සමෝධාන
SAMŌDHĀNA

සමාජීයවිද්‍යා හා මානවශාස්ත්‍ර පීඨ ශාස්ත්‍රීය සංග්‍රහය

Journal of Faculty of Social Sciences and Humanities

2021 10 වෙළුම – I කලාපය

Volume 10 - Issue I

Journal of Faculty of Social Sciences and Humanities

Rajarata University of Sri Lanka

සමෝධාන

SAMÖDHÄNA

සමාජීයවිද්‍යා හා මානවශාස්ත්‍ර පීඨ ශාස්ත්‍රීය සංග්‍රහය

The Journal of Faculty of Social Sciences and Humanities

ශ්‍රී ලංකා රජරට විශ්වවිද්‍යාලය - මිහින්තලේ

Rajarata University of Sri Lanka - Mihintale

Published: 06th June 2023

ISSN 2235-9109

Graphic & Layout design:
Mr. Chathura Gunathilaka

Cover designed by:
Mr. Thusitha Dissanayake

Published by
Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.

සමෝධාන

SAMÖDHÄNA

The Journal of Faculty of Social Sciences and Humanities

Volume 10 Issue I – 2021(June)

Faculty of Social Sciences and Humanities
Rajarata University of Sri Lanka
Mihintale

සමෝධාන
SAMÖDHÄNA
Vol 10, Issue I (June) 2021

List of Reviewers

Prof. Lalitha Dissanayake
Professor, Department of Geography, University of Peradeniya

Prof. R.S.S.W.Arachchi
Professor, Department of Tourism Management, Faculty of Management Studies, Sabaragamuwa University of Sri Lanka

Prof. T.G.A.Thalwatta
Professor, Department of Humanities, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka

Prof. R.P.I.R.Prasanna
Professor, Department of Economics, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka

Dr. Sunil Kularatne
Senior Lecturer, Dept. of Language Studies, Faculty of Education, University of Vocational Technology

Dr. S.A.R.R.P. Dissanayake
Senior Lecturer, Dept. of Languages, Gampaha Wickramarachchi University of Indigenous Medicine

Dr. T.B. Wijepala
Senior Lecturer, Department of Archaeology and Heritage Management, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka

Dr. Sisira Withanachchi
Senior Researcher and Senior Lecturer at Universität Kassel, German

Mr. D.J.K. Ihalagedra
Senior Lecturer, Department of Humanities, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka

Mrs. A.M. Priyangani Adikari
Senior Lecturer, Department of Economics, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka

Mr.H.G.K.N.Bandara
Senior Lecturer, Department of Economics, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka

Mr. Prasad Kumara
Lecturer, Department of Humanities, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka

Ms. T.M. Chathurika Senarathna
Lecturer, Department of Social Sciences, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka

සමෝධාන
SAMÖDHÄNA
Vol 10, Issue I (June) 2021

Contents

Editorial Note

It is with great pleasure that we present Volume 10 (Issue I) of "Samodhana," our esteemed journal dedicated to the vast realm of Social Sciences and Humanities. As we delve into the ever-evolving landscape of knowledge, we find ourselves at a crossroads where interdisciplinary research emerges as a beacon of intellectual progress.

In today's interconnected world, societal issues transcend conventional disciplinary boundaries. Our complex challenges demand a multifaceted approach that draws upon the diverse perspectives and methodologies inherent in the social sciences and humanities. The journal aims to encourage the publication of scholars' research on the Social Sciences and Humanities to promote knowledge at the national level. It publishes review papers, book reviews, and original research articles.

"Samodhana," Volume 10 (Issue I) embodies our commitment to showcasing the remarkable diversity and intellectual rigour present in the field. The articles featured in this issue reflect the breadth and depth of research conducted across disciplines, shedding light on critical issues and their societal implications. In volume 10, Issue I, five articles were published covering subjects such as Education, Tourism, History, Economics, Waste and Energy.

We invite you to immerse yourselves in the rich tapestry of insights from our esteemed authors, whose research exemplifies the power of interdisciplinary collaboration by embracing different theoretical frameworks, methodologies, and perspectives. We believe fostering a holistic intellectual environment is crucial for advancing knowledge and facilitating informed discussions.

As we embark on this intellectual journey together, we extend our gratitude to the diligent authors, reviewers, and editorial board members who have contributed their expertise and dedication to make this edition of "Samodhana" possible. We also thank our readers, whose unwavering support and engagement inspire us.

We hope this " Samodhana " Volume 10 (Issue I) will broaden your horizons and ignite a curiosity that transcends disciplinary boundaries. Let us embark on this journey of interdisciplinary exploration, embracing the vast tapestry of the social sciences and humanities.

Prof. Manjula Ranagalage
Editor-in-Chief
Samodhana – The Journal of Faculty of Social Sciences and Humanities

SAMODHANA JOURNAL
Faculty of Social Sciences and Humanities,
Rajarata University of Sri Lanka,
Mihintale

2021 **Volume 10** **Issue I**

Conceptualizing Educational Management for Enhancement of Quality of Education

R.M. Dhanapala[1]

Received Date: 06th June 2022
Accepted Date: 17th March 2023
Published Date: 06th June 2023

Abstract

Educational management and school improvement in any country have been considered imperative as far as improving students' achievements at schools is concerned. Education management involves the management of all processes of education and technologies which are used in the process of learning in order to improve the learning conditions of students. School improvement is ensuring that students are provided with conducive learning conditions. The main objective of this study is to explore and review the importance of educational management in a country to provide students with an adequate and high-quality education through a review of the literature. It is apparent from the research studies that the enhancement of education (i.e. learning and teaching) can be effectively done with the proper application of ideal management practices such as planning, organizing, staffing, directing, coordinating, reporting and budgeting. Therefore, it is pivotal that the leadership of educational institutions and schools needs to possess managerial skills more than qualifications and experience in specific fields. In the case of higher education and universities, the findings in respect of educational management in school education can be easily adapted as the major components of educational management specified in the school

[1]Department of English Language Teaching, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka rmdhanapala@yahoo.co.uk

education system resemble that of the higher education and the university sector.

Keywords: Educational management, administration, planning, leadership, student achievements

Introduction

The profound effect of educational management has been coined in the widespread belief that the impact of educational management significantly enhances the quality of school education and the subsequent effect on student achievements. Educators have stressed the importance of promoting educational leadership development in higher education to strengthen the quality of teaching and learning (Fields, Kenny and Muller, 2019).

The concept of management often overlaps with the terms; leadership and administration. The term management is famous and used, for instance, in Great Britain, Europe, and Africa. On the other hand, the term administration is preferred in the United States, Canada, and Australia.

Enhancement of the quality of education basically involves the major three domains; learning, teaching and assessment (Dhanapala, 2012). However, it is vital to ascertain the macro-level function of management beyond the identification and effective functioning of the three main domains. The effectiveness of the three domains (learning, teaching and assessment) in the educational setting is predominantly subject to institutional management and administration. Failure and improper educational management would result in attaining the goals set in the institution (Tarragó & Wilson, 2010).

The interest paid towards management in education is on the belief that effective management in the educational environment makes a significant difference to school and student outcomes. In many parts of the world, including both developed and developing countries, there is recognition that educational institutes require effective leaders and managers if they are to provide the best possible education (Bush, 2008). The traditional view in many countries is that the senior staff of educational institutions need only to be qualified and experienced. However, there is now an emerging recognition that management is a parallel, sometimes separate condition that requires specific preparation. In line with these conditions in education, Bolam (1999) defines educational management as an executive function for carrying out agreed policy. He identifies that management in educational institutions facilitates policy formulation and organizational transformation.

As there are escalating phenomena of the vitality of educational administration and management, the purpose of this paper is to identify and review the validity of educational management in the educational sector for the purpose of enhancement of the educational environment and ultimate outcomes by way of a literature review.

Methodology

The paper is presented as a review article that contains the literature related to the practical domain of educational management. Further, the study examines the contribution of effective management towards the educational environment and the subsequent attainment of ultimate outcomes of the educational institutes. The development of concepts related to educational management and the contribution towards enhancement in education was done with the help of literature available in the study area.

The Concept of Management

Organizations, private or state, must have a person or group to pilot the activities and affairs to attain the goals through planning, organizing, controlling, and coordinating human activities. These people are identified as managers, administrators, leaders, or supervisors. In line with the vision and the mission of the organization, these positions are charged with the daunting responsibilities of ensuring that the fundamental environment is operated effectively and efficiently in order to achieve the goals of the organization. Hence, the effectiveness of any organization depends greatly on management (Akpan, 2011). The concept of management can be further elaborated as the effectiveness of utilizing the resources of organisations through the systematic arrangement of the resources available. The management process involves the process of working with and through people to achieve group goals and objectives. Furthermore, creating, supervising, and monitoring human activities through coordinated and concerted efforts are involved in the process of management.

Definitions of management

Management may be defined in many different ways. Many eminent authors on the subject have defined the term "management". A few noteworthy definitions by experts in the discipline are appended below.

- According to F.W. Taylor (father of scientific management) – "Management is an art of knowing what is to be done and seeing that it is done in the best possible manner."
- In the words of Henry Fayol (father of modern management) - "To manage is to forecast and to plan, to organize, to command, to co-ordinate and to control."
- According to - "Management is the development of people and not the direction of things."
- According to Joseph Massie - "Management is defined as the process by which a cooperative group directs action towards common goals."
- In the words of George R Terry - "Management is a distinct process consisting of planning, organizing, actuating, and controlling performed to determine and accomplish the objectives by the use of people and resources."
- According to James L Lundy - "Management is principally the task of planning, coordinating, motivating and controlling the efforts of others towards a specific objective."
- Peter F Drucker's definition includes, "Management is concerned with the systematic organization of economic resources, and its task is to make these resources productive."
- In the words of Koontz and Weihrich, "Management is the process of designing and maintaining an environment in which individuals working together in groups accomplish efficiently selected aims."

From the above definitions, it is clear that management is the coordination and administration of tasks to achieve set goals. Such administration activities include setting the organization's strategy and coordinating the efforts of staff to accomplish these objectives through the application of available resources. Management can also refer to the productive utilization of resources.

According to Akpan (2011), for a manager to succeed in the working environment, the tasks have to be assigned and be performed by the people, materials have to the procured for use by the people in the performance of tasks, and the tasks performance has to be supervised and monitored to ensure that rules and policies are followed in order to maintain and enhance the standard of achievement. Thus, management is not an isolated activity performed by the manager alone. It involves cooperation and teamwork from all members of the work organization. For managers to succeed in this direction; they need to create an organizational climate in which people work willingly and cooperatively toward the achievement of set goals of the organization.

The Concept of Educational Management

While education is the provision of a series of learning experiences to students in order to impart knowledge, values, attitudes and skills with the ultimate aim of making them productive members of society, Educational Management is the process of planning, organizing, directing and controlling the activities of an institution by utilizing human and material resources optimally to effectively and efficiently accomplish functions of teaching, extension work and research.

According to Babalola (2006), educational management is a concept that goes along with the quest to put the formal education system under control, regulation and supervision. Dash (2000) is of the view that management in education means deciding the goals of an educational institution and the activities to be conducted to achieve these goals. The definition by Idoko (2015) reflects the domain of human factors and thus explains that educational management is the process which helps educational institutions develop a human personality. Hence, the major duty of the manager of an educational institution is to get the work done in order to accomplish the pre-planned objectives.

From the various definitions, Akpan (2016) deduced that educational management is concerned with the following:

- Planning, decision-making and formulation of educational policies, goals, and programmes.
- Harnessing and managing educational resources for the attainment of educational goals.
- Mobilizing people in the educational system to work effectively toward goal achievement.
- Planning, organizing, controlling, conducting, and supervising activities in educational institutions toward achieving set goals.

As Idoko (2005) states, school management involves coordinating the efforts of the people by way of human and material resources in order to accomplish the set objectives of the educational institute to accomplish the educational institute's set objectives. Educational management, therefore, can be defined as the process of planning activities, formulating and setting educational goals and policies, and proper coordination and management of resources toward the achievement of pre-determined goals.

POSDCORB is an acronym widely used in the field of management and public administration that reflects the classic view of organizational theory. It appeared most prominently in a 1937 paper by Gulick & Urwick (1937). Initially, POSDCORB was envisioned in an effort to develop public service professionals. In Gulick's own words, the elements are as follows: Planning, Organizing, Staffing, Directing, Co-Ordinating, Reporting and Budgeting. The adaptation of each of these functions in educational administration is appended below.

Planning:

Planning involves examining the future and drawing up or mapping out a course of action for achieving specific goals (Akpan, 2011). Planning involves the activities or works to be done and the procedure for doing them to accomplish a set purpose. The planning functions of an educational or school manager include formulating policies and setting goals and objectives. Determining the future manpower need of the school, future enrolment of students or pupils and facilities needed for the successful operation of the school are part of the functions of planning. Planning is an essential function of educational management as it is through planning that educational objectives are initiated, translated into programmes and activities are implemented.

Organizing:

Organizing involves building up structures, both human and material resources, for the attainment of organizational goals. Further, organizing is a managerial function that deals with determining what is to be done, by whom and the procedure for doing it. It is also concerned with establishing a structural line of authority and indicating clearly the method of doing a particular job. It involves establishing an appropriate channel of communication for information flow in the organization. According to Okwori (2011), the organizing function involves dividing tasks or work, departmentalizing and delegating authority and responsibility.

Coordinating:

Coordinating entails interrelating the various work units or departments or sections of an organization and their activities to work together toward goal attainment. It involves building together, unifying and harmonizing all activities and efforts in the school organization (Akpan, 2011). Hence, coordinating can be defined as the process of ensuring that the efforts and activities of workers are properly channelled and directed toward the achievement of organizational goals. It involves the ability of the educational manager to put together the available educational resources (human and material) and utilize them effectively and efficiently to achieve school goals and objectives.

Controlling:

Determining how well an actual operation conforms with expected results can be termed controlling. If results fail to meet expectations, an attempt must be made to determine the reason for the failure and remedial actions should be taken accordingly. Controlling ensures that everything occurs in conformity with the plan, objectives and set standards. Controlling involves the evaluation of the performance of workers compared to the set plan. Therefore, managerial skill ensures effective acquisition and use of the organizational resources to achieve stated objectives.

Staffing:

Staffing is a whole personnel functional element of bringing in and training employees in order to maintain a favorable environment for work. It involves all activities concerned primarily with ensuring that educational institutions have adequate staff in quantity and quality (Akpan, 2011). It involves selecting new employees, orienting them and developing training programmes so that staff can attain a high level of effectiveness and become more competent in discharging their duties.

Directing:

Directing is the function that makes decisions and embodies them in specific and general orders and instructions, which serve as a guide in an organization. In educational management, the school management has to provide leadership in dealing with the subordinates as individuals and as groups. The function of directing necessitates the school manager to give orders and directives to other people and expect their compliance. Therefore, for the manager to do this successfully, he/she needs to understand the complex processes of leadership, such as the ability to influence subordinates to work willingly and cooperatively in institutional tasks. According to Akpan (2011), providing this kind of leadership means directing that involves supervising and establishing a good line of communication so that work processes can be carried out efficiently.

Reporting:

Reporting entails the ability of the school manager to keep himself and his subordinates informed through records, research, and inspection (Akpan, 2011). Reporting also involves the ability of the manager to effectively communicate information and school reports to his superiors and subordinates.

Budgeting:

Budgeting can be seen as the forecasting of future expenditures of an organization based on expected income. It concerns everything in terms of financial planning, accounting and control needed to implement organizational programmes and activities within a given period. The school manager or educational manager should be familiar with the principles of school financial management for the smooth functioning of the institute.

Identification of determinants of effective school management

Scholars in education have researched identifying vibrant determinants leading to effective management in the school context (David & Hopkins, 1996; Reynolds, 1996; Mortimore et al., 1988). However, these determinants can also be adaptable in higher education as they conform to management fundamentals. David & Hopkins (1996) discovered eight determinants for effective school management, which can be identified as; school leadership, the suitable climate within the school, focus on curriculum and teaching, clear goals and high expectations for students, monitoring performance and achievement, staff development and in-service training, parental involvement and external support. The determinants identified by Reynolds (1996) contain nine key determinants associated with effective school management. These are professional leadership, shared vision, goals, learning environment, high-quality teaching and learning, high expectations, positive reinforcement, monitoring pupils' progress, and pupils' rights and responsibilities.

Mortimore et al. (1988) identified twelve determinants for effective school management, and these are; purposeful leadership of the staff by the head, the involvement of the deputy head, the involvement of teachers, consistency among teachers, structured sessions, intellectually challenging teaching, work-centred environment, limited focus within lessons, maximum communication between teachers and pupils, record keeping, parental involvement, and positive climate.

The common determinants, such as leadership, staff development, and quality of teaching and learning, are among the determinants proposed by both Reynolds (1996) and David & Hopkins (1996). However, Mortimore et al. (1988) have focused more on the teaching and learning environment and the leadership domain in effective management.

Findings and Conclusions

It is evident from the literature that there is a positive relationship between educational management and the enhancement of education. The functions of management involve a series of activities oriented towards the effective and efficient use of organizational resources in order to meet organizational objectives (Sapre, 2002). The traditionally held concept was that leaders of educational institutes need to possess the necessary qualifications and experience to function in the process of educational management. However, it is apparent from the research studies that the enhancement of education (i.e., learning and teaching) can be effectively done with the proper application of ideal management practices such as planning, organizing, staffing, directing, coordinating, reporting, and budgeting. Therefore, it is pivotal that the leadership of educational institutions and schools needs to possess managerial skills more than qualifications and experience. Leadership and management need to be given equal prominence if schools are to operate effectively and achieve their objectives. Leading and managing are distinct, but both are important. The challenge of modern organizations requires the objective perspective of the manager as well as the flashes of vision and commitment wise leadership provides (Bolman & Deal, 1997).

Further, the number of determinants proposed by Reynolds (1996), David & Hopkins (1996), and Mortimore et al. (1988) be given special attention in relation to effective functions of educational management. Some important determinants can be identified as; focus on curriculum and teaching, high expectations for students, staff development and in-service training, monitoring student progress, and positive communication with students. Further, the findings in respect of educational management in school education can be easily adapted to the higher education sector in general and the university system in particular, as the major components of educational management that are specified in the school education system resemble that of the higher education and the university sector.

References.

Akpan, C. P. (2011). Fundamentals of School Business Management. Calabar, Princechoic Consult.

Akpan, C. (2016). Educational Management SKILLS. Retrieved from https://www.researchgate.net/publication/338765777_EDUCATIONAL_MANAGEMENT_SKILLS (30.12.2021.)

Babalola, J. B. (2006). Overview of management in J. B. Babalola, A. O. Ayeni, S. O. Adedajo A. A. Suleiman and M. O. Arikewuyo. (eds.). Educational Management Though and Practice (pp. 1-16) Ibadan: Codat Publications.

Bolam, R. (1999) 'Educational administration, leadership and management: towards a research agenda', in T. Bush, L. Bell, R. Bolam, R. Glatter and P. Ribbins (eds), Educational Management: Redefining Theory, Policy and Practice. London, Paul Chapman Publishing.

Bolman, L.G. & Deal, T.E. (1997). Reframing Organizations: artistry, choice and leadership. San Fran cisco, CA: Jossey Bass.

Bush, T. (2008). Leadership and Management Development in Education. SAGE Publications Ltd. DOI**:** https://dx.doi.org/10.4135/9781446213605

Dash, M. (2000). Education in India Problem and Prospects. New Delhi Atlantic Publishers.

David, H. H. & Hopkins, D. (1996). "The Empowered School", Cassell Educational Limited, Wellington House, 125 Strand London, WC2 RoBB.

Dhanapala, R.M. (2012) Impact of ELT Programmes of the Faculty of Management Studies of Rajarata University of Sri Lanka on the English Language Proficiency Needs of the Private Sector Business Organizations: A Case Study. Unpublished M. Phil. Dissertation, University of Kelaniya, Kelaniya.

Fields, J., Kenny, N.A. and Muller, R.A. (2019). Conceptualizing educational leadership in an academic development program. *International Journal For Academic Development. Routledge, Taylor &Francis Group.* https://doi.org/10.1080/1360144X.2019.1570211

Gulick, L. and Urwick, L. (1937). Papers on the science of administration. New York: Institute of Public Administration, Columbia University

Idoko, A. A. (2015). Educational Management and other Contemporary Problems. Makurdi Nigeria. Wintoren Books.

Idoko, A. A. (2005). Understanding school management. Makurdi, Benue State Ugo Printing Press.

Mortimore, et al. (1998). School Matters. The University of California Press.

Okwori, A. (2011). Conceptual and Practical Approach to Educational Planning. Makurdi, Nigeria: Aboki Publishers.

Reynolds, D. (1996). "School Effectiveness and School improvement in the United Kingdom" London Press.

Sapre, P. (2002). Realizing the potential of educational management in India. Educational Management and Administration, 30(1), pp.101-108.

