed variously with paddles, form-irons and other tools. A wound bead can be re-inserted in the furnace when it is still hot and stripped or coated with another coloured glass with the help of a second mandrel. Two colours can be maintained in one crucible as glass in these crucibles is not allowed to become liquid. To make beads of some special pattern, shape or edged form, various open moulds or double spring moulds are used. Several such wound beads are built on a single mandrel (Alok, 2004, p123-50).

Fig.8. Use of form-iron – North India

Fig.9. some tools used by the bead makers

When the bead is finished, the mandrel is stroked hard with an iron tool called the mala so that the hole gets a little bigger and the bead is knocked off during the brief period when the iron cools and contracts faster than the glass and the hole is left when the mandrel is removed. The perforation circumference of the resultant bead will vary according to the tapering end of the mandrel. The bead is allowed to slide down into a small clay pot placed immediately below the working port which functions as an annealing pot. When the pot is full, it is covered with hot ash from the furnace and placed in sunlight and allowed to cool slowly. This is necessary to prevent stresses and cracks from appearing in the bead (Alok, 2004, p123-50).

Fig.10. Sliding down of beads into   annealing pot – North India

Fig.11. Bead full pots covered with burnt ash – North India

Fig.12. Cracked beads lying scattered as debitage next to furnace – North India

Even when the bead or bangle is to be embellished with multi-coloured glass and other design material like gold and silver foil or different coloured glass powder, it is generally not re-melted unless a mixture is what it desired. This leads to the accumulation of such debitage in much more quantity and has the potential of altering the statistics of debitage of all varieties of bead production. No form of slip is used in making such wound glass beads. This is visible as a black layer of iron oxide on the inside of the hole in the beads. On an average 50gm in 1 kg of beads comes out as debitage at the furnace. Thus, it is evident that this wound method is widely used in the analysis of Māntai beads. In particular, 22% of the total Māntai assemble beads

are manufactured using this wound method. Specifically, the wound Beads technology has produced an abundance of Māntai and Thissamaharama with extensive examples of this technology.
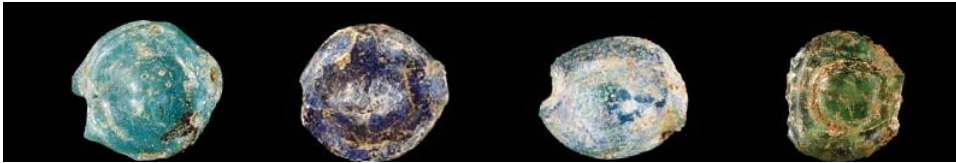
Fig.13. Wound bead – Thissamaharama

Fig.14. Wound bead – Mantai

Drawn Technique

The technique of drawing long tubes from a hot gather of glass was an important advance in the history of glass technology. Evidence of drawn glass tubes are lines parallel to the perforation (external striations) and elongated air bubbles in the same axis. Moreover, when the maximum diameters of many beads are similar and quite small, it is quite possible that the beads are manufactured by the drawn method.

In this method, glass beads are made from tubes of glass that have been pulled or drawn and subsequently cut into smaller segments. The earliest glass tubes are

reported from the royal palace in Amarna, Egypt dated to about the 14th century B.C. Glass tubes could be made in different ways and for different purposes such as beads, bottle-necks and decorations. The simplest drawing technique is used in many glass industries in Firozabad (Alok, 2004, p123-50). In particular, this technology can be found in Māntai, Thissamaharama and Anuradhapura.

- Simple Drawing

In this process, the one guy puts one end of a pipe into the molten-glass pot in the furnace and winds a small quantity of glass on the end of the pipe. By blowing into the other end of the pipe a small amount of air, he converts the glass blob to a bubble on the pipe. Then the pipe is kept on an iron/wooden stand and an apprentice keeps on rolling it slowly, blowing into the pipe at intervals. Once the glass gets a little cool, then he again takes it into the furnace to wind additional glass onto this bubble. Taking it out of the furnace, he blows it once more and twirls it again on a wooden stand for about 5 minutes and then twirls it inside a basin which holds just enough water to submerge the glass bubble partially.

Fig.15. Maintaining the bulb - North India
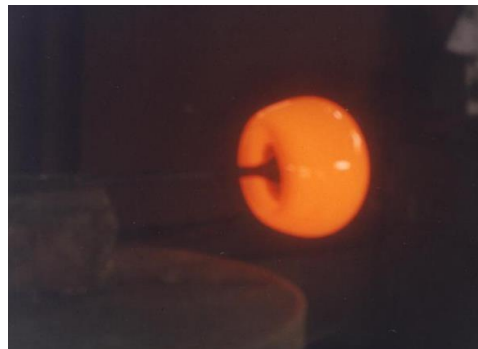
Fig.16. Rolling the hollow mass of glass on wooden stand –

Fig.17. Cooling of the glass mass inside a water basin –

After about 5 minutes of this treatment, then he takes the pipe with the still malleable glass on it and shapes it by rolling on a stone platform. He then starts blowing it again and with the help of another person he attaches a second pipe to the mounted glass. They both then give a twist and start pulling apart the two pipes even as he continues to blow. This combination of blowing and pulling apart the glass results in a pipe the thickness of which is dependent on the coordinated manner of blowing and pulling apart by the two artisans involved. The floor of the working area is usually covered with a layer of straw to prevent any impurities and collapsing of glass. Once the glass pipes have been drawn, they are cut into the required size to be transported (Alok, 2004, p123-50).

Fig.18 Cooling of the glass mass inside a water basin – North India

Fig.19. Continuous blowing by the gaffer – North India

Fig.20. Pulling of the glass tube apart – North India

Fig.21. Characteristic curved glass bits

Fig.22 glass beads manufacturing fragments evidence in 1980-84 excavation

Then they can be cut again as per the end-users requirement. Its debitage is unique to the process. The ends of the drawn glass pipe result in thick, characteristically curved glass bits which are broken off and subsequently recycled. When pipes are removed from the rod in the end, the hardened glass residues comes out with an iron oxide impression on them. However, as far as beads are concerned they are produced in large quantity at Papanaidupet and with altogether different technology. They are commonly known as Indo-Pacific beads. According to investigations, this method has been used for the manufacture of Māntai beads as well.

This moulded method has also been found in the study of Tissamaharama, Ridiyagama, Māntai and Anuradhapura related beads. However, there are plenty of factors in India when it comes to the technology of these beads. Wound beads can be pressed or spun in a half-mould to give them a special shape, but true moulding of beads was a development of the Bohemians (or Czechs) in northern Czechoslovakia (Francis, 1990, p1–23). The original moulds were hand-held tong affairs into which a bit of hot glass from a cane was placed. In ancient Indian moulded glass beads, usually a very thin rim is seen. This is caused by two reasons. On joining the mould, the flow of excess glass creates a thin circumference around the piece or the rim which is caused by differences created by differential cooling of the glass in the upper and

lower faces of the mould. After winding the glass and when it is still hot on the rod, the press tongue mould is used for giving various shapes and for designing figures. A moulded bead was created by flowing molten glass into a mould, which often had channels for the insertion of a combustible core. These cores burned away, forming a perforation in the bead. With a technique called "dry moulding", the moulds were filled with lumps of cold glass which, upon extended heating, melted and conformed to the mould.

Also, the use of a furnace is another important aspect in the study of these beads technology. In particular, the use of these furnaces can be cited as a major factor in the production of beads. However, although the physiological evidence of the stove technique used in the manufacture of beads is not definitively known, some evidence has been found. However, there are still factors in India when it comes to the use of furnaces used in the manufacture of beads. Accordingly, the use of the furnace used in the manufacture of beads is an important milestone. There are many factors in India when it comes to this furnace technology.