Tarragó, F. R. & Wilson, A.E. (2010). Educational Management Challenges for the 21st Century, Key Competencies in the Knowledge Society, 2010, Volume 324, ISBN: 978-3-642-15377-8

SAMODHANA JOURNAL
Faculty of Social Sciences and Humanities,
Rajarata University of Sri Lanka,
Mihintale

2021 **Volume 10** **Issue I**

Tourism and Hospitality Undergraduates' Perception Towards Career Choice in the Tourism Industry in Sri Lanka

RATD De Silva[1], JAPM Jayasinghe[2], and DMMI Dissanayake[3]

Received Date: 15th June 2022
Accepted Date: 10th March 2023
Published Date: 06th June 2023

Abstract

Tourism and hospitality students are a valuable part of this potential labour force. Several previous studies found that students have a negative perception of jobs in the tourism industry, while few studies have investigated that students have a positive perception of tourism jobs in different countries. Hence, this study aims to investigate the perceptions of tourism and hospitality undergraduates' when choosing a career in the tourism industry in Sri Lanka. The study is a survey and is based on a quantitative approach. The structured online questionnaire surveyed the students' perception regarding the nature of the jobs, physical working conditions, social status, industry person-congeniality, and promotion opportunities offered within the industry. At the same time, respondents were asked to consider the COVID-19 pandemic when answering questions. The responses from 120 state university students were analyzed using descriptive statistics, correlation coefficient analysis, multiple linear regression analysis, t-test and ANOVA tests. The finding of the research study shows that Social status, Industry person-congeniality, and promotion

[1] *Department of Tourism & Hospitality Management, Rajarata University of Sri Lanka*
[2] *Department of Tourism & Hospitality Management, Rajarata University of Sri Lanka*
[3] *Department of Tourism & Hospitality Management, Rajarata University of Sri Lanka*
Corresponding Author: nayanakusu0@gmail.com

opportunities had a significant positive association with the career choice of undergraduates in the tourism industry during the post-COVID-19 pandemic, and there was a significant negative relationship between the nature of jobs and career choice. However, the physical working conditions of employment in the tourism industry do not affect the career choice of undergraduates. Significantly, among five independent variables career choice of undergraduates in the tourism industry was highly influenced by the industry person- congeniality factor. The study concludes that the tourism and hospitality students positively perceived the social status of employment, industry person-congeniality, and promotion opportunities of employment while negatively perceiving the nature of the tourism industry. Accordingly, the research recommends that responsible authorities in Sri Lanka should take steps forward to increase the student's awareness regarding tourism industry working conditions to create good perceptions among them.

Keywords: Tourism Undergraduates, Perception, Career choice, Tourism, Sri Lanka

Introduction

The tourism industry, which contributes well to the economies of many countries worldwide, has not been able to reap the full benefits of the industry due to the shortage of a knowledgeable and skilful workforce (Richardson, 2008). The tourism industry is becoming more popular among students recently. Also, university graduates and students focus more on tourism careers than ever before. However, even though the number of tourism students rapidly increases worldwide, t. (Lee Bamford, 2012), explained two possible reasons: the industry doesn't value a degree and students' negative perceptions about the industry. Moreover, many researchers paid attention to the second reason for decades. Therefore, many studies concluded perception/ attitude or intention of tourism as a career perceived by students as having poor wages, long working hours, low stability, and poor working conditions (Aksu & Köksal, 2005; Kim et al., 2010; Kusluvan & Kusluvan, 2000; Richardson, 2008).

The tourism industry is key to Sri Lanka's employment generation, contributing 11% to the country's total labour force in 2018 (International Labour Organization, 2020). Further, the (Tourism Skills Committee, 2018) reported that nearly 25,000 to 30,000 additional workers would be required each year to cater to the projected increase in visitor arrivals and the replacement for those leaving and retiring. In Sri Lanka, the number of tourism and tourism-related diplomas, degree programs, and course programs offered by several institutions is present. Significantly, government universities have taken a commendable decision to include tourism and tourism-related study programs in their system. However, the annual output of 1,500 tourism industry graduates is insufficient to meet the industry standards ("Tourism Development Strategy," 2020). Tourism and hospitality students entering the tourism industry workforce in the future are more important in this scenario. Several studies found that tourism students negatively perceive jobs in the industry (Amissah et al., 2020; Richardson, 2009; Richardson & Butler, 2012), while few studies found it positive (Richardson & Thomas, 2012; Wijesundara, 2015, vol. Tourism, Leisure and Global Change, volume 2) and (Roney & Oztin, 2007) examined that overall perceptions of respondents were neither favourable nor unfavourable. Here, the question arises of the perception of tourism students of Sri Lanka in this regard. Therefore, this research aims to examine the perceptions of tourism and hospitality undergraduates regarding career choices in the tourism industry in Sri Lanka. The current study examined and seeks to answer the research question through state university tourism and hospitality undergraduate students in Sri Lanka.

Undergraduates' perception of career choice concerning the nature of the jobs, social status, industry person- congeniality, physical working conditions, and the promotion opportunities in the tourism industry. Accordingly, the specific objectives are;

- To investigate the effect of undergraduate career choice on the nature of jobs, social status, industry person-congeniality, physical working conditions, and promotion opportunities in the tourism industry.
- To determine the most influencing factor for undergraduates to perceive career choice.
- To investigate whether undergraduates' demographic characteristics affect undergraduate career choices.

The findings of this study will be useful for tourism and hospitality undergraduate students, tourism planners, scholars, government, and tourism businesses.

Literature Review

COVID-19 and Tourism and Hospitality Industry

The tourism industry is one of the leading industries in the world and is growing rapidly while contributing to the socio-economic development of the countries. The downside of this service industry is that political crises, pandemics, natural disasters, etc., easily victimize it. The most recent example of such a negative impact on the tourism industry is the COVID-19 epidemic. Worldwide international tourist arrivals declined by 98% due to travel restrictions in May 2020 (Sucheran, 2021). Also, the UNWTO indicates that global gross domestic product could reduce by 1.5% to 2.8% while reporting the losses in export revenues from tourism could befall between USD 910 billion to USD 1.2 trillion in 2020.

Meanwhile, World Travel and Tourism Council (WTTC) indicated that the job loss in the tourism industry in 2020 was 62 million, representing a drop of 18.5%. As a result of the pandemic, many countries imposed travel bans and restrictions for COVID-19, and the arrivals of tourists in Sri Lanka decreased by 71% at the initial stage of COVID-19 (Amaratunga et al., 2020). In particular, the decline of tourist arrivals with travel bans, lockdowns, curfews, and quarantines led to a drop in tourism industry businesses. According to (Jayapriya Senanayake, 2021), hotel occupancy rates in Sri Lanka declined to nearly zero for hotels outside of Colombo by the end of March 2021.

Tourism and Hospitality Employment

The tourism and hospitality industry is very important for employment generation; in 2018, employment in the tourism industry directly contributed to 3.8% of the total workforce globally (International Labour Organization, 2020). Similarly, in 2019, the tourism industry, directly and indirectly, accounted for 10.3% of total global employment. However, the tourism and hospitality industry relatively has a high labour turnover (Atef & Al Balushi, 2017; Lee Bamford, 2012; Yıldırım et al., 2021). Many scholars explained that the worldwide tourism and hospitality industry has a shortage of skilful and committed workforce (Lee Bamford, 2012; Richardson, 2008, 2009; Yıldırım et al., 2021). The tourism industry in Sri Lanka creates long-lasting career opportunities; on the other hand, there aren't enough, and there will not be sufficient skilled Sri Lankans to meet the market demand in the tourism industry (International Labour Organization, 2020).

Dissatisfaction with employment in the tourism industry is a major reason for its labour turnover. Therefore, it is important to identify job areas that tourism and hospitality undergraduate students are more interested in pursuing in the future. According to (Shah et al., 2021), students were interested in core hotel-related positions such as food production and bakery, and front office jobs, while jobs in the housekeeping department garnered low interest. (Atef & Al Balushi, 2017) holds different findings to this, Oman's students were less preferred for hospitality work in hotels and restaurants, and the poor image of Omani society was directly affected by this. Research conducted in Indonesia found that education level impacts selecting vocational areas; diploma students are most likely to engage with the accommodation sector as their career field, while undergraduate students are more likely to go with transportation and tourism consulting services. This aligns with the (Roney & Oztin, 2007) study, where the finding revealed that respondents were most preferred the accommodation sector than the food and beverage sector and others after their graduation. However, this segment is not researched in the Sri Lankan context yet and the current study will examine this regard.

Tourism and Hospitality Education

(Yıldırım et al., 2021) Mentioned that tourism education is connected with vocational education. The concept of vocational education is defined as education that is based on vocation and employment. Moreover, (Marković, 2006) examined that tourism and hospitality management education is multidisciplinary and incorporates and applies perspectives in sociology and other fields. The importance of tourism education for jobs in the tourism and hospitality industry varies from country to country. For example, experience is key to gaining employment in the sector in New Zealand than tourism education (Lee Bamford, 2012). The same study found that it believed that engaging in internationally renowned educational institutions will make it easier for students to get a job (Lee Bamford, 2012). Next, the Turkish context study found that students emphasized that studying tourism is a good career investment (Roney & Oztin, 2007). According to (Bandara & Gangananda, 2021), educational factors seriously impact career selection in the tourism and hospitality industry in Sri Lanka.

Career Perception of Tourism and Hospitality Students

Many studies focused on factors that influence students' career decision-making. This study will review many research articles on career choice perceptions of tourism and hospitality students. (Rosyidi, 2021) the three most important factors related to the nature of work are; a fun environment, enjoyable work, and friendly co-workers. (Richardson, 2009; Richardson & Butler, 2012) the most important attribute, like the job, is enjoyable to work. Another widely accepted variable was too long working hours(Kusluvan & Kusluvan, n.d.; Richardson, 2008). "Generation Y does not appear to want to work long hours; they do want to work hard and have a good work-life balance" (Maxwell et al., 2010, p. 60). However, (Lee Bamford, 2012) examined slightly different results than others. He found that some students were unsure whether working hours are too long, and educational institution impacts this opinion. Another important dimension is pay and benefits. (Atef & Al Balushi, 2017; Kusluvan & Kusluvan, 2000; Lee Bamford, 2012; Richardson, 2008) The industry became less attractive due to the perception of the low salaries of tourism students. When the research applied to Indonesia, tourism and hospitality students consider salary less important (Rosyidi, 2021) while (Richardson, 2009) Investigated that Indian tourism students have the intention that the industry does not offer a good starting salary. Evidence shows that tourism and hospitality undergraduates consider social status less important (Rosyidi, 2021). However, in the Sri Lankan context, female graduates are highly concerned about social status and do not like working in the tourism and hospitality industry after graduation (Karunarathne & Karunarathne, 2016). Many researchers ultimately concluded that tourism students (graduates/undergraduates) have unfavourable perceptions regarding jobs in the industry.

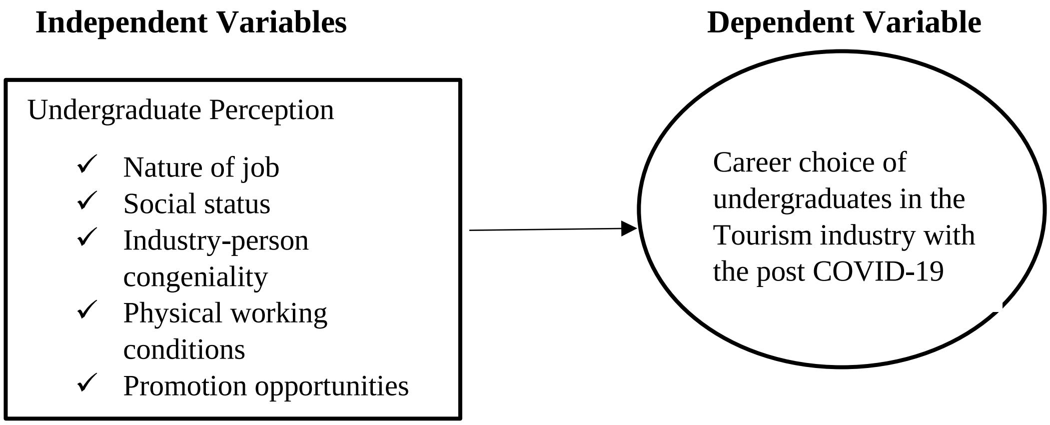

Figure 1: Conceptual Framework

Source: (Developed by the author, 2022)

The following hypotheses are formulated based on the study's literature review and conceptual framework.

H_1: The nature of employment in the tourism industry affects the career choice of undergraduates.
H_2: Social status of employment in the tourism industry effect on career choice of undergraduates.
H_3: Industry- person congeniality of employment in the tourism industry effect on career choice of undergraduates.
H_4: Physical working conditions of employment in the tourism industry affect on career choice of undergraduates.
H_5: Promotion opportunities for employment in the tourism industry affect on career choice of undergraduates.

Methodology

Research Design

The study was carried out under the quantitative research approach and survey design. The study population is all tourism and hospitality undergraduates in Sri Lanka who are currently following tourism and tourism-related degrees in-state universities. A total of 120 undergraduate students were selected for this study. The sample represents four state universities as the Rajarata University of Sri Lanka, the University of Kelaniya, Sabaragamuwa University of Sri Lanka, and the Uva Wellassa University of Sri Lanka; they are currently following tourism-related (Tourism, Hospitality, Event Management, Leisure Management) courses in the first, second, third or fourth of academic years. A stratified random sampling method was used for the study. Here, a structured survey questionnaire will be distributed online to the sample, also known as an online or web-based survey.

Further, the pilot testing was carried out by sending the questionnaire to forty-five (45) students at Rajarata University of Sri Lanka and twenty (20) were returned. This testing was very useful because unclear questions were found, and some required changes. For example, Rajarata University undergraduates become specialized in tourism or hospitality management in their third academic year, but their degree name is Tourism and Hospitality Management; therefore, when answered, some are recognized as a degree name, and some are identified as their specialized area. After fixing issues identified by the pilot test using 30 respondents, the online questionnaire was distributed among the sample, and all the questionnaires were collected at a 100% response rate.

The questionnaire is made up by dividing into two sections section one and section two. The first section was to obtain personal information about the respondents, such as; Gender, University, Academic year, Specializing area of the degree, and whether they chose the degree willingly or not. Moreover, the second part was for factors (variables) that affect undergraduates' career selection in the tourism industry with COVID- the 19 pandemic. Fifty-three questions were asked under six main dependent and independent variables, including nature of jobs, social status, industry person-congeniality, physical working conditions, promotion opportunities, and career choice of undergraduates by using the items identified by (Kusluvan & Kusluvan, 2000).

Data Analysis

Collected data were analyzed using Statistical Procedure for Social Science (SPSS) software which is used for the statistical treatment of data and to test the proposed hypothesis. Data analysis of this study was carried out by using primary data and evaluating the questionnaire responses. The analysis results were interpreted and discussed using both descriptive and inferential statistics.

The SPSS software is used to conduct the descriptive analysis. In the descriptive analysis, numerical and graphical methods are used to organize, demonstrate, and analyze data. Correlation analysis, Regression analysis, Hypothesis testing, and Probability distributions come under inferential statistics. Correlation is used when the researcher needs to explore the relationship between variables. Therefore, correlation analysis uses various statistical tools and techniques to find the relationships between two or more variables.

Moreover, the correlation coefficient uses to discover the degree of the linear link between the two variables or the strength of the association (Fichter & Beucker, 2005, p. 230). Unlike simple linear regression, multiple regression analysis includes more than one predictor (Fichter & Beucker, 2005, p. 240). Hence, it is used to predict the value of a variable based on the value of two or more variables. Cronbach's Alpha was used to measure the reliability and validity of the study.

Results and Discussion

Discussion

Through this section, the researcher makes a comparative investigation with the results of the current study and the findings of previous researchers. Also, (Wijesundara, 2015) suggested that future researchers identify perceptions of potential students following tourism-related degrees in Sri Lanka, and the present study fills this gap. The variables for this research were adopted from the (Kusluvan & Kusluvan, 2000) multi-dimensional model. The dual-purpose investigation was launched to develop a multi-dimensional and multi-item attitude scale for measurement by Kusluvan & Kusluvan, 2000. One of the aims was to investigate tourism students' attitudes towards working in the tourism industry. They conducted research in the Turkish context using tourism and hotel management students. Later, many researchers (Aksu & Köksal, 2005; Chung & Chan, 2017; Lusby & Lusby, 2017; Menemenci & Sucuoglu, 2015; Richardson, 2008; Roney & Oztin, 2007; Tuzunkan, 2016; Wang & Huang, 2014; Wen et al., 2019; Wiligas Biyiri, 2018) used this multi-dimensional scale in their research because of the success of the developed scale.

According to the results of multiple regression analysis, statistically, the nature of the job affected the career choice of tourism and hospitality undergraduates.

These results are compatible with the findings of previous surveys conducted by (Kusluvan & Kusluvan, 2000; Mannaa M.T, 2020; Wang & Huang, 2014). Also, the impact was found to a negative in the current study, while (Mannaa M.T, 2020) found it positive. However, this finding contradicts that of (Mohd et al., 2016), who examined that the nature of jobs does not affect students' career choices in the tourism industry. Another finding of the current study was that the social status of employment positively affects tourism and the hospitality industry career selection by students. That finding was in line with the results of (King & Hang, 2011; Kusluvan & Kusluvan, 2000; Sandiford & Seymour, 2010; Wang & Huang, 2014). Further, (Mohd et al., 2016) investigated social status as the most important factor when students choose their careers in the tourism and hospitality industry. According to the results, there was a significant positive relationship between industry person-congeniality and career choice of undergraduates during the post-COVID-19 pandemic. The findings of (Armoo & Neequaye, 2014; Kusluvan & Kusluvan, 2000; Wen et al., 2019) aligned with the result of the current study. Moreover, the researcher found that the most influential factor for undergraduates' perceived career choice in the tourism and hospitality industry was industry person- congeniality. Similarly, few authors examined industry person-congeniality as the most influential factor underlying students' perceptions (Armoo & Neequaye, 2014; Kusluvan & Kusluvan, 2000). One of the important findings of the current study was that physical working conditions have not affected tourism and hospitality undergraduates' career choices during the post-COVID-19 crisis. This finding does not support the finding (Mohammed, 2018) that physical working conditions influence Malaysian Hotel students' career intentions. Also, (Mokaya et al., 2013) revealed that workplace conditions enhance students' intention to join the tourism and hospitality industry. The promotion opportunities in the tourism industry impact undergraduates' career selection decisions was another key finding of the present study. The research study's results (Mohammed, 2018) are similar. Some scholars showed that promotion opportunities caused to increase in people's intention to join the tourism industry (Chuang & Jenkins, 2010; Kim et al., 2010; Richardson, 2008). Other important findings of this study include the following.

The present study investigated whether there was a difference between respondents' genders in their career perceptions. However, the results of many authors are inconsistent with this finding. (El-Houshy, 2018, p. 811; King & Hang, 2011; Korir & Wafula, 2012; Roney & Oztin, 2007) there was no significant difference between male and female undergraduate students' career perceptions. Another outcome was that there was a significant difference between students' job perception and their university. This finding agreed with the result found by (Roney & Oztin, 2007). Furthermore, the current study investigated the career perception of tourism and hospitality undergraduates changing according to their academic year. Similar results were found by (El-Houshy, 2018, p. 811; Kumar, 2013; Roney & Oztin, 2007). Another alarming finding of the study was that most respondents are willing to work in the tourism industry after graduation during the post-COVID-19 pandemic. (Rosyidi, 2021) identified that the percentage of undergraduates' willingness to work in the concerned industry after COVID-19 is slightly lower than pre-COVID-19. However, if the COVID-19 pandemic was ignored, many scholars found that students were willing to pursue a career in the tourism industry after graduation (Amissah et al., 2020; Anandhwanlert & Wattanasan, 2017; El-Houshy, 2018; Nunkoo & Chellen, 2010; Richardson & Thomas, 2012). Contrary, (Richardson, 2010; Robinson et al., 2016) found that most students were not likely to pursue tourism careers after graduation.

Reliability Analysis

Cronbach's Alpha was used to measure the internal reliability of the current study. According to the results, Cronbach's alpha value was 0.811, which indicates a high level of internal reliability or highly acceptable of the questionnaire.

Descriptive Statistics

Table 1: Descriptive Statistics

	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Nature of Jobs	53.5750	6.94717	-.542	.221	3.584	.438
Social Status	21.2083	4.24639	.052	.221	1.575	.438
Industry Person-Congeniality	33.3500	7.19786	.655	.221	1.500	.438
Physical Working Conditions	23.2500	3.98790	.629	.221	2.408	.438
Promotion Opportunities	21.9833	3.56685	.342	.221	4.683	.438
Career Choice	21.0917	4.10574	-.570	.221	1.378	.438
Valid N (listwise)						

Source: (Survey Data, 2022)

Descriptive statistics of the study show that the nature of the jobs variable has the highest average value. Industry person-congeniality has the highest standard deviation, which indicated the data were more spread out. The promotion opportunities variables have the lowest standard deviation, meaning more data was clustered about the mean. When talking about the skewness of the variables, the nature of jobs, and the career choice variables, data were skewed left. All other variables had right-skewed data sets. Also, the nature of employment and promotion opportunities variables data had positive excess kurtosis, while others had platykurtic kurtosis.

Pearson's Correlation Coefficient Analysis

The following table presents the correlation of each variable with other variables, including both dependent and independent variables. Here, Pearson Correlation was used to detect the power of the relationships between variables.