For example, At Purdalpur, one sees a profusion of furnaces right from the entrance to the village. In contrast to the general opinion that glasswork areas are placed on the outskirts of habitation areas as they generate enormous heat, at Purdalpur, they are occasionally located inside the habitation area. However, in most cases, they are a little away from the habitation area. At present there exist about two hundred furnaces at which the beadmakers produce various forms of glass beads, bangles and many other small objects like Mahadev (Shiv-linga). All the Beadmakers are males and the great majority of them are Muslims. There are normally fourteen to twenty beadmakers working in each of the glassworks. Each furnace house has one furnace inside and a small clay and brick locker in one corner for safekeeping of tools and glass cakes (Alok, 2004, p123-50).

Almost all the furnaces have a thatched roof, which is very high in the centre and has low margins at the two sides supported on six to eight brick/ wooden pillars. The bigger tools like drawing iron, arm-ring cone, mandrel, grabbing iron, stirring iron,

glass maker's pipe, etc. are left inside this open house after the day's work without any fear of theft. At the furnace, each glass worker has his place of work, where he sits on the ground or a sack while he works. Many of the workers have achieved mastery over a variety of differently designed beads while a few specialize only in making particular types of beads, bracelets and bangles.

The bead makers construct their furnaces. This job is led by one of the experienced beadmakers and takes about a week. However, certain young professionals in the village have mastered the art of furnace makes. Many rectangular, sun-dried clay plates are placed standing upright around the pit that is to serve as the base of the fire chamber. These plates separate the individual workstations. The number of plates shows how many beadmakers can work around the finished furnace. The circumference of the furnace is bounded by a line of clay bricks at ground level. A clay dome is made either by directly building over the clay plates, or separately built in an inverted stone/ cement basin (in which the animals are fed), and placed laterally over the standing clay plates. In any case, the top is left open and is covered with a clay plate only when the furnace is in use. This opening facilitates a regular change of crucibles (Alok, 2004, p123-50). The furnace is built of coarsely tempered clay mixed with chopped straw. This practice of adding finely chopped straw to strengthen the "poor", "lean" or sandy clay has been an ancient technique (Singh, 1989, p187.). When the furnace is fired, the straw burns off, leaving a highly porous clay furnace that can cope with the great range of temperatures between the day's high working temperature and the night's cooling off. Outside every furnace house, clay is stored in a pit and every day one of the workers tramples on it while pouring water. Four Y-shaped wooden poles are placed close to the furnace in a square layout to dry the wood over it for the next day's fuel.

The furnace is made in such a way that the various types and forms of beads, bangles and other minor objects can be made at each workstation. The opening from which the glass is picked up is called the window, and just inside it, there is a small open crucible for the glass, measuring about 25 by 40 cm and made of clay mixed with chopped straw. The windows are uniquely designed for various products like beads,

bangles and other objects. It is also necessary to change the crucibles continually because a crucible will normally be burnt out after about two weeks. When crucibles are replaced or the structure is repaired, the outside of the old furnace is built on with new, straw-tempered clay. The logical construction of the furnace is derived from the experience of generations, transmitted from father to son over hundreds of years. With this type of furnace, one can produce temperatures that are high enough for the making of glass beads and armourings with the least possible consumption of fuel. In normal circumstances the furnace can be used for about half a year, depending entirely on how carefully it was built and maintained. Thus one sees continuous reconstruction of furnaces in the village and they are generally made at the same place after demolishing the earlier ones (Alok, 2004, p123-50). These results in an abundance of fired clay fragments with glass spilling, clay pots, clay plates, arm-rings, broken crucibles with a glass layer and bricks and other debitage littered around the glass-works.

One can see the piling-up of such debitage around after hundreds of years of breaking and making anew of furnaces. Once fired and broken, clay cannot be reused for furnace activities. When work is going on in the furnace, it is fired exclusively with dry deciduous brushwood. These quick-burning branches produce a lot of flames and thus higher temperatures, while the production of large quantities of charcoal is avoided. Dried branches are preferred to real logs because with these one can better control the firing of the furnace.

Work in the glassworks begins early in the morning at around 4 o'clock, with the stroker lightning the furnace with logs of wood and cow-dung cakes. It takes about an hour and a half for the furnace to reach the right temperature for the day's work to begin. An iron pipe is used to blow the air into the fire. The crucibles are filled with broken glass either broken from new cakes or collected. It takes about half an hour for the glass to melt sufficiently for beads and armoring's to be made. Very often new cold glass is added at the back of the crucible while work is going on from the front. When this has melted, the beadmaker mixes them well and pulls them to the front of the crucible with a stirring iron (Alok, 2004, p123-50). There is no age restriction for

the beadmakers; they are of a mixed age group ranging from seven years to any age upwards. Generally one of them keeps on singing movie songs mixed with various risqué expressions. Such bawdy singing is not merely entertaining optionality but is considered imperative for a productive and enjoyable working session. The prevailing mood at such sessions being what it is, any query put to a worker at that time brings forth a risqué double entente as a response. Once the pots cool down the beads are taken out for temporary cleaning and sorting and the debitage consisting of cracked beads and closed perforation is thrown nearby. This is the job for children and elders alike.

Summary

Archaeology site in Sri Lanka has been explored and excavated many times until now, and a number of beads, raw material, and fragments were found here. The manufacturing process and the technology of the beads are important milestones in the study of beads. Among the glass beads found in Sri Lanka, some of the main types of beads were identified. They are Indo- pacific beads, segmented beads, Collar beads, and striped beads. Most of the glass beads found in Sri Lanka are Indo- pacific beads. They were made in a limited range of colours, with various hues: opaque reddish-brown, orange, yellow, green, red and black; semi-translucent greens and blues; and translucent amber and violet.

 The making of beads requires specialized skills, equipment and tools. It is a noticeable fact that the methods of the manufacturing of beads had reached a highly developed stage in the beads found in Ancient Sri Lanka. Raw materials and skills for bead production must have arrived on Southern coasts through these commercial links. Therefore, the diffusion of knowledge, skills as well as manpower required for bead production must have been transmitted rapidly as a result of trading and seafaring activities during the time.

Accordingly, this was studied the glass bead Making technology of the past based on the archaeological data uncovered through archaeological research conducted in Sri Lanka. Mantai, Kantarodai, Tissamaharama, Kirinda, Abhayagiriya, Ridiyagama is

one of the leading areas in the study of glass beads design technology in Sri Lanka. In Sri Lanka, the study of beads is primarily based on their typology, technology and the provenance of the materials used. Hannibal Deraniyagala has mainly concentrated on the typological and technological classifications and provenance of the beads discovered at Tissamaharama, an early regional capital in Southern Sri Lanka. Scientific analysis of these beads has been carried out by Schüssler et al and Rösch et al. who have focussed on determining the provenance of materials by comparing beads from Tissamaharama, Akurugoda and Anuradhapura with those from Thailand and Oman. Francis is the other leading researcher of Sri Lankan beads, particularly those from Mantai. His main focus is bead production technology and he provides evidence for Mantai being a production site, particularly for Indo-Pacific beads during the Early Historic Period. A common theme revealed by this research is Sri Lanka's foreign trade links.   However, this research has studied glass beads technology in Sri Lanka. This study focuses on the traditional analysis method. Mantai, Kantarodai, Tissamaharama, Kirinda, Abhayagiriya, Ridiyagama Giribawa and Ridiyagama is one of the leading areas in the study of glass beads design technology in Sri Lanka. The study of ancient glass bead production technology in Sri Lanka, South India and North India can be mentioned as areas where this technology is still active today. Especially, a comprehensive analysis of the bead technology in ancient Sri Lanka can be obtained by comparing it with the facts present in India. Accordingly, these factors were very important in the study of ancient Sri Lankan Beads technology.

Reference

Alok Kumar Kanungo (2004) Glass Beads in Ancient India and Furnace-Wound Beads at Purdalpur: *An Ethnoarchaeological Approach 43(1),* Asian Perspectives

Basa. K.K (1992) Early glass Beads in India, *South Asian Studies*

Bezborodov, M. A (1975) Chemie und Technologie der antiken und mittelalterlichen Gläser (Mainz).

Bopearachchi, O (1998) International Trade relation of Ancient Sri Lanka, Origin, Weerakkody, DP.M.(ed)

Bopearachchi, O., and W. Wijeyapala. (1995) The Fluvial and Maritime Trade Center of Ancient Sri Lanka, Results of the exploration and excavations conducted by the Sri Lanka French Archaeological Mission.

Bopearachchi, O. and Wickramasinghe, R.M (1990) *Ruhuna*: an ancient civilization revisited: Numismatic and archaeological evidence on inland and maritime trade, Colombo

Buddikasiri, Asanka (2020) Beads In Māntai Port: Case Study In 2018 And 2019; *Master Thesis*, Sichuan University, China (Unpublished)

Carswell, J., Deraniyagala, S.U. & Graham, A.H.(2013) *Māntai: City by the Sea*, Archaeological Department of Sri Lanka, ed., Aichwald, Germany: Linden Soft Verlag

Coningham, R. & Gunawardhana, P (2013) *Anuradhapura. Volume 3*, The Hinterland, Oxford: Archaeopress

Coningham, R.(2006) *Anuradhapura: The British-Sri Lankan excavations at Anuradhapura Salgaha Watta 2. Volume 2,* the artefacts, Oxford: Archaeopress

Dubin, L. S.(1987) *The History of Beads from 30.000 BC to the Present,* London.

Engle, A.(1976) *Glass in Ancient India*, in: Readings in Glass History 6–7 (Jerusalem), 109–132.

Francis P (1989) *Beads and The Bead Trade in Southeast Asia. 1st Edn*., Center for Bead Research, Lake Placid, N.Y.

Francis P(1982) Experiments with early techniques for making whole shells into Beads, Current Anthropology Chicago, *Ill., 23(6)*

Francis P (2002) *Asia's Maritime Bead Trade: 300 B.C.* to the Present. Honolulu: University of Hawai Press

Francis P (1984) Some Observations on the Glass Beads of Arikamedu, Revue Historique de Pondichery, 30

Francis, P. J (1982) The Glass Beads of India, *The World of Beads Monograph Series 7*, Lake Placid

Francis, P. (1988) The Glass Trade Beads of Europe: Their Manufacture, Their History, and Their Identification. *The World of Beads Monograph Lake Placid, Series 8*

Francis, P. J (1990) Beads in the Philippines, *Arts of Asia 20(6)*

Francis, P (2004) 'Beads and Selected Small Finds from the 1989-1992 Excavations', In *The Ancient Port of Arikamedu: New Excavations and Researches*, Begley, V. Francis, P.,(eds.)

Francis, P (1992) 20 Easy Steps to Identifying Most Beads in Most Collections, New York: Lapis Route Books

Francis, P (1990) *Glass beads in Asia*, part II, Indo-Pacific beads; Asian Perspectives 29(1)

Francis. P (1982) *A Handbook of Bead materials*; WBMS 6. Lake Placid; N.Y.; Lapis Route.

Jennifer R. Fleischman (2012) Beads of Empowerment: The Role of Body Art in Challenging Pokot Gender Identities, Georgia State University.

පාකර්හෙන්රි (1884) *තිස්සමහාරාම පුරාවිද්‍යාව*; පොල්ගස්ඕවිට; ශ්‍රී ලංකා සංස්කෘතික ශාස්ත්‍රාලය.

Paranavithana, Senerat (1970) *Inscriptions of Ceylon Vol.1*; Printed at the Department of Government Printing, Ceylon.

Somadeva, R., (2006). *Urban Origins in Southern Sri Lanka*. African and comparative Archaeology, Department of Archaeology and Ancient History Uppsala University, Uppsala, Sweden

Weisshaar H.J Roth H Wijeypala W (2001) *Ancient Ruhuna*, Mainz: Verlag PhilipVon Zabern.

Community Film Making and innovative direction of rural art (An ethnographic study on a Sri Lankan community film 'Walapane Satana')

Aruna Lokuliyana, Ileka Ruwanpathirana

Department of Mass Communication, University of Kelaniya, Sri Lanka.

lokuliyana@kln.ac.lk, ilekahansanie@gmail.com

Abstract

'Community film' is an attractive new term that has been emerged over the past few years. Though Sri Lankans are familiar with 'Community radio', the phrase 'Community film' is still a novel idea. But, it has been recognized by the world that community filmmaking is a broad concept that can be understood and produced in different ways, such as participatory community filmmaking and non-participatory community filmmaking. This study focuses on 'participatory community filmmaking' and tries to understand how it works, why it is made, what the benefits are, and how we can use it as a tool to achieve something positive. Under the qualitative research approach, an ethnographic study was performed. Films have been classified under various criteria, and it helps to understand what type of film it is. Primary and secondary data were collected. Preliminary data was collected through participatory observation and interview methods. Since the film, 'Walapane Satana' was the only film found from Sri Lanka and easily fit into the criteria to call it a community film, it was used for the study. The research revealed a solid socio-cultural background behind the making of this film. This particular community film has influenced the development of the place and individuals of this village in many ways. Almost all the villagers have participated in this film to attend and make, teach, learn, present, promote, judge, support, and span many artistic disciplines. Most importantly, some people have given up their lifelong bad habits to become a part of this film, and at the end of the film, they have entirely dumped those habits and have started effectively leading their lives. Furthermore, being a part of this film has added value to their lives, and it has empowered and educated them to become worthy citizens. These findings led the researcher to conclude the study with a strong opinion on community filmmaking as a powerful driver for social change.

Keywords: Community film; Participatory community filmmaking; Communication; Ethnographic study; Sri Lanka

Introduction

Mass media refers to the diverse array of media technologies. It comes in different shapes and sizes like print media, electronic media, digital media, new media etc. These classifications have been created based on the technology where this communication takes place.

Community media is a practice and approach introduced to challenge the dominant use of media and empower communities to achieve development goals. As UNESCO defines it, "community media, whether broadcast or online, are crucial to ensuring media pluralism and freedom of expression, and are an indicator of a healthy democratic society. As an alternative medium to public and commercial media and social media, they were characterized by their accountability to and participation of the communities they serve. In addition, they have a greater focus on local issues of concern and facilitate public platforms for debate and discussion". (UNESCO, n.d.) Furthermore, UNESCO emphasizes that they advocate strongly for community media independence and run for and by the community.

Community Radio is the first attempt to establish community media worldwide, and Even Sri Lankans are familiar with the concept of Community radio. The setting up of the Rajarata Sevaya in 1979 marked the beginning of the decentralization of radio in Sri Lanka. Since then, the Rajarata Sevaya has grown to be one of the most popular provincial services. (Center for policy alternatives, n.d.) Later on, more provincial radio stations were established like Ruhunu Sevaya in 1980, Kadurata Sevaya in 1983 etc. And setting the Mahaweli radio in 1981 was the first attempt at starting community radio in Sri Lanka. But there is a question that, are these radio stations truly serves the community media concept?

It was questioned for the first time by Tilak Jayaratne and Sarath Kellapotha, mentioning that "Community Radio in Sri Lanka is a misnomer, as the stations are not owned, managed and run by the community." (Jayaratne & Kellapotha, n.d.)