Table 2: Correlation Analysis

	Nature of Jobs	Social Status	Industry Person-Congeniality	Physical Working Conditions	Promotion Opportunities	Career Choice
Nature of Jobs	1					
Social Status	.433** .000	1				
Industry Person-Congeniality	.377** .000	.676** .000	1			
Physical Working Conditions	.514** .000	.482** .000	.351** .000	1		
Promotion Opportunities	.374** .000	.648** .000	.693** .000	.395** .000	1	
Career Choice	.144* .116	.542** .000	.545** .000	.278** .002	.556** .000	1

Source: (Survey Data, 2022)

Accordingly, results of the correlation analysis, social status, industry person-congeniality, and promotion opportunities variables had a moderately significant positive relationship with career choice. Physical working conditions have a weak significant positive association with career choice, while the Nature of job variable has no significant relationship with career choice.

Multiple Linear Regression Analysis

According to the multiple linear regression analysis, the researcher recognized that the impact of the nature of the job variable on career choice was a significant negative relationship. Social status, industry person-congeniality, and promotion opportunities are significantly positively associated with the career choice of undergraduates in the tourism industry during the post-COVID-19 pandemic. However, a significant negative relationship existed between the nature of jobs and career choice. Also, the physical working conditions variable has a positive but insignificant relationship with career choice. Therefore, the physical working conditions of employment in the tourism industry do not affect the career choice of undergraduates during post COVID- 19 pandemic. Except for that hypothesis, all other hypotheses of the study were accepted.

Table 3: Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.653[a]	.426	.401	3.17852

a. Predictors: (Constant), nature of jobs, social status, industry person-congeniality, physical working conditions, and promotion opportunities

Source: (Survey Data, 2022)

Conclusion

The study successfully investigated the negative effect of the nature of jobs in the tourism industry on the career choice of tourism and hospitality undergraduates. In contrast, Social status, industry person-congeniality, and promotion opportunities positively affected career choice. However, the study indicated no statistically significant effect of physical working conditions dimesons on undergraduates' career choices in the tourism industry. The study's second objective was to determine the most influencing factor for undergraduates' perceived career choices. The outcomes statistically show that the industry person-congeniality factor highly affected the willingness to choose tourism industry careers among all five independent variables. Further, the third objective was to investigate whether undergraduates' demographic characteristics affect undergraduate career choices.

Regarding gender, it was found that there was a significant difference between male and female undergraduate students in their career perceptions. According to the ANOVA test, there was a significant difference between academic years and university in undergraduate career choice. However, it was examined that there was no statistically significant difference among students' specializing areas in terms of career choice of undergraduates. Furthermore, the survey data were only collected from four state universities in Sri Lanka; therefore, the outcomes may not be generalizable to other countries and other universities and institutions of Sri Lanka.

References

Aksu, A. A., & Köksal, C. D. (2005). Perceptions and attitudes of tourism students in Turkey. *International Journal of Contemporary Hospitality Management*, *17*(5), 436–447. https://doi.org/10.1108/09596110510604869

Amaratunga, D., Fernando, N., Haigh, R., & Jayasinghe, N. (2020). The COVID-19 outbreak in Sri Lanka: A synoptic analysis focusing on trends, impacts, risks and science-policy interaction processes. *Progress in Disaster Science*, *8*, 100133. https://doi.org/10.1016/j.pdisas.2020.100133

Amissah, E. F., Opoku Mensah, A., Mensah, I., & Gamor, E. (2020). Students' Perceptions of Careers in Ghana's Hospitality and Tourism Industry. *Journal of Hospitality and Tourism Education*, *32*(1), 1–13. https://doi.org/10.1080/10963758.2019.1654884

Anandhwanlert, T., & Wattanasan, C. (2017). Career Perception of Undergraduate Students on Tourism & Hospitality Industry In Thailand. *International Journal in Management & Social Sciences*, *05*(01), 325–332.

Armoo, A. K., & Neequaye, K. (2014). Factors used by Ghanaian students in determining career options in the tourism and hospitality industry: Lessons for developing countries. *Worldwide Hospitality and Tourism Themes*, *6*(2), 166–178. https://doi.org/10.1108/WHATT-12-2013-0053

Atef, T., & Al Balushi, M. (2017). Omani tourism and hospitality students' employment intentions and job preferences: Ramifications on Omanization plans. *Quality Assurance in Education*, *25*(4), 440–461. https://doi.org/10.1108/QAE-04-2016-0022

Bandara, & Gangananda. (2021). The Effect of Undergraduates' Perception on Career Selection in Tourism and Hospitality Industry. *International Journal of Engineering and Management Research*, *11*(2), 43–47. https://doi.org/10.31033/ijemr.11.2.6

Chuang, N., & Jenkins, M. D. (2010). Career Decision Making and Intention: a study of hospitality undergraduate students. *Journal of Hospitality & Tourism Research*. https://doi.org/10.1177/1096348010370867

Chung, M., & Chan, T. (2017). *Exploring how hospitality undergraduate students ' perceptions and attitudes towards a career in the hospitality industry are affected by their work experience : A New Zealand quantitative study*.

El-Houshy, S. (2018). *Hospitality Students' Perceptions towards Working in Hotels: a case study of the faculty of tourism and hotels in Alexandria University*. *2002*, 800–819. http://arxiv.org/abs/1807.09660

Fichter, K., & Beucker, S. (2005). Research Methods in the Social Sciences. In B. Somekh & C. Lewin (Eds.), *Sage publications*. SAGE Publications Inc. https://doi.org/10.1007/978-3-642-22128-6

International Labour Organization. (2020). *Platformization of the Tourism Sector in Sri Lanka*. www.ilo.org/publns.

Jayapriya Senanayake, U. (2021). Threats and Opportunities of the COVID 19 on Tourism Industry in Sri Lanka and South Asian Region. *International Journal of Hospitality & Tourism Management*, *5*(1), 15. https://doi.org/10.11648/j.ijhtm.20210501.13

Karunarathne, C., & Karunarathne, A. C. I. D. (2016). *Understanding the Initial Career Decisions of Hospitality Management Graduates in Sri Lanka*. https://www.researchgate.net/publication/341519872

Kim, B. C., McCleary, K. W., & Kaufman, T. (2010). The new generation in the industry: Hospitality/tourism students' career preferences, sources of influence and career choice factors. *Journal of Hospitality and Tourism Education*, *22*(3), 5–11. https://doi.org/10.1080/10963758.2010.10696979

King, P. W. Y., & Hang, F. K. W. (2011). *Career Perceptions of Undergraduate Gaming Management Students*. *3220*. https://doi.org/10.1080/15313220.2011.624409

Korir, J., & Wafula, W. (2012). Factors that Influence Career Choice of Hospitality Students in. *Journal of Education and Practice*, *3*(14), 83–90.

Kumar, M. (2013). *Undergraduate Students' Prospects Regarding Career in Tourism Industry : With Special Reference of Volume 3 , Issue 9 (September 2013)*. *3*(9), 46–53.

Kusluvan, S., & Kusluvan, Z. (2000). Perceptions and attitudes of undergraduate tourism students towards working in the tourism industry in Turkey. *Tourism Management*, *21*(3), 251–269. https://doi.org/10.1016/S0261-5177(99)00057-6

Lee Bamford, K. (2012). *Undergraduate student perceptions of a career in the tourism and hospitality industry in New Zealand*. https://ourarchive.otago.ac.nz/bitstream/handle/10523/2448/bamfordki%A0rsten%A0lmtour.pdf?sequence=1

Lusby, C., & Lusby, C. (2017). *American and Macau student perceptions towards working in the tourism and hospitality industry American and Macau Student Perceptions Towards Working in the Tourism and Hospitality Industry*. *2*(1), 54–64.

Mannaa M.T, S. A. . (2020). *Al-Adab Journal – No. 135 (December) 2020 / 1442*. *135*(135).

Marković, S. (2006). *Expected service quality measurement in tourism higher education.*

Maxwell, G. A., Ogden, S. M., & Broadbridge, A. (2010). Generation Y's career expectations and aspirations: Engagement in the hospitality industry. *Journal of Hospitality and Tourism Management*, *17*(1), 53–61. https://doi.org/10.1375/jhtm.17.1.53

Menemenci, N., & Sucuoglu, E. (2015). *Undergraduate Tourism Students ' Opinions Regarding the Work Conditions in the Tourism Industry*. *26*(15), 1130–1135. https://doi.org/10.1016/S2212-5671(15)00941-7

Mohammed, A. A. M. (2018). Students ' intention to join the hotel industry in Malaysia : the role of physical working conditions , pay and benefits , and promotion opportunities. *Journal of Business and Retail Management*, *12*(4), 240–245.

Mohd, Z., Tan, A., Baharun, N., Mohd, N., Ngelambong, A., Mohd, N., Ghazali, N., Anis, S., & Tarmazi, A. (2016). Graduates ' Perception on the Factors Affecting Commitment to Pursue Career in the Hospitality Industry. *Procedia - Social and Behavioral Sciences*, *224*(August 2015), 416–420. https://doi.org/10.1016/j.sbspro.2016.05.410

Mokaya, S. O., Musau, J. L., Wagoki, J., & Karanja, K. (2013). Effects of Organizational Work Conditions on Employee Job Satisfaction in the Hotel Industry in Kenya. *International Journal of Arts and Commerce*, *2*(2), 79–90.

Nunkoo, R., & Chellen, H. (2010). " Understanding Students ' Commitment to Employment in the Tourism and Hospitality Industry ". *International Research Symposium in Service Management*, *August 2010*, 24–27.

Richardson, S. (2008). Undergraduate tourism and hospitality students attitudes toward a career in the industry: A preliminary investigation. *Journal of Teaching in Travel and Tourism*, *8*(1), 23–46. https://doi.org/10.1080/15313220802410112

Richardson, S. (2009). Undergraduates' perceptions of tourism and hospitality as a career choice. *International Journal of Hospitality Management*, *28*(3), 382–388. https://doi.org/10.1016/j.ijhm.2008.10.006

Richardson, S. (2010). Tourism and Hospitality Students ' Perceptions of a Career in the Industry : A Comparison of Domestic (Australian) Students and International Students Studying in Australia. *Journal of Hospitality and Tourism Management*, *17*(1), 1–11. https://doi.org/10.1375/jhtm.17.1.1

Richardson, S., & Butler, G. (2012). Attitudes of Malaysian Tourism and Hospitality Students' towards a Career in the Industry. *Asia Pacific Journal of Tourism Research*, *17*(3), 262–276. https://doi.org/10.1080/10941665.2011.625430

Richardson, S., & Thomas, N. J. (2012). Utilising generation Y: United States hospitality and tourism students' perceptions of careers in the industry. *Journal of Hospitality and Tourism Management*, *19*(1), 102–114. https://doi.org/10.1017/jht.2012.12

Robinson, R. N. S., Ruhanen, L., Breakey, N. M., Robinson, R. N. S., Ruhanen, L., & Tourism, N. M. B. (2016). *Current Issues in Tourism Tourism and hospitality internships : influences on student career aspirations aspirations*. *3500*. https://doi.org/10.1080/13683500.2015.1020772

Roney, S. A., & Oztin, P. (2007). Career Perceptions of Undergraduate Tourism Students: A Case Study in Turkey. *The Journal of Hospitality Leisure Sport and Tourism*, *6*(1), 4–17. https://doi.org/10.3794/johlste.61.118

Rosyidi, M. I. (2021). Undergraduate Students' Perceptions and Attitudes Towards A Career in Tourism Industry: The Case of Indonisia. *Jurnal Manajemen Dan Kewirausahaan*, *23*(1), 40–51. https://doi.org/10.9744/jmk.23.1.40-51

Sandiford, P. J., & Seymour, D. (2010). Exploring public house employee's perceptions of their status: A UK case study. *Service Industries Journal*, *30*(7), 1063–1076. https://doi.org/10.1080/02642060802311294

Shah, C., Chowdhury, A., & Gupta, V. (2021). Impact of COVID-19 on tourism and hospitality students' perceptions of career opportunities and future prospects in India. *Journal of Teaching in Travel and Tourism*. https://doi.org/10.1080/15313220.2021.1924921

Sucheran, R. (2021). Preliminary Economic Impacts of the COVID-19 Pandemic on the Hotel Sector in South Africa. *African Journal of Hospitality, Tourism and Leisure*, *10(1)*(10(1)), 115–130. https://doi.org/10.46222/ajhtl.19770720-90

Tourism Development Strategy. (2020). In *Dictionary of Geotourism* (pp. 626–627). https://doi.org/10.1007/978-981-13-2538-0_2515

Tourism Skills Committee. (2018). *SRI LANKA Tourism and Hospitality Workforce Competitiveness*.

Tuzunkan, D. (2016). *Undergraduate Tourism Students' Perception and Attitudes Towards Tourism Industry : The Case of Daejeon , South Korea*. *21*(1).

Wang, S., & Huang, X. (2014). College Students' Perceptions of Tourism Careers in China: Implications for the Industry and Education Providers. *Journal of Human Resources in Hospitality and Tourism*, *13*(3), 211–233. https://doi.org/10.1080/15332845.2014.866449

Wen, H., Li, X., Kwon, J., Wen, H., Li, X., & Kwon, J. (2019). Undergraduate Students ' Attitudes Toward and Perceptions of Hospitality Careers in Mainland Undergraduate Students ' Attitudes Toward and Perceptions of Hospitality. *Journal of Hospitality & Tourism Education*, *31*(3), 159–172. https://doi.org/10.1080/10963758.2018.1487787

Wijesundara, W. G. S. R. (2015). *An Evaluation of Graduates' Perception on Employment in Tourism and Hospitality Industry* (Vol. 2). Dambulla-Kandalama. http://geog.nau.edu/igust/srilanka2014/

Wiligas Biyiri, E. (2018). Impact of Perception and Attitudes of Tourism Undergraduates Towards Their Intention To Work in Tourism Industry. *Journal of Tourism Economics and Applied Research*, *1*(2).

Yıldırım, G., Bal, C., & Özışık Yapıcı, O. (2021). How Did Covid-19 Affected Career Intentions of Students Studying Tourism. *Journal of Tourism and Gastronomy Studies*, *9*(1), 84–98. https://doi.org/10.21325/jotags.2021.778

SAMODHANA JOURNAL
Faculty of Social Sciences and Humanities,
Rajarata University of Sri Lanka,
Mihintale

2021 **Volume 10** **Issue I**

පොලොන්නරු යුගයේ භාවිත චෝල කාසි සහ මස්ස කාසි අතර හඳුනාගත හැකි සම-අසමානතා පිළිබඳ විමර්ශනාත්මක අධ්‍යයනයක්

යූ.ඩී.ආර්. ෂෙහාන් තිලකරත්න[1]

Received Date: 15th June 2022
Accepted Date: 20th March 2023
Published Date: 06th June 2023

Abstract

Numismatics, or the study of coins, is one of the important aspects of archaeology. This discipline provides extensive knowledge on the origin and evolution of coins, the minting of coins, metal technology and exchange value of coins, ancient economic background, and foreign influences of a particular period. *Massa* coins are one of the famous ones used in Sri Lanka during *Polonnaruwa* period. Sri Lankan kings produced these coins imitating *Chola* coins following their predecessor Chola kings. This research aims to identify the metal and physical differences between *Massa* and *Chola* coins. The research problem in this paper is to investigate whether there were any *Chola* influences on *Massa* coins during the *Polonnaruwa* period. In this research, two methods have been used for collecting data. They are library surveys and field visits. *Massa* coins preserved in Colombo and Kandy's national museums are observed as field visits. Different charts and photographs were used for the classification of the data. Comparative as well as descriptive methods are used to analyze the data. Finally, the research proved its hypothesis. According to the finding, there were *Chola* influences on *Massa* coins during the

[1] *පර්යේෂණ සහකාර, හිටපු තාවකාලික කථිකාචාර්ය, පුරාවිද්‍යා අධ්‍යයන අංශය, පේරාදෙණි විශ්වවිද්‍යාලය, පේරාදෙණිය* shehanthilakarathna1205@gmail.com

Polonnaruwa period. Furthermore, this study highlighted metal and physical similarities and differences between *Massa* and *Chola* coins. Found some differences and similarities of coin-made metal as well as symbols depicted on the coins and exchange value of the coins. It can be proven that the *Chola* rulers developed international trade during their regime in Sri Lanka. Successor Sri Lankan kings also wanted to keep international trade and foreign relations as it were during the *Chola* period. As a result, Sri Lankan rulers followed and imitated *Chola* coins when they produced them. According to the current research, the *Massa* coins have some metal and symbolic influences from the *Chola* coins.

Keywords: *Chola* coins, *Massa* Coins, *Polonnaruwa* Period, Similarities and Differences.

හැඳින්වීම

වර්තමානය තේරුම් ගැනීමට යතුර වශයෙන් අතීතය තේරුම් ගත යුතු' බවට ඊ. එච්. කාර් පවසා ඇත. ඒ අනුව වර්තමානය තුළ ජීවත්වීමට අතීතය පිළිබඳ ව අවබෝධයක් පැවතීම අත්‍යවශ්‍ය වන බව පැහැදිලි වේ. ද්‍රව්‍යාත්මක සාධක ඇසුරින් අතීතය ප්‍රතිනිර්මාණය කිරීම පුරාවිද්‍යාවේ දී සිදු කරනු ලබයි. මෙහි දී පුරාවිද්‍යාඥයාට මූලාශ්‍රය පරිශීලනය කිරීමට සිදු වේ. මූලාශ්‍රය, සාහිත්‍ය සහ පුරාවිද්‍යාත්මක වශයෙන් ප්‍රධාන අංශ දෙකකට බෙදෙයි. කාසි පුරාවිද්‍යාත්මක මූලාශ්‍රය ගණයට අයත් වේ. කාසි පිළිබඳ අධ්‍යයනය කිරීම 'නාණක විද්‍යාව' (Numismatic) වශයෙන් හඳුන්වනු ලබයි. කාසිවල ප්‍රභවය හා විකාශනය, විවිධ කාසි මුද්‍රණය, ලෝහ තාක්ෂණය, කාසිවල විනිමය අගය යනාදිය පිළිබඳ ව නාණක විද්‍යාවේ දී අධ්‍යයනය කරනු ලබයි. ලෝහ කර්මාන්තය පිළිබඳ දැනුම, පැරණි තාක්ෂණය පිළිබඳ දැනුම, තත්කාලීන පැරණි යුගවල ආර්ථික තත්ත්වය පිළිබඳ අවබෝධය, කාල නිර්ණයන් සිදු කිරීමට පිටිවහල් ලැබීම යනාදි වශයෙන් දැනුම් සම්භරයක් සහ උපකාර රැසක් පුරාවිද්‍යාඥයාට නාණක විද්‍යාවෙන් සැපයේ. මීට අමතර ව කාසි නිර්මාණයට ලැබී ඇති විදේශීය ආභාස පිළිබඳ ව ද මෙහි දී හඳුනාගත හැකි ය. මේ අනුව කාසි පිළිබඳ අධ්‍යයනය පුරාවිද්‍යාව තුළ අතීතය ප්‍රතිනිර්මාණය කිරීමේ දී ඉතා වැදගත් වේ.

ශ්‍රී ලංකාවේ භාවිත පැරණි කාසි වර්ග අතුරින් පොළොන්නරු යුගයේ දී නිකුත් කර තිබෙන මස්ස කාසි සුවිශේෂ වේ. මන්ද පොළොන්නරු යුගයේ පටන් දඹදෙණි යුගයේ පළමු වන බුවනෙකබාහු රජු දවස දක්වා ම අඛණ්ඩ භාවිතයක් මස්ස කාසිවලින් හඳුනාගත හැකි බැවිනි. මස්ස කාසි නිෂ්පාදනයට චෝල ආභාසය ලැබී ඇති බවට නාණක විද්‍යාඥයෝ අදහස් කරති. මන්ද ක්‍රි. ව. 1017 සිට ක්‍රි. ව. 1070 දක්වා වූ වසර 53ක පමණ දීර්ඝ කාලයක් චෝලයන් විසින් මෙරට රජරට කලාපය පලනය කරන ලද බැවිනි. චෝලයන්ගෙන් රට මුදවා ගැනීමෙන් පසු ව ඔවුන්

ව්‍යවහාර කළ කාසි සම්පූර්ණයෙන් ම නිෂ්ප්‍රභ කිරීමට දේශීය පාලකයන් උත්සහ නොකළ බව, අවම වශයෙන් මෙරට පාලනය කළ රජවරුන් 11 දෙනෙකු වත් සොළී කාසි අනුගමනය කරමින් ස්වකීය නාමය යෙදීම පමණක් වෙනස්කමක් ලෙසට සිදු කොට මස්ස කාසි නිකුත් කර තිබීමෙන් පැහැදිලි වේ. මේ අනුව මෙම ලිපියෙහි අරමුණ වන්නේ මෙරට භාවිත චෝල කාසි සහ මස්ස කාසි අතර පවතින සම-අසමානතා පිළිබඳ ව හඳුනාගැනීමයි. ඒ හරහා මස්ස කාසි නිකුත් කිරීමට චෝල කාසිවල ආභාසය ලැබී තිබේ ද යන්න පිළිබඳ ව අධ්‍යයනය කෙරේ. එය මෙහි අධ්‍යයන ගැටලුව වේ. මෙරට පොලොන්නරු යුගයේ දී සංසරණය වී තිබෙන චෝල සහ මස්ස කාසි සංසන්දනාත්මක ව අධ්‍යයනය කොට මේ පිළිබඳ ව විශ්ලේෂණාත්මක ව කරුණු දැක්වීමක් මෙම ලිපිය තුළ සිදු කර ඇත.