"Community radio in Sri Lanka not truly community radio, in that the stations are administrated and run by the government and not the community." (Center for policy alternatives, n.d.) This report says that the government also exerts control over the content to avoid criticism of the government and ensure that this medium isn't misused by any political party to set its agendas. However, when it comes to the process of community media, Sri Lankan community radio doesn't do justice to the original idea. Simply, true independent community media has never been allowed in Sri Lanka. Thenceforth it has been questioned by some other people as well.

Besides community radio, there are some other community media practices as well. Community newspaper, community video and community film are some of those community media practices identified within this discipline. For example, we can consider an award-winning community weekly newspaper called 'The Budget'. It is circulated throughout Holmes country and neighbouring communities. This newspaper also publishes a national edition commonly referred to as the Amish newspaper. ("The Budget," n.d.) Another best example is a film called 'Supermen of Malegaon (2008). This is a documentary film directed by Faiza Ahmad Khan, who lives in the small town 'Malegaon' in the Nasik district of Maharashtra, India. He is a guy with no prior training and experience who decided to make films and succeeded. Today they have their film industry known as Mollywood, or occasionally, Malliwood. (Kumar, 2017) Community filmmaking is the newest and most bold practice of community media since it has all the magic of the visual medium. So it's better to have an idea about community filmmaking and where it is coming from?

'Community filmmaking originates in the community arts and media movement of the 1960s, which aimed to challenge mainstream arts and media values and production systems by giving a voice to every citizen to represent and cater better for the needs of all parts of society. Whatever their position or background, and to elicit social change and support political contestations' (Berrigan & Unesco, 1977; Carpentier & Scifo, 2010; Malik, Chapain, & Comunian, 2017; McKay, 2010).

This statement can be considered a definition of community film or community filmmaking since there is no bold definition for community filmmaking. This statement can be tested by asking few questions on community filmmaking to understand the concept correctly and accept this as a definition for community filmmaking.

In community filmmaking,

    i.   Who holds the camera?

    ii.   What's the story?

    iii.   Why this story?

    iv.   Who is in front of the camera?

    v.   What's inside the frame, and what's outside?

    vi.   How was the film assembled and edited?

    vii.   Who owns the film?

    viii.   What is the intention of making the film?

'Community is the only answer for all the questions. And the idea, which was started by Berrigan, Carpentier, Scifo, McKay, Malic, Chaplain and Community, is a compressed idea that answers the questions mentioned above. Since their statement fits with the norms of community media (the community should run it, it should be done for the community, and the community should own it), let's consider it as a definition of community filmmaking.

When it comes to community filmmaking practice in Sri Lanka, it's entirely a novel idea. That doesn't mean that professional filmmakers make all the Sri Lankan films, and there were no alternatives. There are films, short films, documentaries films done by armature artists. But those videos or films can't be counted as community films or community videos since they don't meet with needs and objectives of community filmmaking. When we consider the academic and research field, community filmmaking is not as popular as community radio or community newspapers. It's visible that less scholarly attention has been given in to this field. We think it's because we (Sri Lankans) never had the experience of making or watching a community film in the real sense of the word. That's why the film *'Walapane Satana'*

made by a 70 years old man, Munidasa Punchhewa, with the help of 150 villagers, becomes a landmark of the community filmmaking practice in Sri Lanka. This film made history by claiming the first film of this kind.

Walapane is a village in Sri Lanka located in *Nuwara-Eliya* district, central province. It was called *Wathumulla* in the past, and it is a hill country area with lots of green mountains. *'Walapane Satana' (The Freedom Struggle in Walapane)* is about villagers who lived in *Walapane* 200 years ago. This village is one of the villages which says a lot about the history of Sri Lanka. The freedom struggle of 1817-1818, also known as the 1818 *Uva-Wellassa* uprising, was the third of the Kandyan wars against British colonial forces. It happened in areas of *Uva-Wellassa,* and *Walapane* was one of the prominent locations of this struggle. Freedom fighters (So-called rebellions according to the British colonial point of view) used this village as a hideout, and 200 years ago, it was a battlefield. This film reveals how villagers in *Walapane* got ready to be a part of this freedom struggle.
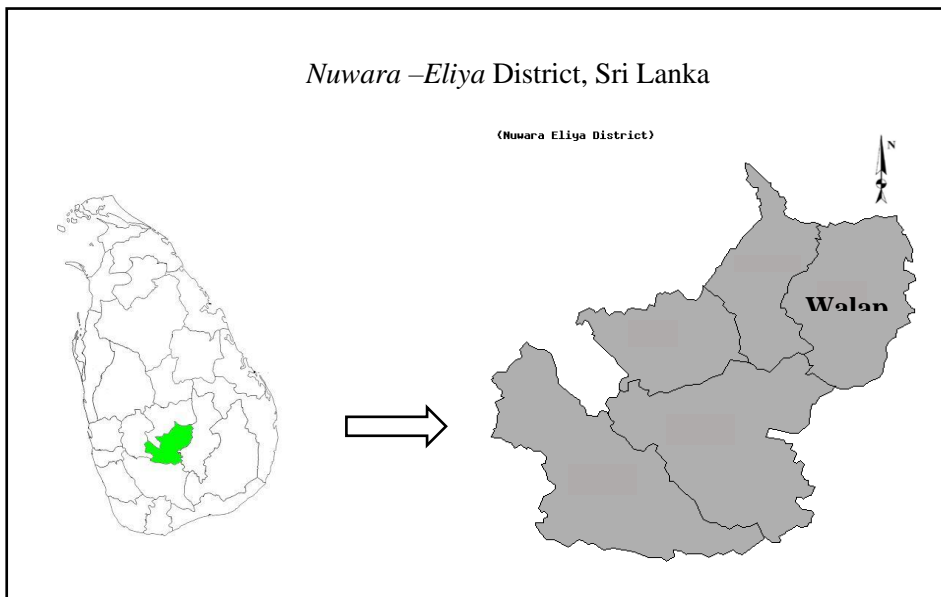
Source –Survey Department of Sri Lanka (http://www.it.survey.gov.lk/nsdi/gis/index_grid_50k.php)

Basic Information about the film *'Walapane Satana'*

- Story/ Director/Producer   - Munidasa Punchihewa
- DOP, Editor   - Ashan Punchihewa
- Art Director   - Sarath Ananda
- Stunt   - Chamindalal
- Audio Recoding   - Buddika Priyashantha
- Narrator   - Kalum Bandara
- Duration   - 1 hour and 55 seconds
- Production year   - 2018

This research was carried out to understand community filmmaking' by studying the film *'Walapane Satana'*.

Research Problem

How community films are originated, made and how it affects the particular community?

Objective

The main objective of this research is to understand how community filmmaking works, why it is made, what the benefits are, and how we can use it as a tool to achieve something positive.

Literature Review

As it's popped up from the literature, there are not many academic works related to community filmmaking. However, there are researches and studies related to community media practices all over the world. However, mainly there are no inquiries in the Sri Lankan context about the field of community filmmaking. Therefore, the researchers tried to collect information by referring to studies carried out by foreign countries and state some essential ideas central to the discipline of community filmmaking.

Malic, Chapain and Comunian have explained the form of community filmmaking. "Community filmmaking could take the form of individual and group filmmaking and be part of the professional or non-professional realm. As such, there was

recognition that community filmmaking could take various forms depending on the degree of involvement of communities in the filming process and the ethos of the filmmaker(s) involved."(Malik, Chapain, & Comunian, 2014)

The literature review found that researchers in different perspectives have studied community filmmaking as a field of inquiry. Malik and the team have researched how cultural diversity is understood and practised within community filmmaking today. They have used the UK film sector to adopt inclusive film practices and approaches that support cultural diversity. They have proved by their research that film is perceived to be a powerful space for community participation and engagement and as a tool for social, political and artistic expression. Film functions as a medium that creates and maintains shared values, contributes to intense feelings of cultural and group identity and generates modes of belonging. "For our participants, the visual medium of the film also offers opportunities and lends itself well to working across a range of other creative disciplines and spaces (dance, music, animation and social media, for example)." (Malik et al., 2014)

One crucial fact that can be brought out from the literature is that some seminal terms have been used to describe the films and videos made by non-professionals. As a result, people get confused with the words and it is needed to be clear out the difference or similarity between the terms like community video and participatory video.

Gareth Bennett, Director of Programs at Insight Share (Insight Share is a community development organization based in Oxford, United Kingdom) and, works globally with 15 years' experience combining media technology, with participatory approaches and community engagement for a locally-led change) has explained his opinion on the differences between community video and participatory video in a comprehensive way. "As I see it: Community video - filmmaking by a community. Participatory video -filmmaking by a community, as a means to achieve positive social change." (Community communication, 2015) In his interpretation, community

video refers to processes that engage a community/group in video production as an end in itself. By contrast, the participatory video uses video to achieve the desired social change outcomes of the community involved. It sets out to harness video to address issues and circumstances that might benefit from being aired, shared or documented for the future. Often the participatory video is deployed as a medium for establishing communication channels between groups that otherwise may not engage in direct dialogue.

It's confusing to differentiate between community video and participatory video since each practice's core looks the same. Some practitioners have used the word 'participatory' with the 'community video' just to emphasize that there are different types of community films. "On one level, there is participatory community filmmaking, where the filmmaking process is wholly managed and undertaken by the community involved. At the other end of the spectrum, there is non-participatory community filmmaking, where community filmmakers who might film community issues but do not involve communities in participatory ways." (Malik et al., 2017)
So it is understandable that these seminal terms confuse researchers. Though Gareth Benest has given definitions to each word community video and participatory video, even he has admitted that he wanted to emphasize how different participatory video is. "This is by no means meant as a criticism of community video, just an attempt to articulate how different participatory video is." (Community communication, 2015) Therefore to understand this researcher thought of reviewing literature related to participatory video as well. The author of the book *'Handbook of Participatory Video'* and others have explained this by quoting a statement by *The Walton Hall Statement on Participatory Video in Research* (PV-NET). "Participatory video can be understood as a collaborative approach to working with a group or community in shaping and creating their film, to open spaces for learning and communication and to enable positive change and transformation' This definition emphasizes an open, experimental approach to participatory video." (Milne, Mitchell, & De Lange, 2012; Roberts & Lunch, 2015)

Milne, Mitchell and De Lange explain a little further, focusing on the qualities of participatory video. Here they have quoted an idea of Shaw and Robertson. "Because of the focus on capacity building amongst marginalized people, participatory video can be understood in terms of a process wherein people themselves understand the video project methodology and process and control the content of the video productions. In this sense, the main objective of participatory video communication is not to produce media materials per se, but to use a process of media production to empower people with the confidence, skills and information they need to tackle their issues.' (Shaw & Robertson, 1997) Within this definition, there are two key elements linked to empowerment, which are worth noting: (i) participants taking control of the production process, and (ii) participants tackling their issues." (Milne et al., 2012) Lara Damiani, a blogger and a filmmaker, wraps up her idea on participatory video by mentioning, "People talk about Participatory Video, which is something else I'm passionate about, but I think it's also about providing opportunities for participation (and new skills) with the people I work with in the field. Giving them the chance to get behind the camera or work with audio." (Damiani, 2017)

However, whether it is community video or participatory video, both play a significant role as alternative media and community communications tools. Orbach, Rain and Contreras have proven it by their researches. They have focused on how Mapuche Indigenous communities use video and digital filmmaking to reflect on and communicate knowledge in southern Chile collectively. They have suggested that video can be a powerful tool for self-representative knowledge-sharing by Indigenous communities. "Participatory video (PV) came onto the development scene as a way to put audiovisual tools into the hands of local people and communities. PV harnesses the accessibility and immediacy of the video camera to bring members of a group or community together to identify issues, share experiences, and discuss solutions. It is considered a path to individual and community empowerment, both because it builds capacity to manipulate technology and control a process of creation, and because it stimulates collective analysis, problem-solving, and action." (Orbach, Rain, & Contreras, 2015)

Even Damiani's statement on participatory filmmaking supports Orbach's idea. Damiani says that filmmaking and community development is a great partnership. "We believe engaging communities in the filmmaking process is critical. We're not the type of filmmakers who walk in, set up cameras, shoot and walk out. We prefer to engage with communities and assist, where we can, with community development as part of our social documentary filmmaking process." (Damiani, 2015) Damiani believes that letting people engage with the filmmaking process helps develop news skills within them, and it's a powerful tool for social change where visual stories can demonstrate impact to audiences worldwide. Their participation and involvement at a community level can engage, stimulate and stimulate and educate people.

After reviewing the most relevant literature on community filmmaking in different approaches, finally, the researcher was able to wrap up the argument by understanding that film or video made by communities, for themselves to educate and empower them, can be considered community film or video. However, since this is the idea of foreign studies, it's better to cross-check it with the Sri Lankan practice of community filmmaking.

Research Methodology

Under the qualitative research approach ethnographic study was performed for this research. Since this research aims to understand the community filmmaking concept and how it originated and affected the community, we needed a methodology that helps to interact with a study's participants in their real-life environment. To fully understand as much as possible about the particular community and to deliver a detailed and faithful representation of the behaviour of people, attitudes and emotions, we decided to perform an ethnographic study.

Type of data - Primary and secondary data were collected. Since the film, *'Walapane Satana'* was the only film found from Sri Lanka and easily fit into the criteria to call it a community film, it was used for the study.

Data Collecting - Primary data were collected by interviewing the participants of this film and by doing participatory observation. Secondary data were collected from research papers, reports, blog articles, books and newspaper articles.

Sample - Interviewees were selected using a random sampling technique. But the researchers were conscious of choosing the model that represents different social classes and ranks to understand how this film made a platform for these people to interact with each other.

Data Analysis

The director/producer – Munidasa Punchihewa

"I have never learned anything about film or filmmaking. I was born in *Dewundara* (The southern part of Sri Lanka). I'm the third child of my family, where there were ten children. Later we moved to *Lunugala* (Village in Uwa Province of Sri Lanka). I was a terrible student and didn't complete my studies properly. I stop going to school after completing grade 5. But thanks to the principal, I could find a job and survive because he gave me the school leaving certificate certifying that I passed the 8th grade. Thenceforth I started working as a driver. While working in the Ratmalana area (Town in Western Province of Sri Lanka)as a CTB (Ceylon Transport Board) driver, I went to my village on holiday. On a day like that, I went to see the *Dunhida* waterfall with my friends. There was a kind of meeting and we also just joined with those people without knowing who they were. That was the year 1971. I was arrested by *Modara* police, telling me that I was a JVP rebellion. (*Janatha Vimukthi Peramuna,* also known as JVP, is a communist and Marxist-Leninist party and Political movement in Sri Lanka) I was prisoned for two years. After coming out of the prison, I was transferred to *Nuwara-Eliya* and later to *Walapane*. That's where I met my wife and settled down in this beautiful village called *Walapane*." (Punchihewa, 2018; Samarawickrama, 2019)