අධ්‍යයන ක්‍රමවේදය

මෙහි දී අධ්‍යයන ක්‍රමවේදය වශයෙන් පුස්තකාලය අධ්‍යයනය සහ ක්ෂේත්‍ර අධ්‍යයනය යන ක්‍රමවේද භාවිත කෙරිණි. ඒ අනුව පුස්තකාල අධ්‍යයනය ඔස්සේ සාහිත්‍ය විමර්ශනයට අදාළ තොරතුරු එක්රැස් කරන ලදි. පුස්තකාලය පරිහරණය කොට නාණක විද්‍යාව සම්බන්ධයෙන් සිදු කර ඇති පූර්ව පර්යේෂණ, ගවේෂණ හා කැණීම් වාර්තා, පුවත්පත් ලිපි ආදිය පිළිබඳ ව විමර්ශනය කරන ලදි. සොළීන්ගේ දේශපාලන බල ව්‍යාප්තිය, ලංකාවේ විනිමය මාධ්‍යවල විකාසනය පිළිබඳ පූර්ව අවබෝධයක් ලබා ගැනීමට පුස්තකාල ගවේෂණය වැදගත් වේ. මෙහි දී මාතෘකාවට අදාළ බහුතරයක් සාහිත්‍ය මූලාශ්‍රය අධ්‍යයනය කිරීම සිදු කෙරිණි. ක්ෂේත්‍ර අධ්‍යයනය යටතේ මෙහි දී සිදු කරනු ලැබුවේ කොළඹ සහ මහනුවර ජාතික කෞතුකාගාර දෙකෙහි ඇති චෝල සහ මස්ස කාසි අධ්‍යයනයට බඳුන් කිරීමයි. ඒ අනුව කොළඹ ජාතික කෞතුකාගාරයේ ප්‍රදර්ශනයට තබා තිබෙන පොලොන්නරු යුගයේ සිටි පාලකයන් විසින් නිකුත් කරන ලද මස්ස කාසි 68ක් ද, 1/8 කාසි 11ක් ද, 1/16 කාසි 3ක් සහ පළමු වන රාජ රාජ රජුට අයත් කාසි 12ක් ද මහනුවර කෞතුකාගාරයේ ප්‍රදර්ශනයට තබා තිබෙන තිබෙන පොලොන්නරු යුගයේ සිටි පාලකයන් විසින් නිකුත් කරන ලද මස්ස කාසි 14ක් ද පළමු වන රාජ රාජ රජුට අයත් කාසි 2ක් ද වත්මන් පර්යේෂකයා විසින් අධ්‍යයනයට බඳුන් කරන ලදි. ඒ හරහා මෙම කාසිවල පවතින සම අසමානතා හඳුනාගන්නා ලදි. වගු, රූප සටහන් සහ ඡායාරූප භාවිතයෙන් තොරතුරු වර්ගීකරණය කළ අතර විශ්ලේෂණාත්මක හා සංසන්දනාත්මක අධ්‍යයනනය මඟින් අර්ථකථන සිදු කෙරිණි.

ප්‍රතිඵල

පොලොන්නරු යුගයේ සිටි පාලකයින් මස්ස කාසි නිකුත් කිරීමේ දී සොළී කාසිවල ආභාසය ලබා ගෙන තිබේ' යන්න මෙහි දී උපකල්පිතය ලෙස භාවිත කෙරිණි. කරුණු අධ්‍යයනයේ දී එම උපකල්පිතය සනාථ විය. බාහිර ලක්ෂණ මත පදනම් ව සොළී කාසි සහ මස්ස කාසි එකිනෙක සංසන්දනය කිරීමේ දී කාසි නිර්මිත මාධ්‍යය, කාසිවල ඇතුළත් සංකේත සහ වටිනාකම අනුව යම් යම් වෙනස්කම් ද සමානතා ද පවතින බවට හඳුනාගත හැකි විය. එම සැසඳීම මඟින් ද මස්ස කාසි නිකුත් කිරීමට සොළී කාසිවලින් පිටිවහලක් ලැබී තිබෙන බවට හඳුනාගත හැකි විය. 12 වන

සියවස වන විට ශ්‍රී ලංකාවේ කාසි සම්මත බරක්, හැඩයක් සහ නිශ්චිත වටිනාකමක් මෙන් ම නිකුත් කළ පාලක අනන්‍යතාව (පාලක නාමය) සහිත ව නිකුත් කිරීමේ සම්ප්‍රදාය ඇති වේ (බාලසූරිය, 2008, 7). මේ සඳහා වැඩි වශයෙන් බලපාන්නේ අන්තර්ජාතික වෙළෙඳාමයි. ක්‍රි. ව. 7 සහ 8 සියවස් වන විට ඉන්දියන් සාගර කලාපය කාර්යය බහුල වාණිජ කලාපයක් බවට පත් වේ. එහි ප්‍රධාන බලවේගය වී ඇත්තේ ආරාබි සහ චීන වෙළෙඳුන් ය (Imbulamure and others, 2016, 17). ලංකාවේ වාසිදායක භූගෝලීය පිහිටීම හේතුවෙන් රටේ වෙළෙඳාම් ප්‍රවාහය නැගෙනහිර හා බටහිර ලෝකය අතර සබඳතාවක් ඇති කිරීමට මුල් විය. මේ නිසා දේශීය පාලකයාට ද කෘෂි ආර්ථිකයෙන් වෙළෙඳාම පදනම් කර ගත් ආර්ථිකයකට පරිවර්තනය වන්නට සිදු වූ බව පෙනේ. මේ සඳහා සොළී පාලනයෙන් ද දැඩි අනුබලයක් ලැබුණාට සැක නැත. මන්ද සොළීන් සාමුද්‍රික අධිරාජ්‍යයක් ගොඩනගා ගැනීම හරහා අන්තර්ජාතික වෙළෙඳාමට නැඹුරු වූ පිරිසක් වන බැවිනි. අන්තර්ජාතික වෙළෙඳාමේ දී පිළිගත් විනිමය මාධ්‍යයක් අවශ්‍ය වූ බැවින් පොළොන්නරු පාලකයන් සොළී කාසි අනුගමනය කරමින් ස්වකීය කාසි නිකුත් කිරීමට පෙලඹෙන්නට ඇත. මේ අනුව මස්ස කාසි නිකුත් කිරීම කෙරෙහි චෝල කාසිවල ආභාසය ලැබී තිබෙන බවට පැහැදිලි ය.

සාකච්ඡාව

ලංකාවේ ඓතිහාසික යුගය ආරම්භයේ සිට ම කාසි භාවිතයක් පැවති බවට මහාවංශය ඇතුළු සාහිත්‍ය මූලාශ්‍රය සාක්ෂ්‍ය දරයි. ප්‍රථම වරට නාමික ව කාසි වර්ගයක් පිළිබඳ ව සඳහන් වන්නේ මහාවංශයෙහි 21 වන පරිච්ඡේදයේ ය. ඒ එළාර රජුගේ රථය මිහින්තලේ මහ සෑයෙහි වැදීම නිසා වූ අලාභයට රජු කහාපණ 15000ක් ගෙවූ බවට සඳහන් වීමෙනි (මහාවංශය සිංහල, 2004, පරි. 21, 26 ගාථාව). මීට අමතර ව ක්‍රි. පූ. යුගයට අයත් සෙල්ලිපිවල ද කහාපණ, කහවණ, කශපණ ආදි නම් සඳහන් ව තිබේ. හස් එබූ කාසි, ස්වස්තික කාසි, ලක්ෂ්මී කාසි, සිංහ සහ වෘෂභ කාසි, රන් කහවණුව යනාදිය පොළොන්නරු යුගයේ දී මස්ස කාසි නිකුත් කිරීමට පෙර ලංකාවේ භාවිත ව තිබෙන කාසි වර්ග වේ. මස්ස කාසිවල මෙන් දීර්ඝ කාලීන අඛණ්ඩ භාවිතයක් සහ සුලබ බවක් එකී කාසි වර්ගවලින් හඳුනාගත නොහැකි ය. රන් කහවණුවෙන් පසු ව මෙරට භාවිත වී තිබෙන්නේ සොළීන් විසින් නිකුත් කරන ලද කාසි ය. පල්ලවවරුන්ගෙන් පසුව දකුණු ඉන්දියාවේ බලයට පත් වන්නෝ චෝලයෝ ය. අපරාජිත නම් පල්ලව රජු පරාජය කොට විජයාලය නම් චෝල රජු දකුණු ඉන්දියාවේ බලවත් වේ. එහෙත් චෝලයන්ගේ දේශපාලනික බල වර්ධනයේ සහ ආර්ථික සමෘද්ධියෙහි උච්චතම අවස්ථාව සනිටුහන් වන්නේ 1 වන රාජ රාජ සහ රාජේන්ද්‍ර චෝල යන පාලකයන් යටතේ දී ය. දේශීය සහ විදේශීය වෙළෙඳාමේ ක්‍රියාකාරී තත්ත්වයක් මේ කාලයේ දී ඇති වේ. වෙළෙඳ කටයුතු නිසා ම වෙළෙඳ ඒකාධිකාරයක් ගොඩනගා ගැනීමට විවිධ රටවල් සමඟ යුද ගැටුම්වල නිරත වීමට ද චෝලයන්ට සිදු වේ. දෙවන රාජ රාජ සමයේ දී චීනය සමඟ වෙළෙඳ සබඳතා වර්ධනය කර ගැනීමට යාම නිසා ඉන්දුනීසියාව, ශ්‍රී විජය, මාලදිවයින වැනි රටවල් සමඟ යුද්ධ කොට ඒවා යටත් කර ගැනීම නිදසුනකි. ලංකාව කෙරෙහි ද ඔවුන් ආක්‍රමණ දියත් කරන්නේ මේ තත්ත්වය නිසා ය. චොලයෝ සිය යටත් රාජ්‍යවල

ස්වකීය කාසි අච්චුගසා නිකුත් කළහ. ඉන්දියාවෙන් පරිබාහිර රටක් වශයෙන් චෝල අධිරාජ්‍යයේ කාසි බහුල ව හමුවන්නේ ලංකාවේ දී ය. සොළීහු ඒ වන විට මෙරට තුළ ප්‍රචාරය වී තිබූ රන්කහවණුව අනුගමනය කරමින් රන් හා තඹ කාසි නිකුත් කළහ (කල්දේරා, 1959, 18). එයින් පසු ව ආරම්භ වන්නේ දේශීය පාලකයන් විසින් සොළීන්ගේ කාසි අනුගමනය කරමින් අච්චු ගැසූ මස්ස කාසි භාවිතයයි. මුල් කාලයේ දී කහවණුවෙන් විස්සෙන් පංගුවක් වූ මස්ස පොලොන්නරු යුගයේ සහ පසු කාලයේ පොත්වල සඳහන් කර තිබෙන්නේ 'කහාපණ' යන්නට සමානාර්ථ පදයක් වශයෙනි (පරණවිතාන, 1972, 524). කෙසේ වුවත් 1 විජයබාහු රජු දවස පටන් 1 වන බුවනෙකබාහු රජු දවස දක්වා නිකුත් කර ඇති මස්ස කාසි "සිංහල මසු" නමින් ද " දඹදෙණි කාසි" නමින් ද හඳුන්වනු ලබයි. අවසන් වරට මේ කාසි අච්චු ගැසීම දඹදෙණි යුගයේ සිදු කළ නිසා 'දඹදෙණි කාසි' නමින් හැඳින්වේ (කල්දේරා, 1959, 18). කෙසේ වුවත් දඹදෙණි මස්ස හා සමාන ව සුළු සුළු වෙනස්කම් සහිත ව නිකුත් කළ කාසි පොලොන්නරු යුගයේ සිට කෝට්ටේ යුගයේ හය වන පරාක්‍රමබාහු රජු දවස දක්වා ම භාවිතයේ පැවත තිබේ (ගුණරත්න, 2019, 28). ඒ සඳහා මූල බීජ වී තිබෙන්නේ රන්කහවණුව අනුගමනය කරමින් සොළීන් විසින් නිකුත් කරන ලද කාසි සහ සොළීන් විසින් තත්කාලීන ව ගොඩනඟා තිබූ අන්තර්ජාතික වෙළෙඳාම පදනම් කර ගත් ආර්ථිකයයි.

සොළී පාලන කාලයේ දී ලංකාව තුළ කාසි භාවිතය ප්‍රචලිත වීම

මෙරට අනුරාධපුර යුගයේ රජ කළ අවසන් සිංහල පාලකයා වූ පස් වන මිහිඳු රජු චෝලයන්ගේ සිරකරුවෙකු බවට පත් වූ පසු මෙරට රජරට ප්‍රදේශය චෝල ප්‍රාන්ත රාජ්‍යයක් බවට පත් වේ. එතැන් සිට අනුරාධපුර රාජධානිය බිඳ වැටිණි. පොළොන්නරුව අගනගරය කොට ගත් සොළී ප්‍රතිරාජවරයෙකු යටතේ ලංකාව දකුණු ඉන්දියාවේ සොළී අධිරාජ්‍යයට නතු ව පාලනය විය. සොළීන්ගේ පරම අභිලාෂය වූයේ ඉන්දියන් සාගරයේ වෙළෙඳ ඒකාධිකාරය තමන් සතු කර ගැනීමට ය. රොමිලා තාපර් පවසන්නේ ශ්‍රී විජය, මාලදිවයින මෙන් ම ලංකාවේ උතුරුදිග ප්‍රදේශ ද සොළීන් තමන් සතු කොට ගත්තේ එකී අභිප්‍රාය සාධනය කර ගැනීමට බවයි (තාපර්, 2009, 194). මේ අනුව පැහැදිලි වන්නේ සොළීන්, තම අධිරාජ්‍යයේ ආර්ථික තත්ත්වය කෙරෙහි සහ ස්වකීය ආර්ථිකය ශක්තිමත් කර ගැනීම කෙරෙහි වැඩි අවධානයක් යොමු කළ පිරිසක් වන බවයි. සොළීන්ගේ දේශපාලන බල ව්‍යාප්තිය පිළිබඳ ව අවධානය යොමු කිරීමේ දී ඔවුන් සාමුද්‍රික අධිරාජ්‍යයක් ගොඩනඟා ගත් බවට හඳුනාගත හැකි ය. එබැවින් ඔවුන්ට අන්තර්ජාතික වෙළෙඳාමට වැඩි නැඹුරුවක් දක්විය හැකි විය. මේ අනුව ඔවුහු සිය විනිමය මාධ්‍යයන් ද ඊට උචිත පරිදි සකසා ගත්හ. පළමු වන රාජ රාජ සහ රාජේන්ද්‍ර චෝල යන රජවරුන් විසින් සිය නාමය සහිත කාසි මෙරට දී නිකුත් කොට තිබේ (බාලසූරිය, 2008, 7). විශේෂයෙන් ම එම රජවරුන් විසින් නිකුත් කරන ලද රන් කාසිවලින් සොළී අධිරාජ්‍යයේ තත්කාලීන ව පැවති ආර්ථික සමෘද්ධිය විදහාපායි. මහා රාජ රාජ රජු යටතේ ලංකාවට ද රත්‍රං කාසි යුගයක් ඇරඹුණි. ඔහුගේ කාසි දකුණු ඉන්දියාවේ සොළී අධිරාජ්‍යයට සමකාලීන ව මෙරට තුළ ද ව්‍යවහාර වී තිබේ. මේ රජුගේ කාසි මෙරටින් සුලබ ව හමු වී ඇත (කුලතුංග, 2015, 623).

රන් කහවණුව, රන් මස්ස, රිදී මස්ස, තඹ මස්ස, රිදී ආලේපිත තඹ මස්ස, අඩ මස්ස, 1/4 මස්ස යනාදි වශයෙන් මෙරට තුළ පොලොන්නරු යුගයේ කාසිවල විකාසනය සහ ව්‍යවහාරය හඳුනාගත හැකි ය (ද සිල්වා, 2018, 40). පොලොන්නරු යුගයේ මුල් කාලය චෝල යුගයට අයත් වේ. ඒ අනුව ක්‍රි. ව. 1070 දක්වා චෝල පාලනය මෙරට තුළ ක්‍රියාත්මක විය. අනුරාධපුර යුගයේ පැවති රන් කහවණුව පාදක කර ගනිමින් සොළීන් පොලොන්නරු යුගයේ දී කාසි නිකුත් කළ බවට පෙනී යයි (ද සිල්වා, 2018, 40). මේ අවධියේ දී මෙරට ගනුදෙනු සඳහා නාගරී අක්ෂරයෙන් චෝල අධිරාජ්‍යයාගේ නම සඳහන් කළ කාසි සොළී පාලකයන් නිකුත් කර තිබේ. එලෙස අධිරාජ්‍යයාගේ නම සඳහන් කොට කාසි නිකුත් කිරීමේ අරමුණු කිහිපයක් තිබෙන්නට ඇත. තම යටත් වැසියන් අතර ස්වකීය අධිරාජයාගේ ආධිපත්‍යය වඩාත් හොඳින් මුල්බැස ගැන්වීම සහ සිය වෙළෙඳ කටයුතුවල දී හා බදු අයකර ගැනීමේ කටයුතුවල දී අත් වන පහසුව ප්‍රමුඛ වන්නට ඇත. තව ද ඒ වන විට ඉන්දියානු සාගර කලාපයේ පොදු භාෂාවක් වූ සංස්කෘත භාෂාවේ අක්ෂර සොළී කාසිවලට යොදා ගැනීමෙන් කාසි ව්‍යවහාර කළ විවිධ ජාතීන්ට මෙම කාසි කුමන පාලකයාට අයත් දැයි හඳුනා ගැනීමේ පහසුව ද සැලසෙන්නට ඇත. එමෙන් ම මේ වන විට පාලකයාගේ නම සඳහන් කොට කාසි නිකුත් කිරීම භාරතයේ ප්‍රචලිත ව තිබීම ද බලපාන්නට ඇත (කුලතුංග, 2015, 623). ලංකාවේ භාවිත ව ඇති සොළී කාසිවල ශ්‍රී රාජාධිරාජ, ශ්‍රී රාජ රාජ, ශ්‍රී රාජේන්ද්‍ර යන නම් දක්නට ලැබේ. මෙරට සොළී පාලන කාලය තුළ අයබදු අය කිරීමේ දී ඉන් කොටසක් මුදලින් ගෙවීමට නියම කර තිබේ. මුදලින් ගෙවීමට නියම කර ඇත්තේ "කාශු" නම් වූ සම්මත සොළී කාසිවලිනි (සිරිවීර, 2014, 79). සොළී පාලනය යටතේ වූ ලංකාවේ 'රාජරාජ වළනාඩු' හා 'වික්කිරම ශෝළ වළනාඩු' යන දිස්ත්‍රික්ක දෙකෙහි ආදායම්, ගම්වර පහක ආදායම තංජෝර් කෝවිලට දිය යුතු අතර එම ආදායමෙන් කොටසක් කාශුවලින් ගෙවිය යුතු බව තංජෝර් ශිලාලිපිවල සඳහන් ව තිබීම (නීලකණ්ඨ ශාස්ත්‍රි, 1972, 394) නිදසුනකි. මේ හේතුවෙන් සොළී පාලන කාලය තුළ දී ලංකාව තුළ කාසි භාවිතය වඩාත් ප්‍රචලිත වන්නට ඇත.

සොළී පාලන කාලයෙන් පසු ව පොලොන්නරු යුගයේ දී කාසි නිකුත් කළ දේශීය පාලකයන්

සොළීන්ගෙන් පසුව මහා විජයබාහු රජු රට එක්සේසත් කොට සොළී කාසිවලට සමාන ස්වරූපයෙන් කාසි නිකුත් කර තිබේ. මහා විජයබාහු රජු ද සිය අගනුවර වශයෙන් තෝරා ගත්තේ ද පොලොන්නරුවයි. ඒ අනුව ක්‍රි. ව. 1215 දී කාලිංග මාඝ ආක්‍රමණය එල්ල වන තෙක් ම අනුරාධපුරයෙන් පසු ව අගනගරය වශයෙන් පොලොන්නරුව පැවතියේ ය. මහා විජයබාහු රජුගෙන් පසු ව පොලොන්නරුවේ රජ වන මහා පරාක්‍රමබාහු, නිශ්ශංකමල්ල, ලීලාවතී, චෝඩගංගදේව, ධර්මාශෝකදේව, සහස්සමල්ල යනාදි පාලකයන් "මස්ස" කාසි නමින් හඳුන්වනු ලබන සොළී කාසි ස්වරූපයට කාසියේ අන්තර්ගත නම පමණක් වෙනස්කරමින් කාසි නිකුත් කොට තිබේ. එම "මස්ස" කාසිවල නිකුත් කළ පාලකයාගේ නම සඳහන් කොට තිබෙන්නේ නාමයට පූර්වයෙන් "ශ්‍රී" යන්න යොදා ගෙන ය (මැදගම, 2009, 61).