Though Munidasa Punchihewa was a bus driver, he has a born talent for artistic works. He is an artist by himself. He is good at painting, sculpting, etc. He happens to be the first one who built a 'Wesak thorana' (A Part of Buddhist ritualistic ceremony) in *Walapane* village. It was the year 1978, and until then, villagers have never seen a 'Wesak thoran'. What he got in return for doing this was a punishment transfer. He was disappointed with the people and job, and he left the job and went to gemming. "My cousin brother K.P Sunil Shantha got a gem, and he wanted to make a film. I went to help him as a driver, and my duty was to take the cast to the set and drive them back to the lodge. *'Binari saha Sudu Bande' (1984)* was the name of that movie. Lionel Silva was the art director of this film, and I used to give side supports to him. Suddenly he decided to leave the film and join another big film. He wanted me to take over and keep working in his position. I just did work in the art department and didn't take it seriously. After the movie release, I was shocked to see my name on the screen under the title of assistant art director. That's my only experience in the film industry." (Punchihewa, 2018; Samarawickrama, 2019)

After that, he has come back to the village, and a person he met in prison has offered him a job as his driver. Munidasa has gladly accepted the position, has worked as a driver for 12 years, and has retired from his career. But the passion he had for art was still there with him, and he started using his time after retirement to make stage dramas, Tele-films, and other social works. He has directed four-stage dramas, one Tele-film and one film including *'Walapne Satana'*. Though he was an outsider, villagers have accepted him as their own native and Munidasa Punchihewa became an opinion leader of this village. While he was reading about the history of this village, he has found out its contribution to the 1818 freedom struggle. So then, with great respect for their ancestors, he has thought of making a film, and that's how the film *'Walapane Satana'* happened to be stated.

The intention of making the film

As Munidasa mentioned, his pure intention was to do something with the collaboration of all the villagers. Though he is an outsider, he has highly attached to this village *Walapane* and the people. Therefore, he has decided to make a film to empower the villagers and serve the township where he lives.

Film Making Process

As Munidasa Punchihewa explained, it wasn't an easy task. 'I was 70 years old, and I had no idea from where should I start. But this was something I wanted to do for a very long time. (Punchihewa, 2018)

- Script - There was no proper script for this. Munidasa has just drafted all the scenes daily, and every scene has been briefed to the cast daily after they come to the set. 'I don't know how to write a film script. But I know how the story should be told. I just follow my instinct and put together the scenes." (Punchihewa, 2018) Researchers observed the audience's reaction in different social groups, and it was evident that the audience was very much interested in the film. This film contains humour, action, sorrow, arrogance and the list goes on. The audience showed emotions related to each mood. They laughed. They got excited. That's not to say that the film was devoid of any boring scenes. Since it runs for two hours and sixteen minutes, there are some sequences. But the audience didn't dump it because the very next scene again picked them up. Therefore we can say that the director has shown some skills in filmmaking by creating the storyline.

- Selecting the crew and cast - This is one of the sections where the researcher noticed the value of making this type of film. As we mentioned earlier, *Walapane* is a tiny village away from Colombo. The lifestyle of this village is unique since they have to manage day-to-day needs within the community. The majority of them are farmers. Higher ranks of the social groups serve the government as teachers, policemen, Provincial Council Members etc. The research revealed that there was no suitable platform for these people to interact with each other. And this film has created a unique space for all of them to get to know each other.

Within the cast and crew of this film, there are Provincial Council Members, Pradeshiya Sabha Members, Farmers, Bus Drivers, Three-wheel Drivers, School teachers, Children (Different age groups), Housewives, Unemployed boys, Buddhist monks, Dopers/ inebriates, Thugs, Thieves, Businessmen, Technicians, Smiths, and Retired Army Soldiers etc. However, the most notable thing revealed by the research is that marginalized people of this particular village mentioned that they got the attention, recognition, and acceptance from the society they belong to after acting in this film.

- Directing the film - The techniques which the director of this film has used are impressive. Although, according to his basic knowledge, he has no idea about the theories and practices in acting and directing, such as 'Method acting or role play', he had done all of these things practically to make the villagers act in the film.

"I knew that the villagers are not used to act or deliver dialogues in front of a camera. But all of them were so excited to be a part of this film. They did watch films and wanted to become stars. And I knew what they are good at. Some are good at climbing trees, some are good at fighting and arguing, some are good at drinking alcohol, and others are good at cheating. I matched their personal qualities with the characters of this film and offered suitable characters for each of them. As an example, a husband and a wife who sell fish in the market always end the day fighting with each other. All the villagers are used to seeing this, and I did ask them to do the same thing in the film, and they did a great job. That's how I made them act." (Punchihewa, 2018) Not only that, Munidasa has ordered toddlers to stay away from alcohol only if they want to act in the film. So, people who can't live without drinking alcohol have started practising living their lives without drinking alcohol. By analyzing the techniques of this director, we can say that he hasn't played just the role of a director but the role of a teacher, leader, and psychologist.

- Art Direction/ Costume & Makeup - Munidasa and his team have made all the costumes, props and film sets. As he mentioned, Preparing costumes, props and film sets was the biggest challenge since this storey happened 200 years back. These people didn't have money to buy chemicals, ingredients, and other stuff to

age the costumes or build film sets. However, they have managed to recreate everything as much as possible using all the resources they had.

Picture 01- The director is dressing up an actor
Source - Primary Data (A working still of 'Walapane Satana' film)

Picture 02- Dressed up actors
Source - Primary Data (A working still of 'Walapane Satana' film)

Production Management - Munidasa mentioned that the entire production did cost 30,000 Sri Lankan rupees only. Finding 30,000 (average 200 US dollars) rupees also was a difficult task, and they have shot the film from time to time depending on the money they have. They have no idea about budgeting and production management. Munidasa Punchihewa's pension was the only source of funds. When it comes to food and transportation, they have been provided breakfast, lunch and sometimes dinner to the film set by the villagers who live closer to the set. Three-wheel drivers have

given rides voluntarily. And this piece of work has become their production. (Punchihewa et al., 2018) (Sega, Ananda, & Chamindalal, 2018)

- Technology (Camera Equipment/ light/ Sound/ Edit) - Next challenge was to overcome the technical issue. The director of this film Munidasa Punchihewa and the cinematographer Ashan Punchihewa (Munidas's youngest son), have managed to film the entire movie without tripods, monopods, grips, tracks and dollies. "A few years back, I sent Ashan for a technical course, and he knew how to operate a simple camera. I bought a very cheap ordinary camera for him. Even he didn't know about cinematography, and he just helped me by shooting this film without any other technical equipment." (Punchihewa, 2018) Ashan has shot the entire film using handheld camera techniques. Nikon P600 was the camera he used to shoot the movie.

Picture 03- Ashan Shooting the film
Source - Primary Data (A working still of 'Walapane Satana' film)

Picture 04- Ashan Shooting the film
Source - Primary Data (A working still of 'Walapane Satana' film)

Sometimes the audience can notice the camera jerks. It's because they have no idea about the camera techniques, lighting and sound engineering of a film. They have shot this using natural light. Because of that, the audience can notice disturbances while watching the movie. Most of the scenes of this film are outdoor scenes like near a waterfall or in a forest. Since they haven't used a proper sound recording method, the audience can't hear the dialogues of few scenes. But the most important fact is, though there are many technical errors, some shots in this film are highly cinematic.

Picture 05 - A shot from 'Walapane Satana' film
Source - Primary Data

- Stunts - People in *Walapane* fought for the country in 1818, and, in this movie, there have to be many stunts represent it. But there was no professional to tell them this is how actions are working in films. Retired army soldiers were the only hope for them. So they have come forward to do stunt actions in this film. Unfortunately, one person has fallen from a high place during the shoot and got injured. Since this happened during the shoot, it has been recorded and can be seen in the film.

Picture 06 - One actor is falling down from the wall
Source - Primary Data (A shot from 'Walapane Satana' film

Picture 07 - One actor is falling down from the wall
Source - Primary Data (A shot from 'Walapane Satana' film

And the most inspirational fact is that he has come to the set a few days later to support his fellow crew members after receiving treatments.

- Film screening and publicity –

- The first film screening was held on October 24 2018, at the main hall of *Sri Sumangala national school, Nildandahinna, Walapane*. Later there was a special film screening at the Department of the Mass Communication University of Kelaniya, and thenceforth this film was screened several times in Walapane. Researchers observed three film screenings by attending each event, and it was noticed that they used the main hall of schools as a film hall. They did carry the technical equipment like projector, cables, laptop and screened the film. People had to buy tickets to watch the movies, and it was free of charge for school children. The cost of the ticket was fifty

Sri Lankan rupees. The most important fact is they donated the income to each school where they screened the film. When it comes to the publicity, they have used posters drawn by themself and have hung them on trees.

Picture 08 - A film poster of 'Walapane Satana'
Source - Primary Data

In addition, they used a publicity truck, and the researcher could experience how this truck went here and thereby announcing the date, time and venue of the film screening.

Findings and Conclusion

It was proved from the research findings that this film was entirely made by villagers who have no idea what filmmaking is. However, they have gotten together to make a film, build willpower, engage with each other, appreciate each other, and represent their culture and beliefs. Based on the findings, we can clearly state that 'Walapane Satana' is a community film by a real sense of the word. Some can identify it as a

participatory community film where the filmmaking process is wholly managed and undertaken by the community involved.

And the latter part revealed that the origin of such a film is based on a solid socio-cultural background. These villagers are driven by decisive historical factors related to the early Kandyan Kingdom and freedom struggles 200 years back. Therefore they still have the pride and courage to make changes in all aspects of society.

The research also revealed particular community films had influenced the development of the place and individuals of this village in many ways. Almost all the villagers have participated in this film not just to attend but also to make, teach, learn, present, promote, judge, support, and span many artistic disciplines. Most importantly, Quoting to the villagers,   some people have given up their lifelong bad habits to become a part of this film. At the end of the film, they have entirely dumped those habits and have started effectively leading their lives. Being a part of this film has added value to their lives, and it has empowered and educated them to become worthy citizens. As we observed, this film has done an attitudinal change for the majority of villagers. These findings led the researcher to conclude the study with a strong opinion on community filmmaking as a powerful driver for social change.

References

Berrigan, F. J., & Unesco (Eds.). (1977). Access: Some Western models of community media. Paris: Unesco.

Carpentier, N., & Scifo, S. (2010). Introduction: Community media's long march. Telematics and Informatics, 27(2), 115–118. https://doi.org/10.1016/j.tele.2009.06.006

Center for policy alternatives. (n.d.). Best practices and potential for improved information flows in media and civil society.

Community communication. (2015, May 28). Is Community Video different from Participatory Video? Retrieved from http://www.comcomm.org/2015/05/is-community-video-different-from.html

Damiani, L. (2015, March 1). Participatory filmmaking. Engaging communities. The backbone of Think Films. Retrieved from Thinkfilms website: http://thinkfilms.com.au/community-development-and-filmmaking-a-perfect-partnership/

Damiani, L. (2017, June 16). Collaborative filmmaking. I love it when everyone gets involved. Retrieved from Thinkfilms website: http://thinkfilms.com.au/collaborative-filmmaking-love-everyone-gets-involved/

Jayaratne, T., & Kellapotha, S. (n.d.). THE POLITICAL ECONOMY OF THE ELECTRONIC MEDIA IN SRI LANKA. 82.

Kumar, P. (2017). The Man Who Started His Own Film Industry In Malegaon | Youth Ki Awaaz. Retrieved November 3, 2019, from Www.youthkiawaaz.com website: https://www.youthkiawaaz.com/2017/09/meet-the-superman-of-malegaon/

Malik, S., Chapain, C., & Comunian, R. (2014). Spotlight on Community Filmmaking A report on Community Filmmaking and Cultural Diversity Research. Retrieved from Brunel University, University of Birmingham and King's College London website: http://www.communityfilmmaking.com/uploads/1/0/9/7/10973203/spotlight_on_community_filmmaking3.pdf

Malik, S., Chapain, C., & Comunian, R. (2017). Rethinking cultural diversity in the UK film sector: Practices in community filmmaking. Organization, 24(3), 308–329. https://doi.org/10.1177/1350508416689094

McKay, G. (2010). Community Arts and Music, Community Media: Cultural Politics and Policy in Britain since the 1960s. In Understanding Community Media (pp. 41–52). https://doi.org/10.4135/9781452275017.n4

Milne, E.-J., Mitchell, C., & De Lange, N. (Eds.). (2012). Handbook of participatory video. Lanham: Rowman & Littlefield Publishers, Inc.

Orbach, A., Rain, J., & Contreras, R. (2015). Community filmmaking as research: (Re)considering knowledge production through the camera's lens. Development in Practice, 25(4), 478–489. https://doi.org/10.1080/09614524.2015.1029437

Punchihewa, M. (2018, November 19). Walapane Satana—how was it made? [In-depth interview].

Punchihewa, M., Punchihewa, A., Karunarathna, W. M., Jayantha, W. M. G., Weerasooriya, M. M., Yapa, S., … Wahikaluwa. (2018, December 22). Film making experience. [In-depth intrview].

Roberts, T., & Lunch, C. (2015). Participatory Video. In P. H. Ang & R. Mansell (Eds.), The International Encyclopedia of Digital Communication and Society (pp. 1–6). https://doi.org/10.1002/9781118767771.wbiedcs148

Samarawickrama, I. (2019, January 27). Nidahas Aragalayata Aluthin Pana dun Walapane Bus Riyadura. Silumina Newspaper, p. 41.

Sega, Ananda, S., & Chamindalal. (2018, December 23). The Film making experience [In-depth interview].

Shaw, J., & Robertson, C. (1997). Participatory video: A practical approach to using video creatively in group development work. London ; New York: Routledge.

The Budget. (n.d.). Retrieved November 3, 2019, from https://www.visitamishcountry.com/business/255/the-budget

UNESCO. (n.d.). Community Media Sustainability. Retrieved from https://en.unesco.org/themes/community-media-sustainability

Participatory Observation

October 24 2018 - First film Screening at the main hall of Sri Sumangala national school, Nildandahinna, Walapane

November 19, 2018 – At the Special film screening at the Department of Mass Communication, University of Kelaniya.

April 16 2019 - Film screening for villagers at Pussadewa central college, Batagolla, Walapane.

Subject Index

Appendix 01

TRIVALENT

ත්‍රිසංයුජ

Journal of Archaeology, Tourism & Anthropology

Department of Archaeology

University of Kelaniya

Sri Lanka

Volume I   *Issue I*   *2020*

About

The Journal of Archaeology, Tourism & Anthropology is to provide a platform for researchers and professionals to publish their research findings, theoretical overviews, models, concepts related to Archaeology, Anthropology & Tourism & Cultural Resource Management with a multidisciplinary research approach. This is an interdisciplinary, open-access journal that is exclusively devoted to the publication of high-quality research in the fields of Archaeology, Anthropology & Tourism & Cultural Resource Management. The Journal focus on new trends in each field.

Intentions & Scopes

The academic journal of Archaeology, Tourism & Anthropology is the official journal of the Department of Archaeology, University of Kelaniya, Sri Lanka. The journal provides a platform for researchers and professionals to publish their research findings, theoretical overviews, models, concepts related to relevant fields of Archaeology, Anthropology & Tourism & Cultural Resource Management. Further, the journal encourages collaboration by teams of researchers to create special issues on the latest developments in related topics of national and international importance.

The peer-reviewed journal publishes one issue annually & invite original research articles from diverse disciplines. In addition to original research articles, the journal invites review articles, book reviews and short communications.