කාසි නිකුත් කිරීම පාලන ඒකාධිකාරය යටතේ සිදු වන්නකි. ඒ අනුව ආර්ථික කටයුතු පාලනයේ දී පැවති පාලන අධිකාරය පෙරළා නව පාලන අධිකාරයක් ස්ථාපිත වූ විට එකී නව පාලන අධිකාරය මඟින් කාසි නිකුත් කිරීම අත්‍යවශ්‍යය විය. ඒ අනුව අඩ සියවසක් පමණ කාලයක් රජරට පැවති සොළී පාලන අධිකාරය බලයෙන් පහ කළ මහා විජයබාහු රජු ස්වකීය නම සඳහන් කොට කාසි නිකුත් කොට තිබේ. සතුරන් පරදා ජාතියේ ස්වාධීනත්වය ඇති කිරීමෙන් පසු වත් පරාජිත සතුරාගේ නමින් නිකුත් කර තිබූ කාසි ගනුදෙනු සඳහා යොදා ගැනීම උදා කරගත් නිදහසට කැළලක් වන්නට ඇත. මහා විජයබාහු රජු මෙරට කාසියක නම සඳහන් කළ පළමු සිංහල රජු වශයෙන් පෙන්වා දිය හැකි ය (Sirisena, 2002, 14). මොහු විසින් රන්, රිදී සහ තඹ යන ලෝහ මාධ්‍යය තුනෙක් ම කාසි නිකුත් කරන ලදී (බාලසූරිය, 2008, 7). පොලොන්නරු යුගයේ දී රචිත යැයි සැලකෙන වෛජයන්ත පොතෙහි සඳහන් වන පරිදි රජෙකුගේ නමින් කාසියක් නිෂ්පාදනය වන්නේ ඔහුගේ ස්වර්ණාභිෂේකයේ දී ය. එසේ ම එම නාමයට ඉදිරියෙන් "ශ්‍රී" අක්ෂරය යෙදිය යුතු බවට එම කෘතියේ සඳහන් වේ. මේ අනුව මහා විජයබාහු රජු තම නම සඳහන් රන් කාසි නිකුත් කරන්නට ඇත්තේ ඔහුගේ අභිෂේකයේ දී බවට උපකල්පනය කළ හැකි ය (කුලතුංග, 2015, 625-626). මහා විජයබාහු රජුගේ කාසි බොහෝ සෙයින් සමාන වන්නේ රාජ රාජ රජුගේ කාසිවලට ය. එහි පිටුපස නාගරී අක්ෂරයෙන් "ශ්‍රී විජයබාහු" යනුවෙන් ලියා ඇත (Sirisena, 2002, 14). පොලොන්නරු යුගයේ දී අනුකාසි නිකුත් කිරීම ද සිදු කර තිබේ. ඒ අනුව භාග කාසියේ සිට 1/16 දක්වා කාසි අනුප්‍රභේද හමුව ඇත. පූර්ණ කාසියක බර ග්‍රේන්ස් 62-65 අතර අගයක් ගනියි (Codrington, 1924, 73). කෙසේ වුවත් මහා විජයබාහු රජු අඩසියවසක් පමණ කාලයක සිට වෙළෙඳ කටයුතුවල දී භාවිත කිරීමට ජනයා පුරුදු ව සිටි කාසිවල හැඩය හා ස්වරූපය වෙනස් කිරීමට පෙලඹී නැත. සුපුරුදු කාසියේ නමය පමණක් වෙනස් කිරීම ඔහු විසින් සිදු කෙරිණි. එහි දී දේවනාගරී අක්ෂර භාවිත කර ඇත්තේ ද අනුරාධපුර යුගයේ පටන් ම එම අක්ෂර භාවිතය ප්‍රචලිත ව පැවති නිසා වන්නට ඇත. එසේ ම ජාත්‍යන්තර වෙළෙඳ ගනුදෙනුවලට ද එය පිටිහලක් වන නිසා වන්නට ඇත. කෙසේ වුවත් විජයබාහු රජු ස්වකීය කාසි හඳුන්වා දීමේ දී ඒ වන විටත් භාවිතයේ පැවති සොළී කාසි මෙරට තුළ භාවිතයෙන් ඉවත් කළේ ද නැද්ද යන්න නිශ්චිත ව පැවසිය නොහැකි ය (කුලතුංග, 2015, 626).

මහා විජයබාහු රජුගෙන් පසු ව නැවතත් රට තුළ ඇති වූ ව්‍යාකූල දේශපාලන තත්ත්වය පහ කොට රට නැවතත් එක්සත් කරනු ලබන්නේ මහා පරාක්‍රමබාහු රජු විසිනි. මහා විජයබාහු රජුගේ කාසි සමග සැසඳීමේ දී මහා පරාක්‍රමබාහු රජුගේ කාසි ඒකරූපී බවක් උසුලයි. "ශ්‍රී පරාක්‍රමබාහු" යනුවෙන් ලියා මොහු විසින් කාසි නිකුත් කරන ලදී. ඒවායේ භාග කාසි ද හමු ව ඇත. මෙම රජු විසින් නිකුත් කර ඇති ඉතා කුඩා තඹ කාසි රන් කහවණුවේ අනුප්‍රභේදයක් වන අක කාසි වර්ගයට සමාන වේ. එකී කුඩා තඹ කාසිවල අක කාසිවල මෙන් අභිමුඛයෙහි සිට ගෙන සිටින නිධි රූපයක් ද ප්‍රතිමුඛයේ රූප රහිත ව පේළි තුනක් සිටින සේ නාගරී අක්ෂරයෙන් "ශ්‍රී පරාක්‍රමබාහු" යන පාඨය සටහන් කර තිබේ. අක්ෂරවලට ඉහළින් සංඛ සලකුණ ඇත. කොඩ්රිංටන් මහතා මෙය 1/8 කාසියක් බවට පවසයි. සාමාන්‍ය බර ග්‍රේන්ස්

8.5-7.6 දක්වා වේ (Codrington, 1924, 73). පරාක්‍රමබාහු රජුගේ කාසිවල හැඩය හා රූප සටහන් ඔහුට පෙර නිකුත් කර තිබෙන කාසි හා සමාන වේ. මහා පරාක්‍රමබාහු රජු ලංකාපුර සෙනෙවියා යොදවා පඬිරට ජය ගැනීමෙන් පසු ව තම නම සඳහන් කර්ෂාපණ එරට ව්‍යවහාරයේ යෙදවූ බව මහාවශයේ මෙසේ සඳහන් වේ.

"එ සියලු රට ම නිස්කණ්ටක කොට පරාක්‍රම මහීපාලයාගේ නාමාඞ්කිත කර්‍ෂාපණයන් ඒ රට සැම තන්හි ව්‍යවහාරයන්හි නියෝග කොට වීරපඬි කුමරහට ඒ රට ප්‍රතිපාදනය කොට...." (මහාවංශය, 2004, පරි. 77, 103-104 ගාථා).

ටී. ජී. කුලතුංග පවසන්නේ මෙම වංශකතාගත සඳහන මෙරට පැරණි පාලකයෙකු විසින් කාසි නිකුත් කළ බවට ඇති එක ම ලිඛිත සාධකය බවයි. ඒ අනුව උක්ත මහාවංශයෙහි විස්තරයේ සඳහන් කර ඇති පඬිරට ව්‍යවහාරයේ යෙදවූ කර්ෂාපණ යනු පරාක්‍රමබාහු රජුගේ නම සඳහන් මස්ස කාසි විය හැකි බවට අනුමාන කළ හැකි ය (කුලතුංග, 2015, 628).

මහා පරාක්‍රමබාහු රජුගෙන් පසු ව නැවත කාසි නිකුත් කිරීමක් සිදු ව තිබෙන්නේ නිශ්ශංකමල්ල රජු යටතේ ය. සොළී පාලක රාජ රාජ සිට මෙරට කාසි නිකුත් කළ සියලු ම පාලකයන් කාසියේ ප්‍රතිමුඛයෙහි සිය අභිෂේක නම සඳහන් කර තිබේ. එහෙත් නිශ්ශංකමල්ල රජු ඊට වෙනස් පිළිවෙතක් අනුගමනය කර ඇත. මෙම රජු ඊට පෙර කාසිවල ස්වරූපය එලෙෂ ම පවත්වා ගත්ත ද තම වංශය සම්බන්ධ කරමින් භාවිත කළ උපාධි නාමය අභිෂේක නම වෙනුවට කාසියෙහි සඳහන් කොට තිබේ. එනම් "ශ්‍රී කලිගලකෙජ" යනුවෙන් නිශ්ශංකමල්ල රජු සිය නාමය ඔහුට අයත් කාසිවල සඳහන් කොට තිබේ. මෙසේ අභිෂේක නාමය වෙනස් කිරීමට සමකාලීන දේශපාලන හේතු ඔහුට බලපාන්නට ඇත. කාලිංග වංශයට මෙරට රාජ්‍ය උරුමයට වැඩි අයිතියක් ඇති බව ජනතාවට ඒත්තු ගැන්වීමට ඔහු මෙලෙස උත්සහ කළ බවට සිතිය හැකි ය. ලීලානන්ද කල්දේරා පෙන්වා දෙන්නේ "ශ්‍රී කලිගලකෙජ" යනුවෙන් නම සඳහන් කර තිබීම විමතියට කරුණක් නොවන බවයි. මන්ද නිශ්ශංකමල්ල රජු ඔහුගේ සෙල්ලිපි බොහොමයක සිය නම දක්වා තිබෙන්නේ 'කාලිංග ලම්කේන්ද්‍ර' යනුවෙනි (කල්දේරා, 1959, 18). ඒ අනුව "ශ්‍රී කලිගලකෙජ" යන්නෙහි අර්ථය 'කාලිංග ලංකේන්ද්‍ර' බවට සිතිය හැකි ය. කෙසේ වුවත් මේ රජු විසින් කාසි වර්ග කිහිපයක් නිකුත් කර තිබේ. ඒවායින් සමරක් ඒවා රිදී කාසි ය (පරණවිතාන, 1972, 524). සෙනරත් පරණවිතාන පවසන්නේ නිශ්ශංකමල්ල රජුගේ තඹ කාසි සුලබ නොවීමෙන් පෙනීයන්නේ ධනයෙන් ප්‍රයෝජන ගැනීමට රට වැසියන්ට ඉඩ දෙන ලදැයි නිශ්ශංකමල්ල රජු කියන කියමන සැබෑවක් වන බවයි (පරණවිතාන, 1972, 525).

නිශ්ශංකමල්ලගෙන් පසු ව නැවතත් කාසි නිකුත් කර තිබෙන්නේ චෝඩගංගදේව රජු ය. නිශ්ක්මල්ලගෙන් පසු ව ඔහුගේ පුත්‍රයෙකු බවට සැලකෙන කාලිංග වංශික වීරබාහු රජ වුවත් ඊට පසු දින ම තාවුරු සෙනෙවියා විසින් ඔහු ඝාතනය කරන ලදී. ඉන් පසු ව රජ වන්නේ නිශ්ශංකමල්ලගේ බාල සොහොයුරා වශයෙන් සැලකෙන දෙවන වික්‍රමබාහු ය. නමුත් මාස තුනක් ගිය පසු ඔහු මරා චෝඩගංගදේව රාජත්වයට පත් වේ (වික්‍රමසිංහ, 1972, 491). ඔහු විසින් කාසි නිකුත් කර තිබෙන්නේ "ශ්‍රී

චොඩගඟදෙව" යන ස්වකීය අභිෂේක නාමය යටතේ ය. මොහුගේ කාසි ද හැඩය හා ස්වරූපය අතින් ඔහුට පූර්වයේ සිටි පාලකයන්ගේ කාසිවලට සමාන ය.

චෝඩගංගදේවගේ රාජ්‍ය කාලය මාස නවයකට සීමා කරමින් කිත්ති සෙනෙවියා විසින් මහා පරාක්‍රමබාහු රජුගේ අගබිසව වූ ලීලාවතී බිසව රාජත්වයට පත් කරනු ලබයි. වරින් වර අවස්ථා තුනක දී රජ වන මැයගේ පළමු වන රජ්‍ය කාලය ක්‍රි. ව. 1197 සිට ක්‍රි. ව. 1200 දක්වා වසර තුනකි. සෙසු රාජ්‍ය කාලයන් ක්‍රි. ව. 1209-1210 සහ ක්‍රි. ව. 1211-1212 ලෙසින් කෙටි කාලයන්ට සීමා විය. කෙසේ වුවත් තෙවරක් සිංහාසනයට පත් වූ එක ම පාලකයා වන බැවින් මෙරට ඉතිහාසය තුළ ලීලාවතී රැජින විසින් කැපී පෙනෙන වැදගත්කමක් හිමි කරගනු ලබයි (වික්‍රමසිංහ, 1972, 491). පෙර පාලකයන් පරිදි ම නාගරී අක්ෂරයෙන් "ශ්‍රී රාජලීලාවතී" යනුවෙන් ස්වකීය අභිෂේක නම සඳහන් කොට ඇය විසින් කාසි නිකුත් කර තිබේ. මෙය සිදු වන්නට ඇත්තේ ඇගේ පළමු රජ්‍ය කාලයේ දී විය යුතු ය. ලීලාවතී රැජිනගේ කාසිවල 'ශ්‍රී' අක්ෂරය සහ පුද්ගල නාමය අතරට 'රාජ' යනුවෙන් යෙදී තිබීම අනෙක් පාලකයන්ගේ කාසිවලින් වෙනස් වන ලක්ෂණයකි (කුලතුංග, 2015, 631).

වසර තුනක් වූ ලීලාවතී රැජිනගේ පළමු රජ්‍ය කාලය නිමා කරමින් කාලිංග පාක්ෂිකයෝ නිශ්ශංකමල්ල රජුගේ ඥාති සහෝදරයෙකු වූ සහස්සමල්ල රජ කරවූහ (වික්‍රමසිංහ, 1972, 491). ඔහු "ශ්‍රීමත් සහාසමල්ල" යනුවෙන් සඳහන් කොට කාසි නිකුත් කර තිබේ. මොහු ස්වකීය අභිෂේක නාමයට පෙර යෙදෙන 'ශ්‍රී' අක්ෂරය වෙනුවට 'ශ්‍රීමත්' යනුවෙන් යොදා ගැනීම පෙර පාලයන්ගේ කාසිවල දක්වෙන නාමය දැක්වීමේ පොදු ලක්ෂණයෙන් වෙනස් වූ අවස්ථාවකි. මේ රජුගේ ඇතැම් කාසිවල "ශ්‍රීමත් සහාසමල" හෝ "ශ්‍රීම සහාසමල" යනුවෙන් ද සටහන් කොට තිබේ. මේ රජු විසින් නිකුත් කර තිබෙන 1/8 කාසි ද හමුව ඇත (Codrington, 1924, 73).

ඉන් පසු ව නිශ්ශංකමල්ල රජුගේ අගබිසව වූ කල්‍යාණවතී බිසව ආයස්මන්ත සෙනෙවියා විසින් රජ කරවා නැවත ඔහු විසින් ම ඇය බලයෙන් පහ කොට තෙමස් වයසැති ධර්මාශෝකදේව රජ කරවනු ලබයි. මේ බිළිඳු කුමරුට රජ්‍ය උරුමයට ඇති සම්බන්ධතාව මූලාශ්‍රයවලින් පැහැදිලි ව හඳුනාගත නොහැකි වුවත් කාලිංග වංශය හා සමීප ඥාතීත්වයක් තිබෙන්නට ඇත. රාජත්වයට පත් වන්නට ඇත්තේ එම කිට්ටු ඥාති සම්බන්ධතාව නිසා විය යුතු ය (වික්‍රමසිංහ, 1972, 493). මේ බිළිඳු රජු ද කාසි නිකුත් කර තිබේ. "ශ්‍රී ධම්මාශෝකදෙව" යන නම සඳහන් කාසි හමු වේ. එමෙන් ම මොහු ද මහා පරාක්‍රමබාහු රජු මෙන් කුඩා තඹ කාසි ද නිකුත් කර ඇත. ඒවායේ පරාක්‍රමබාහු රජුගේ කුඩා කාසිවල පරිද්දෙන් ම අභිමුඛයෙහි නිධි රුවත් ප්‍රතිමුඛයෙහි නාගරී අක්ෂරයෙන් බිළිඳු රජුගේ නාමයත් දැක්වේ.

ඉන් පසු කාලයේ දී අනිකඞග, ලීලාවතී, ලෝකේශ්වර, ලීලාවතී, පරාක්‍රම පණ්ඩු ආදීහු පිළිවෙළින් පොලොන්නරුවේ රාජත්වයට පත් වෙති. එහෙත් ලීලාවතී රැජින හැර සෙසු පාලකයන් කාසි නිකුත් කළ බවට සාක්ෂ්‍ය නොමැත. ලීලාවතී රැජිනගේ කාසි ද ඇයගේ පළමු රජ්‍ය කාලයේ දී නිකුත් කරන්නට ඇති බවට විශ්වාස කෙරේ. ක්‍රි. ව. 1215 දී කාලිංග මාඝ රජරට බලය අල්ලා ගැනීමෙන් පසු ව දේශීය රජධානි නිරිතදිගට විතැන් වේ. දඹදෙණි රජධානියේ දෙවන පරාක්‍රමබාහු මාඝගෙන් රට

මුද්‍රාගෙන නැවතත් පොළොන්නරු යුගයේ භාවිත මස්ස කාසි පරිද්දෙන් ඔහුගේ නම යොදා කාසි නිකුත් කර තිබෙනු හඳුනාගත හැකි ය. අවසන් වරට මෙම කාසි නිකුත් කරන ලද්දේ දඹදෙණි යුගයේ පළමු වන බුවනෛකබාහු රජුගේ කාලයේ දී ය (දන්දුන්න, 2015, 18). මේ අනුව පොළොන්නරු යුගයෙන් ඇරඹි මස්ස කාසි දඹදෙණි යුගය දක්වා ම මෙරට සමාජය තුළ ව්‍යවහාර වූ බව පැහැදිලි ය. මෙම මස්ස කාසිවල භාග කාසි (අඩ මස්ස) ඇති වුවත් ඒවා විරල ය (දන්දුන්න, 2015, 18).

වගු අංක 01- මස්ස කාසි නිකුත් කර ඇති පාලකයන් සිය නාමය කාසිවල සටහන් කර ඇති ආකාරය

නිකුත් කළ පාලකයා	පාලක නම දේව නාගරී අක්ෂරයෙන්	පාලක නම නූතන සිංහල අක්ෂරයෙන්
මහා විජයබාහු (ක්‍රි. ව. 1055-1110)		"ශ්‍රී විජයබාහු"
මහා පරාක්‍රමබාහු (ක්‍රි. ව. 1153-1186)		"ශ්‍රී පරාක්‍රමබාහු"
නිශ්ශංකමල්ල (ක්‍රි. ව. 1187-1196)		"ශ්‍රී කලිගලකෙජ"
චෝඩගංග (ක්‍රි. ව. 1196-1197)		"ශ්‍රී චොඩගඟදෙව"

ලීලාවතී (ක්‍රි. ව. 1197-1200, ක්‍රි. ව. 1209-1210, ක්‍රි. ව. 1211-1212)		"ශ්‍රී රාජලීලාවතී"
සහස්සමල්ල (ක්‍රි. ව. 1200-1202)		"ශ්‍රීමත් සහාසමල්ල"
ධර්මාශෝකදේව (ක්‍රි. ව. 1208)		"ශ්‍රී ධම්මාශෝකදෙව"

මූලාශ්‍රය: Imbulamure and others, 2016, 19.