Overview of the Department of Archaeology

Archaeology has become a subject field of studying human culture through human activities beyond a mere appraisal of past cultures & societies. The application of new knowledge & secrets of human history uncovered through that scientific study is the main aim of archaeology. Based on the multidisciplinary & multivocal concept of archaeology, it is an internationally connected subject via likes Tourism & Cultural Resource Management. The department offers a student-centred learning system by instilling in lectures a series of practical skills in fieldwork & research.

Themes

1. Pre & Protohistoric Archaeology
2. Mortuary Archaeology & Social Archaeology
3. Environmental Archaeology, Geoarchaeology, Zooarchaeology.
4. Ancient Art & Architecture, Ancient Technology, Epigraphy & Numismatics.
5. Recent trends in computer applications in Archaeology
6. Field Archaeology & Settlement Archaeology.
7. Archaeological Research, Education, Training & Public Archaeology
8. Underwater and Maritime Archaeology
9. Physical & Cultural Anthropology, Ethnology & Ethno Archaeology & Indigenous Studies.
10. Recent trends, Research & Education in Anthropology
11. Cultural, Archaeological, Paleo & Spiritual Tourism.
12. Eco, Nature, Adventure, Agro Tourism & CBT.
13. Sustainable Tourism Development, Tourism Entrepreneurship, Innovation & Creativity
14. Tourism Research, Education and Training and Tourism Crisis Management
15. Destination Marketing, Hospitality Management and Recent trends in Tourism
16. Role of Technology and Multidisciplinary Approach in Tourism Industry.

17. Archaeological Conservations, Museums & Heritage Management

Policies

Peer Review Process
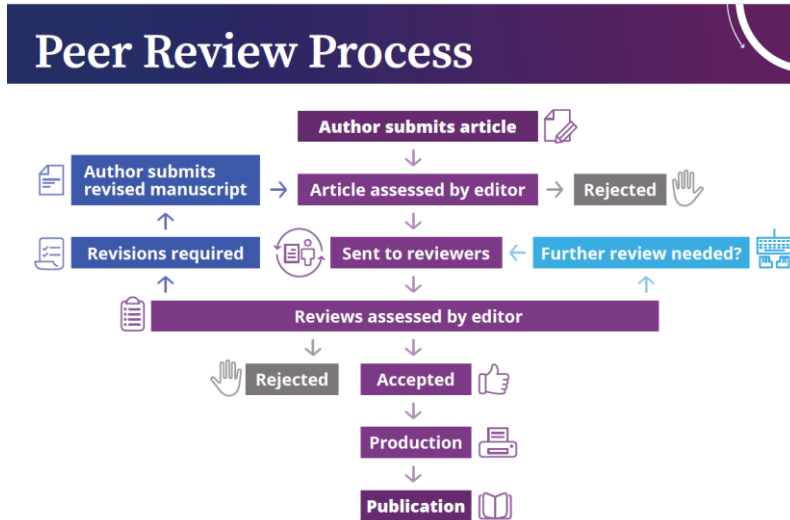
1. Submission of Paper

The corresponding or submitting author submits the paper to the journal. This is usually via an online system such as Scholar-One Manuscripts. Occasionally, journals may accept submissions by email.

2. Editorial Office Assessment

The journal checks the paper's composition and arrangement against the journal's Author Guidelines to make sure it includes the required sections and stylizations.

3. Appraisal by the Editor-in-Chief (EIC)

The EIC checks that the paper is appropriate for the journal and is sufficiently original and interesting. If not, the paper may be rejected without being reviewed any further.

4. Invitation to Reviewers

The handling editor sends invitations to individuals he or she believes would be an appropriate board of review.

5. Response to Invitations

Potential reviewers consider the invitation against their expertise, conflicts of interest and availability. They then accept or decline. If possible, when declining, they might also suggest alternative reviewers.

6. Review is Conducted

The reviewer sets time aside to read the paper several times. The first read is used to form an initial impression of the work. If major problems are found at this stage, the reviewer may feel comfortable rejecting the paper without further work. The reviewers will evaluate the paper based on the following criteria;

    I.   Statement of Problem or Purpose
    II.   Relevance of the Topic
    III.   Importance of the Topic
    IV.   Contribution to the Literature
    V.   The proper research methodology adopted
    VI.   Organization of the contents
    VII.   Discussion
    VIII.   Conclusion
    IX.   Quality of writing & Mechanics
    X.   Any other comments from the reviewers

Otherwise, they will read the paper several more times, taking notes to build a detailed point-by-point review. The review is then submitted to the journal, with a recommendation to accept or reject it – or else with a request for revision (usually flagged as either major or minor) before it is reconsidered.

7. Journal Evaluates the Reviews

The handling editor considers all the returned reviews before making an overall decision. If the reviews differ widely, the editor may invite an additional reviewer to get an extra opinion before making a decision.

8. The Decision is Communicated

The editor sends a decision email to the author including any relevant reviewer comments. Whether the comments are anonymous or not will depend on the type of peer review that the journal operates.

9. Next Steps

If *accepted*, the paper is sent to production.

If the article is *rejected* or sent back for either major or minor *revision*, the handling editor should include constructive comments from the reviewers to help the author improve the article. At this point, reviewers should also be sent an email or letter letting them know the outcome of their review.

If the paper was sent back for *revision*, the reviewers should expect to receive a new version, unless they have opted out of further participation.

However, where only minor changes were requested this follow-up review might be done by the handling editor.

Author Guidelines

Final Submission:

Authors should note that proofs are not supplied before publication. The manuscript will be considered to be the definitive version of the article. The author must ensure that it is complete, grammatically correct and without spelling or typographical errors. Before submitting, authors should check their submission completeness using the given Article Submission Checklist. The manuscript will be considered to be the definitive version of the article.

Manuscript requirements

Authors are advised to prepare their manuscripts before submission, using the following guidelines

Format	- All files should be submitted as MS Word compatible documents. - Times New Roman font, 12 sized and 1.5 line-spaced. Single columned layout and in B5 sized paper.

Article Length	• Articles can contain a maximum of 10 pages including references.
Article Title	• A title of not more than 20 words should be provided. • Times New Roman font, 14 sized and 1.5 line-spaced
Author Details	• Name of each author with initials ex: Bandara, A.W.M. • Affiliation of each author, at time research, was completed. If more than one author has contributed to the article, details of who should be contacted for correspondence. • E-mail address of the corresponding author
Abstract	• A single paragraphed abstract containing maximum of 300 words. • The abstract should include the purpose of the study, research problem, objectives, design/methodology/approach, findings, and also could mention the originality/value of the work with the conclusion. • Times New Roman font, 12 sized and 1.5 line-spaced. Single columned layout justified Italic.
Keywords	• Provide up to 05 keywords encapsulating the principal topics of the paper.

Article Format	• The article submission should be compiled in the following order:
	  (I) abstract, keywords
	• main text including
	  (II) introduction (including relevant literature and research objectives)
	  (III) materials and methods
	  (IV) results and discussion
	  (V) conclusion and recommendations, acknowledgements
	  (VI) references

The text	• Line spacing should be 1.5; with 12-point font Times New Roman Should employ italics • For scientific names, use the SI system/ metric system for units of measurements.

	• All illustrations, figures, and tables should be placed within the text at the appropriate points, rather than at the end.
References	• Please use the APA (American Psychological Association) reference style. • For detailed information, please see the Publication Manual of the American Psychological Association, Sixth Edition (2010); http://www.apastyle.org/ and http://blog.apastyle.org/ • References should be 1.5 spaced, 1.5 cm 2nd line right indent, and listed alphabetically at the end of the paper

Table of Contents