පොලොන්නරු යුගයේ භාවිත සොළී කාසි සහ මස්ස කාසි අතර පවතින සම-අසමානතා

පොලොන්නරු යුගයේ දී නිකුත් කර තිබෙන සොළී කාසි සහ මස්ස කාසි පිළිබඳ මූලික අවබෝධයක් ලබා ගැනීමෙන් අනතුරු ව මෙම කාසි දෙවර්ගය අතර පවතින සමානතා සහ අසමානතා පිළිබඳ ව කරුණු සාකච්ඡා කළ හැකි ය. පළමුවෙන් ම මෙම කාසි දෙවර්ගයෙහි ම පවතින සමානතා පිළිබඳ ව සාකච්ඡා කිරීමේ දී හැඩය අනුව මේ කාසි දෙවර්ගය ම සමානත්වයක් දරනු ලබයි. පුරාණ ඉන්දියාවේ මෙන් ම ලංකාවේ ව්‍යවහාරිත කාසි පිළිබඳ ව අවධානය යොමු කිරීමේ දී හැඩයෙන් වෙනස් වන කාසි නිකුත් කර තිබෙන අවස්ථා දෙරටේ ම ඉතිහාසය තුළින් හඳුනාගත හැකි ය. පුරාණ ඉන්දියාවේ භාවිත වූ හස් යෙදූ කාසි මෙන් ම ඇතැම් ඉන්දු-ග්‍රීක හා ශක පහ්ලව කාසි හැඩය අනුව වෙනස්කම් සහිත ඉන්දීය කාසිවලට නිදසුන් වේ. හස් යෙදූ කාසිවල නිශ්චිත හැඩයක් කිව නොහැකි ය. බ්‍රාහ්මී පාඨ සහිත ව ඇගතොක්ලීස් හා පැන්ටැලියන් විසින් නිකුත් කර ඇති හතරැස් තඹ කාසි, ගෙලෙහි සීනුවක් සහිත ඇත් හිසක් නිරූපිත මෙනැන්ඩර් රජුගේ හතරැස් තඹ කාසි, සීයුස් දෙවියා සහ " කවිශියෙ නගරදෙවතා" යන පාඨය දක්වෙන්නා වූ යුක්‍රැඩීස්ගේ හතරැස් තඹ කාසි යනාදිය වෘත්තාකාර හැඩයෙන් පරිබාහිර වූ ඉන්දු-ග්‍රීක කාසිවලට උදාහරණ වේ. අභිමුඛයේ රජු අශ්වාරෝහක ව සිටින මොආස්ගේ හතරැස් තඹ කාසි, අසිලිස්ගේ

හතරැස් තඹ කාසි ආදිය වෘත්තාකාර හැඩයෙන් පරිබාහිර වූ ශක පහ්ලව කාසිවලට උදාහරණ වේ. හස් යෙදූ කාසි, වෘෂභ කාසි, ලක්ෂ්මී කාසි ආදිය වෘත්තාකාර හැඩයෙන් වෙනස් ව ලංකාවේ භාවිත වී ඇති කාසිවලට උදාහරණ වේ. කාසියක් විනිමය මාධ්‍යයක් ලෙස වටිනාකමෙන් වැඩි වීමට ඊට නිශ්චිත හැඩයක් හා බරක් තිබීම අනිවාර්ය වේ. අන්තර්ජාතික වෙළෙඳාම් කටයුතුවල නිරත වීමේ දී මේ තත්ත්වය වඩාත් තීව්‍ර වේ. සොළීන් සාමුද්‍රික අධිරාජ්‍යයක් ගොඩනඟා ගනිමින් උත්සහ කළේ ඉන්දියන් සාගරයේ වෙළෙඳ ආධිපත්‍යය තමන්ට නතු කර ගැනීමට බව රොමිලා තාපර් පෙන්වා දෙයි (තාපර්, 2009, 194). මේ අනුව තමන්ට පූර්ව යුගවල සිට ඉන්දියාවේ භාවිත වූ කාසි නිෂ්පාදනය අනුව යමින් ස්වකීය වාණිජ පරමාර්ථ සාධනය කර ගනු වස් සොළීන් ද වෘත්තාකාර හැඩය තම කාසි අතර පවත්වා ගන්නට ඇත. සොළීන් මෙන් ම පොලොන්නරු යුගයේ කාසි නිකුත් කළ පාලකයෝ ද වෘත්තාකාර හැඩය ඒක ගනිමින් කාසි නිකුත් කිරීමට පෙලඹුණහ. මේ සඳහා ඇතැම් විට සොළී පාලනයෙන් ලැබුණු ආභාසය බලපාන්නට ඇත. අන්තර්ජාතික වෙළෙඳාමට නැඹුරුවීම සහ විදේශ සබඳතා පවත්වා ගැනීමට පෙලඹීම පොලොන්නරු යුගයේ දී වැඩි වශයෙන් හඳුනාගත හැකි ය. මේ නිසා ස්වකීය කාසි අන්තර්ජාතික පිළිගැනීමක් සහිත ව පවත්වා ගැනීමට වෘත්තාකාර හැඩය සම්මත හැඩය කොට ගෙන පොලොන්නරු පාලකයන් ද කාසි නිකුත් කරන්නට ඇත.

කාසි නිෂ්පාදිත මාධ්‍ය පිළිබඳ ව අවධානය යොමු කිරීමේ දී ද චෝල සහ මස්ස කාසි අතර යම් සාම්‍යත්වයක් පෙනේ. මේ ලක්ෂණය පවතින්නේ පොලොන්නරු යුගයේ මුල් කාලයේ දී නිකුත් කර තිබෙන කාසිවල ය. රාජ රාජ සහ රාජේන්ද්‍ර චෝල ආදී සොළී රජවරු රන්, රිදී, තඹ යන ලෝහවලින් කාසි නිකුත් කර තිබේ. පොලොන්නරුව සොළීන්ගෙන් මුදා ගන්නා මහා විජයබාහු රජු ද රන්, රිදී, තඹ යන ලෝහවලින් කාසි නිකුත් කර ඇත (ද සිල්වා, 2018, 42). නිශ්ශංකමල්ල රජු විසින් ද රිදී, තඹ කාසි නිකුත් කර තිබේ. ඔහුගෙන් පසු පාලකයන් තඹ කාසි ඒසක් නිකුත් කර ඇත (පරණවිතාන, 1972, 524). මහා පරාක්‍රමබාහු රජුගෙන් පශ්චාත්කාලීන ව වටිනා ලෝහයන්ගෙන් කාසි නිකුත් කිරීම නතර වන බැවින් 'කාසි නිර්මිත මාධ්‍යය' යන නිර්ණායකය පදනම් කොට ගෙන මස්ස කාසිවල සහ චෝල කාසිවල අසමානතාවක් ද හඳුනාගත හැකි ය.

සොළී කාසිවල සහ පොලොන්නරු යුගයේ නිකුත් කර ඇති මස්ස කාසිවල නිරූපිත සංකේත පිළිබඳ ව අවධානය යොමු කිරීමේ දී ඒවායෙහි ද සමානත්වයක් දැකගත හැකි ය. මෙම කාසි දෙවර්ගයෙහි ම අභිමුඛයේ දැක්වෙන්නේ හිට ගෙන සිටින මානව රුවකි. එය රජෙකු හෝ දෙවියෙකු බවට විවිධ මතවාද ඉදිරිපත් ව තිබේ. මේ රුව දකුණු පසට හැරී හිටි ඉරියව්වෙන් සිටින්නේ නෙළුම් දඬුවක් වැනි යමක් මත ය. එම දණ්ඩේ අගට සම්බන්ධ වී වම් අතට පහළින් බිංදු පහක සලකුණක් දැක්වේ. ටී. ජී. කුලතුංග එය මල් පොකුරක් බවට සිතිය හැකි නමුත් නිශ්චිත ව කුමක් දැයි හඳුනා ගැනීමට අපහසු බවට දක්වයි (කුලතුංග, 2015, 460). වම් අත නමා ගෙන එයින් යම් වස්තුවක් මුහුණට කොට අල්ලා ගෙන සිටියි. එසේ අල්ලා ගෙන සිටින්නේ හක් ගෙඩියක් හෝ පද්මයක් බවට විවිධ මතවාද පවතියි. දකුණු අතින් පහනක් වැනි යමක් අල්ලා ගෙන සිටියි. ප්‍රතිමුඛයෙහි දැක්වෙන්නේ අභිමුඛයෙහි දැක්වෙන හිට

ගෙන සිටින රුවේ හිඳි ඉරියව්වයි. ඉඳ ගෙන සිටින්නේ කොටු සලකුණකින් නිරූපිත දෙයක් මත ය. එම සලකුණ නිරූපණය කර තිබෙන්නේ වියන ලද ඇඳක හෝ ආසනයක් පරිද්දෙනි (කුලතුංග, 2015, 456). මෙම හිඳි ඉරියව්වෙන් යුත් මානව රුවේ උඩු කය හා යටි කය පැහැදිලි ව වෙන් කොට හඳුනාගත හැකි ය. මෙම හිඳි රුව දකුණු දෙසට හැරී දකුණු අත දකුණු දණහිස මත තබා ගෙන සිටියි. වම් අත නමා ගෙන මුහුණ දෙසට ළං කොට හක් ගෙඩියක් හෝ පද්මයක් අල්ලා ගෙන සිටියි. ප්‍රතිමුඛයෙහි නිරූපිත මානව රුවේ හිඳි ඉරියව්ව ලංකාවේ ඉසුරුමුණියේ ඇති මිනිසා සහ අශ්ව හිස කැටයමෙහි මිනිසා හිඳ ගෙන සිටින ඉරියව්වට සමාන බවක් පෙන්නුම් කරයි. අභිමුඛයේ සහ ප්‍රතිමුඛයේ දක්වෙන මෙම කේන්ද්‍රීය මානව රූපය නිරූපිත කර තිබෙන්නේ නොවැසූ උඩු කයකින් සහ යටි කයට දෝතියක් වැනි ඇඳුමක් ඇඳ ගෙන සිටින ආකාරයෙනි. දෙපසින් සහ මැදින් පහළට වැටී ඇති රේඛා සලකුණු නිරූපණය කර තිබෙන ආකාරයෙන් යටිකය ඇඳුම දෝතියක් විය හැකි බවට අනුමාන කෙරේ. මේ ආකාරයට සොළී කාසිවල සහ මස්ස කාසිවල නිරූපිත මෙම හිඳි සහ හිටි ඉරියව්වෙන් යුතු මානව රුව කාගේ ද යන්න පිළිබඳ ව විවිධ අදහස් පවතියි. මෙම පුද්ගල රූපය විෂ්ණුගේ අවතාරයක් වන රාමාගේ රූපය බවට කොඩ්රින්ටන් අදහස් කරයි (Codrington, 1924, 54). කාසිචෙට්ටි අදහස් කරන්නේ උඩු පැත්තේ විෂ්ණු රුවත් යට පැත්තේ හනුමන් රූපයත් නිරූපිත බවයි (කල්දේරා, 1959, 14). පරණවිතානගේ අදහස වන්නේ හිටි ඉරියව්වෙන් අභිමුඛයේ නිරූපිත වන්නේ ධනයට අධිපති කුවේර බවත්, හිඳි ඉරියව්වෙන් ප්‍රතිමුඛයෙහි නිරූපිත වන්නේ සංඛ, පද්ම නිධි රූප දෙකෙන් එකක් බවත් ය (කුලතුංග, 2015, 456). රිස් ඩේවිඩ්, සී. ඇම්. ප්‍රනාන්දු වැනි විද්වතුන් අදහස් කරන්නේ එම පුද්ගල රූපය රජ රුවක් වන බවයි (කුලතුංග, 2015, 456). සොළීන් වැඩි වශයෙන් ම නිකුත් කර තිබෙන්නේ ඉහත විස්තර කළ ආකාරයේ අභිමුඛයේ හිට ගෙනත්, ප්‍රතිමුඛයෙහි හිඳ ගෙනත් සිටින මානව රුව දක්වෙන කාසි වුවත් චේර, චෝල හා පාණ්ඩ්‍ය යන දකුණු ඉන්දියාවේ බලවත් ව සිටි රාජධානිවල රාජ්‍ය ලාංඡන ඇතුළත් කාසි කිහිපයක් ද ඔවුන් විසින් නිකුත් කර තිබෙන බව මෙහි දී සඳහන් කළ යුතු ය.

රජුගේ නාමය සටහන් කිරීමට දේව නාගරී අක්ෂර යොදා ගෙන තිබීම ද සොළී කාසිවල සහ පොලොන්නරු යුගයේ නිකුත් කළ මස්ස කාසිවල පවතින තවත් සමානකමකි. සොළී කාසිවල ශ්‍රී රාජ රාජ, ශ්‍රී රජාධිරාජ, ශ්‍රී රාජේන්ද්‍ර යනුවෙන් රජුගේ නම දේව නාගරී අක්ෂරයෙන් සටහන් කොට තිබේ. ශ්‍රී විජයබාහු, ශ්‍රී පරාක්‍රමබාහු, ශ්‍රී කලිගලකෙජ, ශ්‍රී චොඩගඟදෙව, ශ්‍රී රාජලීලාවති, ශ්‍රීමත් සහාසමල්ල, ශ්‍රී ධම්මාශෝකදෙව යනුවෙන් පොලොන්නරු යුගයේ දී කාසි නිකුත් කළ පාලකයන් ස්වකීය නාමය දේව නාගරී අක්ෂරයෙන් සටහන් කර ඇත. මේ පිළිබඳ ව කුලතුංග මෙවැනි අදහසක් ඉදිරිපත් කරයි.

"එසේ ම ඉන්දියානු කලාපයේ පොදු භාෂාවක් වූ සංස්කෘත භාෂාවේ අක්ෂර යොදා ගැනීමෙන් කාසි භාවිතයේ යෙදුණු විවිධ ජාතීන්ට මෙම කාසි කුමන පාලකයින්ට අයත් කාසි දැයි හඳුනා ගැනීමේ පහසුව එයින් ලැබේ." (කුලතුංග, 2015, 623).

මෙම කාසි දෙවර්ගයේ දී ම රජවරු සිය නම සටහන් කිරීමේ දී "ශ්‍රී" අක්ෂරය මුලින් යොදා ගෙන තිබේ. එහි සුළු වෙනස්කමක් සහස්සමල්ල රජුගේ කාසිවල "ශ්‍රීමත්"

යනුවෙන් යෙදී තිබීම නිසා හඳුනාගත හැකි වුවත් පොලොන්නරු යුගයේ කාසි නිකුත් කර ඇති සෙසු පාලකයන් සය දෙනාගේ ම ද සොළී කාසිවල ද "ශ්‍රී" අක්ෂරය පාලක නාමයට පූර්වයෙන් යෙදී තිබේ. මෙරට පොලොන්නරු යුගයේ දී රචිත බවට සැලකෙන වෛජයන්ත පොතෙහි රජ කෙනෙකුගේ නමින් කාසි නිකුත් කරන්නේ ඔහුගේ ප්‍රථම අභිෂේකයේ දී බවත් එම නමට පූර්වයෙන් "ශ්‍රී" අක්ෂරය යෙදිය යුතු බවත් සඳහන් වේ (කුලතුංග, 2015, 625-626). මේ සඳහන අනුව කාසිවල පාලකයාගේ නමට පූර්වයෙන් "ශ්‍රී" අක්ෂරය යෙදීම ලංකාවේ දී කාසි නිකුත් කිරීමේ දී අනුගමනය කළ යුත්තකි. එහෙත් සොළී කාසිවලත් එම ලක්ෂණය හඳුනාගත හැකි ය. එබැවින් එම සඳහන තත්කාලීන ව දෙරටේ ම කාසි නිකුත් කිරීමේ දී අනුගමනය කළ පොදු පිළිගැනීමක් වන්නට ඇති බවට අනුමාන කළ හැකි ය.

සොළී කාසිවල මෙන් ම පොලොන්නරු යුගයේ මස්ස කාසිවල ද පාලකයාගේ නම සඳහන් කොට තිබෙන්නේ ප්‍රතිමුඛයෙහි හිඳි ඉරියව්වෙන් යුත් මානව රුවට ඉදිරියෙනි. එහි දී එම කේන්ද්‍රීය රුවට ඉදිරියෙන් පේළි දෙකකට හෝ තුනකට සිටින සේ පාලකයාගේ නාමය සටහන් කර තිබීම ද මෙම කාසි දෙවර්ගයෙහි පවතින සමානත්වයකි.

මීළඟට පොලොන්නරු යුගයේ භාවිත මස්ස කාසි සහ චෝල කාසි අතර පවතින අසමානතා පිළිබඳ ව අවධානය යොමු කළ යුතු ය. එහි දී කාසි නිර්මිත මාධ්‍යය යන්න පිළිබඳ ව පළමු ව කරුණු සාකච්ඡා කෙරේ. පොලොන්නරු යුගයේ මුල් කාලයේ දී නිකුත් කර තිබෙන කාසි පිළිබඳ ව අවධානය යොමු කළ විට කාසි නිර්මිත මාධ්‍යයන්ගේ සමානත්වයක් දැකගත හැකි ය. එනම් පළමු වන රාජ රාජ සහ රාජේන්ද්‍ර චෝල යන සොළී පාලකයන් මෙන් ම මහා විජයබාහු රජු ද රන්, රිදී, තඹ යන ලෝහ මාධ්‍ය ත්‍රයයෙන් ම කාසි නිකුත් කර තිබේ. එහෙත් විජයබාහු රජුගෙන් පසුකාලයේ දී මේ තත්ත්වයෙහි වෙනසක් පෙන්නුම් කෙරේ. සොළී පාලකයන් බහුල ව රන් කාසි නිකුත් කර ඇත. රිදී හා තඹ කාසි නිකුත් කර තිබුණ ද ඊට සාපේක්ෂ ව ඔවුන්ගේ රන් කාසි නිකුත් කිරීමේ ප්‍රවණතාව වැඩි ය. එහෙත් මස්ස කාසි බහුල ව නිකුත් කර තිබෙන්නේ තඹ ලෝහයෙනි. සෙනරත් පරණවිතාන පවසන්නේ වටිනා ලෝහ වර්ගවලින් කාසි සෑදීම පළමු වන පරාක්‍රමබාහු රජුගෙන් කෙළවර වූ බවයි (පරණවිතාන, 1972, 524). නිශ්ශංකමල්ල රජු විසින් රිදී කාසි සමහරක් නිකුත් කර තිබූවත් ඔහුගෙන් පශ්චාත්කාලීන පාලකයන් කාසි නිකුත් කර තිබෙන්නේ තඹ ලෝහයෙනි. පරණවිතාන පවසන්නේ විජයබාහු රජු රන් කාසි නිකුත් කළ ද ඒවා බාල රනින් සාදන ලද ඒවා හෝ රිදියෙන් සාදා රන් ආලේපිත කරන ලද ඒවා බවයි (පරණවිතාන, 1972, 524). පළමු වන පරාක්‍රමබාහු, නිශ්ශංකමල්ල, චොඩගංග, සහස්සමල්ල, ධර්මාශෝකදේව යන රජවරුන් විසින් නිකුත් කරන ලද ඇතැම් කාසි තඹ මිශ්‍ර රිදී බවට හඳුනාගත හැකි ය (ද සිල්වා, 2018, 45). පළමු වන පරාක්‍රමබාහු, නිශ්ශංකමල්ල, චොඩගංග, සහස්සමල්ල යනාදි පාලකයන් විසින් සුදු ලෝහයෙන් (White metal) නිෂ්පාදිත (ඇතැම් විට තඹ ඉතා කුඩා ප්‍රමාණයක් අඩංගු වේ) කාසි ද නිකුත් කර තිබේ (ද සිල්වා, 2018, 45). රිදී ආලේපිත කාසි නිකුත් කර තිබෙන පාලකයන් ලෙසට නිශ්ශංකමල්ල, චොඩගංග, ලීලාවතී, සහස්සමල්ල, ධර්මාශෝකදේව යන පාලකයන් හඳුනාගත හැකි ය (ද සිල්වා, 2018, 45). මේ අනුව

කාසි නිර්මිත මාධ්‍යය අනුව පොළොන්නරු යුගයේ භාවිත මස්ස සහ සොළී කාසි යන දෙවර්ගය අතර යම් අසමානතාවක් ද පවතින බවට හඳුනාගත හැකි ය.

වගු අංක 02 - විවිධ ලෝහ මාධ්‍යයන් ගෙන් මස්ස කාසි නිකුත් කර ඇති පාලකයෝ

නිකුත් කළ පාලකයා	රන් කාසි	රිදී කාසි	තඹ කාසි	තඹ මිශ්‍ර රිදී කාසි	සුදු ලෝහ (ඇතැම් විට තඹ ඉතා කුඩා ප්‍රමාණයක් අඩංගු වේ)	රිදී ආලේපිත කාසි
මහා විජයබාහු (ක්‍රි. ව. 1055-1110)	✓	✓	✓			
මහා පරාක්‍රමබාහු (ක්‍රි. ව. 1153-1186)		✓	✓	✓	✓	
නිශ්ශංකමල්ල (ක්‍රි. ව. 1187-1196)		✓	✓	✓	✓	✓
චෝඩගංග (ක්‍රි. ව. 1196-1197)		✓	✓	✓	✓	✓
ලීලාවතී (ක්‍රි. ව. 1197-1200, ක්‍රි. ව. 1209-1210, ක්‍රි. ව. 1211-1212)		✓	✓			✓
සහස්සමල්ල (ක්‍රි. ව. 1200-1202)			✓	✓	✓	✓
ධර්මාශෝකදේව (ක්‍රි. ව. 1208)		✓	✓	✓		✓

මූලාශ්‍රයඃ ද සිල්වා, 2018, 45.

පොළොන්නරු යුගයේ භාවිත මස්ස කාසිවල අනුප්‍රභේද හඳුනාගත හැකි ය. එහෙත් සොළී කාසිවල එවැනි අනුප්‍රභේද නොමැත. මස්ස කාසි 1/8 සහ 1/16 වශයෙන් අනුවර්ගීවලට බෙදෙයි (ජයසිංහ, 2013, 58). මස්ස කාසිවල හඳුනාගත හැකි මේ විවිධතාව පිළිබඳ ව ලීලානන්ද කල්දේරා මෙසේ විස්තර කොට තිබේ.

"කහවණුවෙහි මෙන් මෙම කාසිවල ද විෂම භාග ඇති විය. එහෙත් සුලභ වශයෙන් නොවේ. මේ වර්ගයේ භාගයේ කාසි රජවරුන් කීප දෙනෙක් විසින් ම නිකුත් කර තිබෙන බව පෙනේ. 1 වන පරාක්‍රමබාහු රජුගේ හා ධර්මාශෝක දෙව රජුගේත් නම් සඳහන් වන මෙම වර්ගයේ 1/8 කාසි හා 1/16 කාසි කිහිපයක් ගැනද නොබෝදා දැන ගන්නට හැකි විය." (කල්දේරා, 1959, 18).

මස්ස කාසියෙන් භාගය වන අඩ මස්ස කාසි පළමු වන පරාක්‍රමබාහු, ලීලාවතී, සහස්සමල්ල යනාදි පාලකයන් නිකුත් කර ඇත (ද සිල්වා, 2018, 45). පළමු වන

පරාක්‍රමබාහු රජු විසින් මස්ස සහ අඩ මස්ස කාසිවලට අමතර ව 1/8 සහ 1/16 යන මස්ස කාසියේ තවත් අනුප්‍රභේද දෙකකින් කාසි නිකුත් කර තිබේ (ද සිල්වා, 2018, 45). මහා පරාක්‍රමබාහු රජු දවස ආර්ථික කටයුතු පුළුල් වශයෙන් සිදු කළ බව වංශකථාගත විස්තරවලින් අනාවරණය වේ. මහ පැරකුම් රජු බුරුමය ආක්‍රමණය කිරීමට පෙලඹුණු හේතූන් අතර බුරුමයට ලංකාවෙන් යවන ලද සෑම වෙළෙඳ නැවකට ත්‍යාග වශයෙන් ඇතෙකු ලබා දීමේ සම්ප්‍රදාය බුරුම පාලකයා නැවැත්වීම, ලංකාවෙන් බුරුමයට ගෙන යන ලද ඇතුන්ගේ මිල ගණන් සීමා කිරීම, ලංකාවෙන් ගිය වෙළෙඳ දූතයන්ට හිරිහැර කොට ඔවුන් ගෙන ගිය පඬුරු සහ ඔවුන්ගේ නැව් කොල්ල කෑම ආදි ආර්ථික කරුණු කිහිපයක් හඳුනාගත හැකි ය (මහාවංශය සිංහල, 2004, පරි. 76, 14-35 ගාථා). එමෙන් ම ඔහු යටතේ දී ඇති වූ කෘෂිකාර්මික නවෝදය හේතුවෙන් මෙරටින් පිටරටට සහල් අපනයන කළ බැවින් ලංකාව තත්කාලීන ව 'පෙරදිග ධාන්‍යාගාරය' නමින් හැඳින්වූ බවට ජනප්‍රවාද පවතියි. මේ අනුව තත්යුගයේ දී සංවිධිත මෙන් ම පුළුල් ආර්ථිකයක් මෙරට පැවති බව පැහැදිලි ය. එහි දී රට තුළ සිදු වන දෛනික වාණිජ කටයුතුවල පහසුව වෙනුවෙන් සහ විස්තෘත වශයෙන් මෙන් ම ආංශුක වශයෙන් ද ආර්ථික කටයුතු ශක්තිමත් ව, කාර්යක්ෂම ව හා විධිමත් ව පවත්වා ගෙන යාම වෙනුවෙන් පරාක්‍රමබාහු රජු ඉහත ආකාරයට මස්ස කාසිවලට අමතර ව එහි අනුප්‍රභේද තුනක් ම නිකුත් කරන්නට ඇති බවට අනුමාන කළ හැකි ය. මේ අනුව පොලොන්නරු යුගයේ නිකුත් කර භාවිතයට ගන්නා ලද කාසිවල භාගය, කාල සහ අටෙන් එක ආදි වටිනාකම අනුව කුඩා ප්‍රමාණයේ කාසි භාවිත කර ඇත (ගුණරත්න, 2019, 28). එනම් කාසියේ භාවිත වටිනාකම අනුව විවිධත්වයක් මස්ස කාසිවල පවතයි. එහෙත් පොලොන්නරු යුගයේ දී සොළීන් විසින් නිකුත් කරන ලද ඔවුන්ගේ කාසිවල එවැනි විවිධත්වයක් හඳුනාගත නොහැකි වීම සොළී කාසි සහ මස්ස කාසි යන කාසි දෙවර්ගයේ ඇති තවත් අසමානතාවකි.

සොළීන් කාසි නිකුත් කිරීමේ දී ඉහත දක්වූ පරිදි වටිනාකම අනුව විවිධත්වයක් අනුගමනය නොකළ ද කාසියේ ඇතුළත් සංකේත අනුව විවිධත්වයෙන් යුතු ව කාසි නිකුත් කිරීමට පෙලඹී තිබේ. ඔවුන් සිය කාසි බහුතරයක් නිකුත් කර තිබෙන්නේ අභිමුඛයේ හිට ගෙනත්, ප්‍රතිමුඛයෙහි හිඳ ගෙනත් සිටින මානව රුව දක්වෙන කාසිවුවත් එම ස්වරූපයේ කාසි පමණක් ම නිකුත් කිරීමට ඔවුන් සීමා වී නැත. සොළීහු චේර, චෝල සහ පාණ්ඩ්‍ය රාජ්‍ය ලාංඡන දක්වෙන කාසි ද නිකුත් කළහ. එයින් ඔවුන්ගේ දේශපාලන ජයග්‍රහණයන් ප්‍රකට කෙරෙන බවට සැලකේ. රාජේන්ද්‍ර චෝල රජුට අයත් එක් කාසියක මුහුණත වියනක් යට කොටියෙකු හිඳ ගෙන සිටින විලාසයත් ඊට ඉදිරියෙන් මත්ස්‍යයන් දෙදෙනෙකුගේ රුවත් දක්වේ. එහි ප්‍රතිමුඛයෙහි දුන්නක් දක්වෙන අතර නාගරී අක්ෂරයෙන් පේළි දෙකකට 'ගංගෛකොණ්ඩ චෝල' යනුවෙන් සටහන් කර ඇත (Sirisena, 2002, 14). රාජේන්ද්‍ර රාජ රජුගේ කාසි වර්ගයක චේර, චෝල, පාණ්ඩ්‍ය යන එකල දකුණු ඉන්දියාවේ බලවත් ව පැවති රාජධානි ත්‍රයයේයේ රාජකීය සංකේත වන පිළිවෙළින් ඊතලය, කොටියා, මත්ස්‍යයා යන සංකේත ත්‍රයය නිරූපණය කර තිබේ. මේ අනුව අභිමුඛයේ හිට ගෙනත්, ප්‍රතිමුඛයෙහි හිඳ ගෙනත් සිටින මානව හෝ නිධි රුව දක්වෙන කාසිවලට අමතර ව වෙනත් රූප නිරූපිත කාසි ද සොළීන් විසින් නිකුත් කර තිබෙන බවට පැහැදිලි ය. පොලොන්නරුවේ මස්ස කාසිවල මෙවැනි අන්තර්ගත සංකේතවල වෙනස්කමක්

හඳුනාගත නොහැකි ය. ඒවායෙන් ඒකාකාරී බවක් විද්‍යමාන වේ. අභිමුඛයේ හිට ගෙන සිටින මානව රුවත්, එය හිඳි ඉරියව්වෙන් යුතු ව ප්‍රතිමුඛයෙහිත් කේන්ද්‍රීය සංකේතය ලෙස නිරූපිත කාසි පමණක් මෙරටින් පොලොන්නරු යුගයේ දී හඳුනාගත හැකි ය. මහා විජයබාහුගේ පටන් දඹදෙණියේ පළමු වන බුවනෙකබාහු රජු දවස දක්වා ම සිටි රජවරුන් සිය නම පමණක් වෙනස් කරමින් ඒකාකාර ස්වරූපයෙන් කාසි නිකුත් කර ඇත. මේ අනුව කාසිවල අන්තර්ගත සංකේත පදනම් කර ගනමින් විවිධත්වයෙන් යුතු කාසි නිකුත් කිරීමක් සොළීන් ගෙන් හඳුනාගත හැකි අතර පොලොන්නරු පාලකයන්ගෙන් එවැන්නක් හඳුනාගත නොහැකි වීම ද සොළී කාසි සහ මස්ස කාසි අතර පවතින අසමානතාවකි.

වගු අංක 03 - මස්ස කාසියේ අනුප්‍රභේද නිකුත් කර ඇති පාලකයෝ

නිකුත් කළ පාලකයා	මස්ස කාසි	අඩ මස්ස කාසි (1/2)	1/8 කාසි	1/16 කාසි
මහා විජයබාහු (ක්‍රි. ව. 1055-1110)	✓			
මහා පරාක්‍රමබාහු (ක්‍රි. ව. 1153-1186)	✓	✓	✓	✓
නිශ්ශංකමල්ල (ක්‍රි. ව. 1187-1196)	✓			
චෝඩගංග (ක්‍රි. ව. 1196-1197)	✓			
ලීලාවතී (ක්‍රි. ව. 1197-1200, ක්‍රි. ව. 1209-1210, ක්‍රි. ව. 1211-1212)	✓	✓		
සහස්සමල්ල (ක්‍රි. ව. 1200-1202)	✓	✓		
ධර්මාශෝකදේව (ක්‍රි. ව. 1208)	✓		✓	

මූලාශ්‍රයඃ ද සිල්වා, 2018, 45.

සොළී කාසි සහ මස්ස කාසි අතර බර ප්‍රමාණයන්ගේ වෙනස්කම් ද හඳුනාගත හැකි ය. මේ පිළිබඳ ව කොඩ්රින්ටන්ගේ "Ceylon Coins & Currency" කෘතියෙහි විශ්ලේෂණයක් අන්තර්ගත වේ (Codrington, 1924, 73). එහෙත් බරෙහි පවතිනි අඩු-වැඩි වීම් මෙම කාසි දෙවර්ගය අතර පවතින ප්‍රධාන අසමානකමක් ලෙස දැක්වීමට අසීරු ය. මන්ද කාසි සංසරණය වීමේ දී ගෙවී යන අතර එමගින් නිරායාසයෙන් ම බරෙහි වෙනසක් ඇති වේ. මීට අමතර ව හායනකාරකයන්ගේ බලපෑම් නිසා ද කාසිවල බරෙහි වෙනස්කම් සිදු වේ. මේ හේතුවෙන් කාසිවල බර පදනම් කර ගෙන සොළී කාසි සහ මස්ස කාසි අතර අසමානතාවක් හඳුනාගැනීමට උත්සාහ කිරීම යුක්ති සහගත නොවනු ඇත.

මස්ස කාසිවල තිත් රාමුවක් දැකගත හැකි ය. ඒ අනුව අභිමුඛයෙහි සහ ප්‍රතිමුඛයෙහි දැක්වෙන කේන්ද්‍රීය මානව රුව, අනෙකුත් අප්‍රධාන සලකුණු සහ රජුගේ නාමය මැදි වන පරිදි තිත් රාමුවක් කාසිය වටා නිරූපණය කර තිබේ. මෙම තිත් රාමුව අඩ මස්ස, 1/8 සහ 1/16 යන අනුප්‍රභේදයේ කාසිවල ද දැකගත හැකි ය. ඒ ආකාරයට සියලු සංකේත මැදි වන සේ දක්වා ඇති තිත් රාමුවක් සොළී කාසිවල දැකගත නොහැකි ය. එය ද මෙම කාසි දෙවර්ගය අතර දැකිය හැකි අසමානතාවකි. මෙම තිත් රාමුව ඇතැම් මස්ස කාසිවල එක් පසෙක පමණක් දැක්වේ. අඛණ්ඩ ව වෘත්තාකාර ව කාසිය වටා දිව ගොස් තිබෙනු හඳුනාගත නොහැකි ය. එසේ සිදු ව තිබෙන්නේ කාසි අච්චු ගැසීමේ දී සිදු ව ඇති තාක්ෂණික දෝෂයක් නිසා විය යුතු ය.

සොළී කාසිවල සහ මස්ස කාසිවල දැක්වෙන අභිමුඛයේ හිට ගෙනත්, ප්‍රතිමුඛයෙහි හිඳ ගෙනත් සිටින කේන්ද්‍රීය මානව හෝ නිධි රුව නිරූපණය කර තිබීම අනුව ද මේ කාසි දෙවර්ගයෙහි අසමානතාවක් හඳුනාගත හැකි ය. එනම් එම කේන්ද්‍රීය මානව හෝ නිධි රූපයෙහි මුහුණ නිරූපණය කර තිබීමේ පැහැදිලි වෙනසක් මේ කාසි දෙවර්ගයෙහි දැකගත හැකි ය. සොළී කාසිවල කේන්ද්‍රීය මානව හෝ නිධි රූපයෙහි ඇස, නාසය, මුඛය ආදි මුහුණේ අංග පැහැදිලි ව හඳුනාගත හැකි අයුරෙන් නිරූපිත ය. තව ද හිසෙහි පැලඳි හිස් අවාරණය ද පැහැදිලි ව නිරූපණය කර තිබේ. එහෙත් පොළොන්නරු යුගයේ නිකුත් කර ඇති මස්ස කාසිවල කේන්ද්‍රීය මානව හෝ නිධි රුවේ මුහුණ කල් යත් ම සරල රේඛා භාවිතයෙන් ඉංග්‍රීසි හෝඩියේ “E” අක්ෂරයේ ස්වරූපයට නිරූපණය කර තිබේ. මුහුණේ අංග පැහැදිලි ව නිරූපණය කර නොමැත. කාසි මුද්‍රණය කළ අයගේ දැනීම අඩුකම නිසා එසේ සිදු වන්නට ඇති බවට මැදඋයන්ගොඩ විමලකිත්ති හිමියෝ පවසති (විමලකිත්ති හිමි, 1969, 21). මේ සඳහා ලෝහයේ පිරිහීම ද හේතු වන්නට ඇත. 12 වන සියවසේ සිට ඉදිරියට ක්‍රමයෙන් බාල වූ බව සහ මෝස්තරය සහ කාසි සම්පාදනය පිරිහුණු බව නිරීක්ෂණය කළ හැකි බවට ජී. පී. එස්. එච්. ද සිල්වා පවසයි (ද සිල්වා, 2018, 44). බාල ලෝහවලින් කාසි නිකුත් කිරීමේ පාලකයාගේ අරමුණ පිළිබඳ ව පරණවිතානගේ පහත විස්තරයෙන් හඳුනාගත හැකි ය.

"මේ බාල කාසි නිකුත් කළ රජවරුන් ඒවා පාවිච්චි කිරීමට බල කිරීම නිසා රටවැසියන්ට අලාභයක් සිදු වුවත් ඒ රජවරුන්ට නම් විශාල ලාභයක් ලැබෙන්නට ඇත. බාල ලෝහ කාසිය වැඩිවැඩියෙන් නිකුත් කළ තරමට රටවැසියන්ගේ ධනය වැඩිවැඩියෙන් උදුරා ගැනීමට රජුට පුළුවන් වූ බව පෙනේ." (පරණවිතාන, 1972, 525).

මේ අනුව බාල ලෝහ භාවිතය නිසා කාසියේ බාහිර ස්වරූපයට හානි වීම පමණක් නො ව සමාජ-ආර්ථික වශයෙන් ද පිරිහීමක් සිදු වූ බවට පැහැදිලි ය.

සමාලෝචනය

ශ්‍රී ලංකාවේ කාසි ව්‍යවහාරය හස් එබූ කාසිවලින් ආරම්භ වී අනුරාධපුර රාජධානි සමයේ අවසාන අවධිය වන විට රන්කහවණුව සංසරණය වීම දක්වා විකාශනයට

පත්වන්නේ ය. අනුරාධපුරයෙන් පසු ව අගනගරය පොලොන්නරුවට මාරු වේ. ඒ අනුරාධපුර රාජධානියට එල්ල වන සොළී ආක්‍රමණය හේතුවෙනි. පස් වන මිහිඳු රජ දවස මෙරට ඇති වන ආභ්‍යන්තරික අර්බුදකාරී තත්ත්වය පාදක කර ගෙන පළමු වන රාජ රාජ චෝල රජු ක්‍රි. ව. 993 දී ද ඔහුගේ පුත් පළමු වන රාජේන්ද්‍ර චෝල රජු ක්‍රි. ව. 1017 දී ද අනුරාධපුරය ආක්‍රමණය කොට චෝල අධිරාජ්‍යයෙහි අවසන් ප්‍රාන්තය ලෙසට ලංකාවේ රජරට කලාපය නතු කර ගනිති. පළමු වන රාජ රාජ රජුගේ විරුද නාමයකට අනුව 'මුම්මඩිචෝල මණ්ඩලම්' යනුවෙන් සොළීහු තත්කාලීන ව ලංකාව හැඳින්වූහ. සිය අගනුවර ලෙස පොලොන්නරුව තෝරාගත් සොළීහු පළමු වන රාජේන්ද්‍ර චෝල රජුගේ විරුද නාමයකට අනුව 'ජනනාථපුරම්' යනුවෙන් පොලොන්නරුව නම් කොට ස්වකීය ප්‍රතිරාජයෙකු යටතේ පාලනය කළහ. මේ අනුව පොලොන්නරුව මුලින් ම අගනගරය ලෙස තෝරා ගනු ලැබුවේ සොළීන් විසිනි.

රන් කහවණුව සහ මස්ස අනුරාධපුර යුගයේ අග භාගයේ සිට පොලොන්නරු යුගය අවසන් වන තෙක් මෙරට තුළ විනිමය මාධ්‍යය ලෙසින් සංසරණය වූ කාසි වර්ග ලෙස හඳුනාගත හැකි ය. මස්ස කාසිය නිර්මිත ලෝහ මාධ්‍යය අනුව රන් මස්ස, රිදී මස්ස, තඹ මස්ස සහ රිදී ආලේපිත තඹ මස්ස යනුවෙන් විවිධත්වයට වේ. එමෙන් ම රන් කහවණුවේ මෙන් ම මස්ස කාසිවල ද වටිනාකම අනුව වෙනස් වන අනුප්‍රභේද නිකුත් කිරීමක් ද හඳුනාගත හැකි ය. ඒ අනුව පොලොන්නරු යුගයේ නිකුත් කර තිබෙන මස්ස කාසි අඩ මස්ස, 1/8 සහ 1/16 යනුවෙන් ද වටිනාකමෙන් විවිධත්වයට පත් වේ. පොලොන්නරු යුගයේ නිකුත් කරන ලද මස්ස කාසිය ප්‍රසිද්ධ ව තිබෙන්නේ දඹදෙණි මස්ස යනුවෙනි (ගුණරත්න, 2019, 27). ඒ අවසන් වරට එම කාසි අච්චු ගැසීම සිදු කරන ලද්දේ දඹදෙණි යුගයේ දී බැවිනි (කල්දේරා, 1959, 18). පොලොන්නරු යුගයේ පළමු කාලවකවානුව අයත් වන්නේ සොළී යුගයට ය. ඒ අනුව ක්‍රි. ව. 1070 දක්වා කාලය මීට අයත් වේ. චෝලයන් ඒ වන විට මෙරට තුළ ප්‍රචලිත ව පැවති කහවණුව අනුගමනය කර ඊට ඔවුන්ගේ නම් යොදා භාවිතයට ගෙන තිබේ (ද සිල්වා, 2018, 41). ඒ අනුව පළමු වන රාජ රාජ රජු ඒ අකාරයට තම නම යොදා කහවණුවේ ස්වරූපයට සමාන ව රන් හා තඹ කාසි අච්චු ගසා භාවිතය නීතිගත කර තිබේ. ඔහුගේ කාසි කහවණුවෙන් වෙනස් වූයේ කහවණුවේ ඇති "ශ්‍රී ලංකා විභූ" යන පාඨය වෙනුවට 'ශ්‍රී රාජ රාජ' යනුවෙන් යොදා තිබීමෙනි (විමලකිත්ති හිමි, 1969, 24). සොළීන් ගෙන් රට මුදවා ගන්නේ මහා විජයබාහු රජු ය. ඔහු ද කාසි නිකුත් කිරීමේ දී සොළීන් අනුගමනය කළ නිසා රජවරුන් තම නම සහිත ව කාසි නිකුත් කිරීමේ සම්ප්‍රදායක් (ද සිල්වා, 2018, 41) පොලොන්නරු යුගයේ දී ඇති විය. මේ අනුව පොලොන්නරු යුගයේ භාවිත කාසිවල ඒකාකාරී ස්වරූපයක් පවතින බවට කිව හැකි ය. කාසි නිර්මිත මාධ්‍යය, කාසිවල ඇතුළත් සංකේත සහ වටිනාකම අනුව සුළු වශයෙන් සමානතා සහ අසමානතා සොළී කාසිවල සහ මස්ස කාසිවල පවතින බවට හඳුනාගත හැකි ය. මේ පිළිබඳ ව ඉහත විස්තරාත්මක ව තොරතුරු සාකච්ඡා කොට තිබේ. කෙසේ වුවත් ශ්‍රී ලංකාවේ කාසි සම්මත බරක්, හැඩයක් සහ නිශ්චිත වටිනාකමක් මෙන් ම නිකුත් කළ පාලක අනන්‍යතාව (පාලක නාමය) සහිත ව නිකුත් කිරීමේ සම්ප්‍රදාය 12 වන සියවස වන විට ඇති වීම වැදගත් වේ (බාලසූරිය, 2008, 7). එම සම්ප්‍රදාය ඇති වීම කෙරෙහි සොළී පාලනයෙන් ද

බලපෑම් වුවාට සැක නැත. මන්ද සොළීන් සාමුද්‍රික අධිරාජ්‍යයක් ගොඩනඟා ගැනීම හරහා අන්තර්ජාතික වෙළෙඳාමට නැඹුරු වූ පිරිසක් වන බැවිනි. අන්තර්ජාතික වෙළෙඳාමේ දී විනිමය මාධ්‍යයට ප්‍රමුඛතාවක් හිමි වේ. පොළොන්නරු යුගයේ දී කාසි නිකුත් කිරීමේ දී මේ තත්ත්වය කෙරෙහි පොළොන්නරු පාලකයන් ද විමසිලිමත් වන්නට ඇත. පොළොන්නරු යුගයට අයත් කාසි අප්‍රිකාවේ නැගෙනහිර වෙරළ තීරය දක්වා ම ව්‍යාප්ත වී තිබේ (Imbulamure and others, 2016, 17). මේ අනුව දේශීය පාලකයාට ද කෘෂිකර්මය මත පදනම් වූ ආර්ථික ක්‍රමයෙන් වෙළෙඳාම පදනම් කර ගත් ආර්ථිකයකට පරිවර්තනය වී අන්තර්ජාතික වෙළෙඳාමට යොමු වීමට සිදු වූ බව පෙනේ. සොළීන්ගේ සිට දඹදෙණි යුගයේ පළමු වන බුවනෙකබාහු රජු දවස දක්වා ම පාලක නාමය පමණක් වෙනස් ව මස්ස කාසි ඒකාකාරී ස්වරූපයක් ගනු ලබන්නේ මේ අන්තර්ජාතික පිළිගැනීම මස්ස කාසි කෙරේ පවත්වා ගැනීමට උනන්දු වූ නිසා විය යුතු ය. කෙසේ වුවත් පුරාණ ලංකා සමාජය තුළ දීර්ඝ කාලයක් විනිමය මාධ්‍යයක් ලෙස අඛණ්ඩ ව භාවිත වූ කාසි වර්ගය වන්නේ මස්ස කාසි ය. එබැවින් මස්ස කාසි ඓතිහාසික වශයෙන් සුවිශේෂ වැදගත්කමක් උසුලයි. මස්ස කාසි නිකුත් කිරීමට මෙන් ම මස්ස කාසිවල දීර්ඝ කාලීන අඛණ්ඩ භාවිතයටත් සොළී කාසිවලින් මෙන් ම සොළී පාලනයෙන් ද ආභාසය ලැබී තිබෙන බව පැහැදිලි ය.

ආශ්‍රිත ග්‍රන්ථ නාමාවලිය

කල්දේරා, ලීලානන්ද. (1959). **ලංකාවේ මිල මුදල්**. කොළඹ: කොළඹ ජාතික කෞතුකාගාරය.

කුලතුංග, ටී.ජී. (2015). **ශ්‍රී ලංකාවේ කාසි හා මුදල් ව්‍යවහාරය**. කොළඹ: මධ්‍යම සංස්කෘතික අරමුදල.

ගුණරත්න, ජී. ධම්මික. (2019). **කාසියේ අසිරිය**. කොළඹ: ශ්‍රී ලංකා මහ බැංකුව.

ජයසිංහ, කරුණාරත්න. (2013). **ශ්‍රී ලංකාවේ පුරාණ මුදල් සහ වෙළඳ ගනුදෙනු**. මීරිගම: ආශිර්වාද ප්‍රකාශන.

තාපර්, රොමිලා. (2009). **ඉන්දියාවේ ඉතිහාසය**. පරි. අධ්‍යාපන ප්‍රකාශන දෙපාර්තමේන්තුව. පිටකෝට්ටේ: සිසාරා ප්‍රින්ට්වේව් ප්‍රයිවට් ලිමිටඞ්.

දන්දුන්න, මනිල. (2015). **ලංකාවේ පැරණි කාසි**. කළුතර: ReadMe (Pvt) Limited.

ද සිල්වා, ජී. පී. එස්. එච්. (2018). **ශ්‍රී ලංකාවේ කාසි හා මුදල් ක්‍රමයේ ඉතිහාසය**. පරි. නිමල් ලාලිත රත්නසේකර. බොරගැස්ගමුව: කතෘ ප්‍රකාශනයකි.

නීලකණ්ඨ ශාස්ත්‍රී, කේ. ඒ. (1972). "ලංකාවේ චෝළ අධිරාජ්‍යයේ ප්‍රදේශයක් ව පැවති කාලය". හේම් චන්ද්‍ර රාය (සංස්.), **ලංකා විශ්වවිද්‍යාලයේ ලංකා ඉතිහාසය ▬▬ භාගය**. කැලණිය: විද්‍යාලංකාර විශ්විද්‍යාලය.

පරණවිතාන, ඇස්. (1972). "පොළොන්නරු යුගයේ සභ්‍යත්වය: දේශපාලන, අර්ථ හා සමාජ තත්ව". හේම් චන්ද්‍ර රාය (සංස්.), **ලංකා විශ්වවිද්‍යාලයේ ලංකා ඉතිහාසය භාගය**. කැලණිය: විද්‍යාලංකාර විශ්විද්‍යාලය.

බාලසූරිය, ඉනෝකා. (2008). **පැරණි මුදල්**. කොළඹ: මධ්‍යම සංස්කෘතික අරමුදල.

මහාවංශය සිංහල. (2004). බෞද්ධ සංස්කෘතික මධ්‍යස්ථානය (සංස්.), දෙහිවල: අජිත් ප්‍රින්ටර්ස්.

මැදගම, හේරත් බණ්ඩාර කේ.එම්. (2009). **ශ්‍රී ලංකාවේ කාසි හා මුදල් නෝට්ටුවල ඉතිහාසය සහ සන්නිවේදන ලක්ෂණ**. කොළඹ: ඇස්. ගොඩගේ සහ සහෝදරයෝ.

වික්‍රමසිංහ, සිරිමා. (1972). "පළමු වැනි පරාක්‍රමබාහු රජුගේ අනන්තරාගාමිකයෝ: පොළොන්නරුව රාජධානියේ බිඳ වැටීම". හේම් චන්ද්‍ර රාය (සංස්.), **ලංකා විශ්වවිද්‍යාලයේ ලංකා ඉතිහාසය [illegible] භාගය**. කැලණිය: විද්‍යාලංකාර විශ්විද්‍යාලය.

විමලකිත්ති හිමි, මැදඋයන්ගොඩ. (1969). **ලංකාවේ කාසි හා මුදල් ව්‍යවහාරය**. කොළඹ: සුමන මුද්‍රණාලය.

සිරිවීර, ඉන්ද්‍රකීර්ති. (2014). **රජරට ශිෂ්ටාචාරය සහ නිරිතදිග රාජධානි**. කොළඹ: දයාවංශ ජයකොඩි සහ සමාගම.

Codrington, H.W. (1924). **Ceylon Coins & Currency**. Colombo: A.C. Richards Acting Government Printer.

Imbulamure, Sarath and others. (2016). **Modernization and Expansion of the Bank of Ceylon Museum**. Colombo: Bank of Ceylon Money and Banking Museum.

Sirisena, O.M.R. (2002). **Medieval Gold Coins of Sri Lanka**. Colombo: Unigraphics (Pvt) Ltd.

SAMODHANA JOURNAL
Faculty of Social Sciences and Humanities,
Rajarata University of Sri Lanka,
Mihintale

2021 Volume 10 Issue I

The Effect of Social Capital on Transaction Cost and Livelihood Success of SANASA Beneficiaries: A Case of Badulla District in Sri Lanka

HMS Priyanath[1]* HWT Jayathma[2]

Received Date: 22nd June 2022
Accepted Date: 10th March 2022
Published Date: 06th June 2023

Abstract

The study attempts to investigate the effect of social capital on transaction costs and the livelihood success of SANASA beneficiaries in Sri Lanka. The study collected primary data from 273 SANASA beneficiaries selected from the Badulla district in Uva province with a multi-stage sampling method and employed a structured questionnaire for the data collection. Data were analyzed using the Partial Least Square Structural Equation Modeling (PLS-SEM). The result revealed that social capital significantly negatively influences transaction costs and has a positive relationship with the livelihood success of SANASA beneficiaries. Results further exhibit that transaction cost has negatively correlated with the livelihood success of SANASA beneficiaries. Developing a mechanism to strengthen social capital between SANASA beneficiaries and local and foreign exchange partners, building a trusting relationship with them, and integrating transactions with them led to minimizing transaction costs that affect the improvement of the livelihoods of SANASA beneficiaries.

[1] *Department of Economics and Statistics, Sabaragamuwa University of Sri Lanka, Belihuloya, 70140, Sri Lanka. priya@ssl.sab.ac.lk * Corresponding Author*
[2] *Department of Economics and Statistics, Sabaragamuwa University of Sri Lanka, Belihuloya, 70140, Sri Lanka.*

Keywords: Livelihoods, SANASA Beneficiaries, Social Capital, Transaction Costs.

Introduction

Small-scale producers are considered infants in the business field since they do not have the necessary knowledge and experience in the business environment (Carmel & Nicholson, 2005). Therefore, many small-scale producers fail to survive in business since they are more likely to suffer exploitation from exchange partners, mainly middlemen (Carmel & Nicholson, 2005). To avoid the cunning behavior of exchange partners, a firm needs to bear time and money costs to search for reliable buyers and suppliers, negotiate transaction agreements with them, reach an agreement to make a transaction and monitor the transaction process. Such time and money costs are called Transaction Costs (TC), which lead to avert the performance of business firms (Xin Guo et al., 2022). Meanwhile, scholars argue that Social Capital (SC) has the power to mitigate TC and improve livelihoods (Gunasekara, Premaratne, & Priyanth, 2017) since the SC helps to exchange important information that affects the reduction of TC and exchange productive resources as well (Burt, 1992). Small-scale producers use indirect private relationships to get the necessary information and resources (Priyanath & Premaratne, 2017). These indirect private relationships do not have official and on-paper promises, but these relationships are based on SC (Priyanath & Premaratne, 2017).

Fox (1996) noted some benefits in which SC is built; individuals can hold key places and use the capital to strengthen their contacts with different members, and these strengths of relationships may be used to access information and resources. By creating an atmosphere that permits the fostering of SC, households may be better positioned to invest in SC and use it in their livelihood success (He et al., 2022). Thus, SC has a powerful influence on improving livelihoods. SC generated through the involvement of the activities in Community-based Organizations (CBOs) impacts the lower TC and enhances livelihoods (Gunasekara, Premaratne, & Priyanth, 2017). Involving the activities of CBO, network relationships among members developed, and the quality of relationship build-up among members facilitates sharing of information, knowledge, and resources that affect the mitigation of transaction costs (Priyanath & Premaratne, 2017).

Several CBOs exist in Sri Lanka, and the SANASA is one of the major CBOs empowering the community and providing microcredits that positively affect livelihood development (Priyanath & Habaragamuwa, 2020). Though the researchers have studied SC and livelihoods (Gunasekara, Premaratne, & Priyanth, 2017; Fitzpatrick & Akgungor, 2020), scholars have not given sufficient attention to learning how the SC among the members of SANASA society affects the transaction costs and livelihood development of SANASA beneficiaries in Sri Lanka. Therefore, the study tries to fill this knowledge hole by investigating the influence of SC on TC and the livelihood success of SANASA Beneficiaries in Badulla District, Sri Lanka.

This study has several theoretical, empirical, and practical importance, and its findings expand the understanding how to improve SANASA beneficiaries' livelihoods by mitigating TC through SC. When referring to the previous literature, many scholars study TC and agriculture (Bhattarai & Bhusal, 2015; Jagwe, Ouma, & Machethe, 2009), industry (Carmel& Nicholson, 2005; Dyer & Chu, 2003; Miththrananda, & Priyanath, 2020), and services (Priyanto, Mazkie, & Khusaini, 2014; Silva, 2021). It cannot identify detailed research in the literature that focused on the effect of SC on TC and livelihoods. In this nature, the study is important since it will contribute to designing new policies and strategies to improve LS with the help of SC by minimizing TC. Further, the study helps to understand the relative efficacy of how SC theory influences the TC theory in different contexts and how it works practically, especially in the low-income group in Sri Lanka, which generates broad importance. Thus, the study contributes significantly to the literature by providing empirical evidence of the practical efficacy of SC and its impact on TC and livelihood success of the SANASA beneficiaries. Further, the study enables the policymakers and SANASA beneficiaries to develop strategies to mitigate TC by using SC and improving the rational ability and transaction frequency, helping avoid the opportunistic behavior of exchange partners and decreasing the transaction uncertainty. The rest of this paper has been arranged as presenting theoretical and empirical literature in section 2, Methodology in section 3, Results and discussion in section 4, and section 5 concludes the paper.

Theoretical background

The study reviews TC theory, SC theory, and livelihood assets to develop the theoretical base for key variables. The following section reviews theories, develops hypotheses based on the conceptual framework and justifies hypotheses by reviewing empirical literature.

Transaction Costs: TC is the cost of carrying out any exchange, whether between firms in a marketplace or a transfer of resources between stages in vertically integrated firms (Coase, 1960; Hobbs, 1996). Scholars supposed that market forces coordinate the transaction among buyers and sellers in a perfect competition market (Wang, 2003). However, a perfectly competitive market is not a reality, and customers need to bear costs when using the imperfect market (Hobbs, 1996). TC is formed due to imperfect market mechanisms (Coase, 1937). Since asymmetrical information exists in an imperfect market, the buyers fail to make rational decisions. As a result, the sellers behave opportunistically against the buyers (Williamson, 1981). Therefore, TC is the cost incurred by a firm when using market mechanisms due to opportunism and decision-making limitations (bounded rationality) (Zhang, 2009). Scholars discussed four aspects of TC; searching cost, negotiation cost, monitoring cost, and enforcement cost (Hobbs, 1996; Nooteboom, 1993). The costs rise when probing for the right detail about the purchasers on whom reliability could be kept (Lu, 2007; Williamson, 1985). After successfully contacting a reliable buyer needs to negotiate to reach an exchange promise. They are negotiation costs (Dyer, 1997; Hobbs, 1996). Monitoring costs are the expenditures that could be identified in cases of checking deals exchange. Monitoring costs are the costs to observe the transaction process, which fulfils the terms of the pre-promise (Hobbs, 1996; Williamson, 1985).The costs made to detect divergences from the agreed terms of the transaction are enforcement cost. They may be incurred in litigation or administrative proceedings (Hobbs, 1996; Williamson, 1985).

Social Capital Theory: Coleman (1988) explained that the SC is the worth of societal affairs. He highlighted three characteristics of SC; a) trustworthiness, b) information networks, and c) informal rules. According to Putnam (1995), key features of SC are; a) moral commitments and customs, b) social ethics (especially trust), and c) social networks (especially voluntary associations) that all facilitate coordination and cooperation for mutual benefit. SC can explain the following features; networks, high levels of interpersonal trust, and norms of mutual support. According to Nahapiet & Ghoshal (1998), SC has three dimensions; structural, relational, and cognitive. Structural SC is the shape of individual relationships (Priyanath & Premaratne, 2015). The network structure is based on the size and density of the relationship (Nahapiet & Ghoshal, 1998). The relational SC means the quality of social relations among individuals (Priyanath & Premaratne, 2015). It has two broad attributes: a) strength of relationships and b) quality of relationships (interpersonal trust, generalized expectations of behavior, such as norms of reciprocity, flexibility, solidarity, reciprocity, and role of integrity). Cognitive SC implies a common understanding among people.

Livelihood Success: In simply livelihood means various activities people like to do daily to fulfil their necessities and desires (Priyanath & Habaragamuwa, 2020). Livelihood success is not dependent on money, and it largely impacts determining an individual's livelihood phases (Beall & Kanji, 1999). On the other hand, people who live wealthy have a strong possibility of getting access to resources, knowledge, and skills under prevailing economic circumstances. But the poor's can't access those easily. Scoones (2009) explained that resources should be utilized effectively to gain sustainable livelihoods. Further, they describe five dimensions of livelihood assets (Human, Physical, Natural, Financial, and Social) based on the sustainable livelihood analysis framework. This assets-based system is more famous among many scholars (Carney, 1998; Scoones, 2009). Avila Foucat and Rodríguez-Robayo, (2018) explained that human capital is the key determinant factor that affects livelihood success. Mushongah and Scoones (2012) highlighted that labor resources comprise qualitative and quantitative dimensions. Household size, age, and the number of individuals engaging in earning activities in a household are the quantitative dimensions, and the level of education, health care, population growth, urbanization, displacement, and skill of the members of a community are the qualitative dimensions. Natural capital has three main categories; land, water, and forest resources, including environmental resources (Feldman, 2014). Financial capital means financial assets reachable to people. Total income, credit accumulations, savings, subsidies, remittances, and pensions are the major factor of financial capital (Serrat, 2017). Basic infrastructure like transportation, shelter, water, energy, and communication are the physical capital used to produce tools that enable people to pursue their livelihoods. Moreover, the hand tools and machinery necessary are the variables used to describe physical capital (Qin Zhang et al., 2019). Social capital is the most important aspect of all types of aspects in livelihood success (Foucat & Robayo, 2018). Mushongah and Scoones (2012) determine membership within different groups, institutional networks, relationships of trust, norms, and reciprocity.

Theoretical Framework and Hypotheses

The study develops a framework combining SC theory, TC theory, and livelihood assets with studying the impact of SC on TC and the livelihood success of SANASA beneficiaries in Sri Lanka. Based on the theoretical framework, the study constructed seven hypotheses types of this framework; SC is the independent variable, while livelihood success is the dependent variable. Meanwhile, TC is a mediating variable in the relationship between SC and livelihood success.

SC and Livelihood: Investment in SC can gain both physical benefits (e.g. income) and non-market (e.g. health, social status) outcomes. Further, connections among people allow for an exchange of ideas and reach to resources such as time, money, or knowledge necessary for practising different livelihood-earning activities (Ishihara & Pascual, 2009). Thus, many scholars highlighted that SC facilitates maintenance or improves livelihoods. Narayan and Pritchett (1999) explore five mechanisms through which social capital can benefit livelihood outcomes. They are 1) more efficacious government, 2) solving common pool problems, 3) diffusion of innovations, 4) lowering transaction costs, and 5) informal insurance. Boro (2017) revealed that the SC supports most households to provide essential services that influence livelihood success in Nigeria. Abenakyo (2007) revealed that SC empowered the decision-making of the community, fostered asset base creation and use of natural resource management well, and all affected livelihood improvement. Thus, many empirical findings confirmed that SC has a powerful impact on livelihood success. Therefore, the study assumes that;

H1: Structural social capital has a positive impact on the livelihood success of SANASA beneficiaries in Sri Lanka.
H2: Relational social capital has a positive impact on the livelihood success of SANASA beneficiaries in Sri Lanka.

SC and Transaction Costs: Chiles and McMackin (1996) explained that when there is a high level of relational SC (basically trust) between two parties, agreement costs are lower because it is not required to include all kinds of costly protections. Negotiation costs are lower because when people trust each other, they are keener to cooperate and do not have to find out whether the other is trustworthy the monitoring costs are reduced because it is not necessary to check whether other is making mistakes every time. Uzzi (1999) explained that SC generates value for producers by enhancing their ability to reduce TC. Jones et al. (1997) also highlighted that SC replies to asset specificity, demand uncertainty, task complexity, and frequency transaction situations. These conditions drive firms toward structurally embedding their transactions, enabling them to use social mechanisms to coordinate and safeguard exchanges. When all of these conditions are in place, the SC has rewards over hierarchical solutions in simultaneously adapting, coordinating, and safeguarding exchanges. Thus, some studies have shown the relevance of SC in controlling, monitoring, and safeguarding transactions (Uzzi, 1997). Thus, scholars have confirmed that the SC and TC have an inverse relationship, and therefore, the study hypothesizes that;
H3: Structural social capital negatively relates to the transaction costs of SANASA beneficiaries in Sri Lanka.
H4: Relational social capital negatively relates to the transaction costs of SANASA beneficiaries in Sri Lanka.

TC and Livelihoods: TC may go high and significantly affect economic performance (Priyanath & Premarathna, 2017). Priyanath & Buthsala (2017) confirmed that a firm faced high TC, which discourages the firm's success. They found that minimizing the TC of households will increase their performance. If TC is low, performance is higher. Therefore, the study assumes that:

H5: Transaction costs have a negative impact on the livelihood success of SANASA beneficiaries in Sri Lanka.

Mediate role of TC: Dyer and Sing (1998) revealed that a strong SC impacts mitigating TC. Strong interpersonal trust among exchange partners will reduce TC because both parties are confident that the transaction will be fairly divided. In addition, negotiations will likely be more efficient because exchange partners will have greater confidence that information provided by the other partners is not misrepresented. Doucette (1996) supposed that information sharing increases satisfaction between current exchange partners. This prevents the need to find a new partner. This further reduces search costs incurred in looking for a new reliable partner. Some scholars highlighted that a decrease in TC improves the performance of small producers because their profit margins will increase due to a decrease in TC (Priyanath & Buthsala, 2017). SANASA beneficiaries do micro industries and can increase livelihoods by minimizing TC if they have strong SC. Therefore, the study assumed that:

H6: Transaction costs mediate the relationship between structural social capital and livelihood success of SANASA beneficiaries in Sri Lanka.

H7: Transaction costs mediate the relationship between relational social capital and livelihood success of SANASA beneficiaries in Sri Lanka.

Williamson (1985) developed TC economics to explain the association between transaction determinants and TC governance procedures. Dyer (1997) and Hobbs (1996) underlined that business firms want to explore new buyers and suppliers, negotiate with exchange partners and long-term contracts, and monitor transaction agreements due to the asymmetrical information. A livelihood system takes part in the opportunities and assets available to people for achieving their goals and exposure to a range of beneficial or harmful ecological, social, economic, and political disturbances that may help or hinder groups' capacities to make a living. Developing in SC can gain both tangible returns for the market (e.g. Income, wages) and non-market (e.g. health, social status) outcomes (Godoy, 2007). Further, relations among persons allow the talk to gather ideas and collect resources such as time, money, or knowledge necessary for practising different livelihood-earning activities (Ishihara & Pascual, 2009). SC can be used to improve livelihoods. This study tries to determine SC's impact on TC and livelihood success in SANASA beneficiaries. The conceptual model of this study is offered in Figure 01. Based on the conceptual model, the study has constructed 07 hypotheses connecting those variables. According to the model, TC is a mediating variable between the independent variables (i.e., SC) and the dependent variable (i.e., LS of the SANASA beneficiaries).

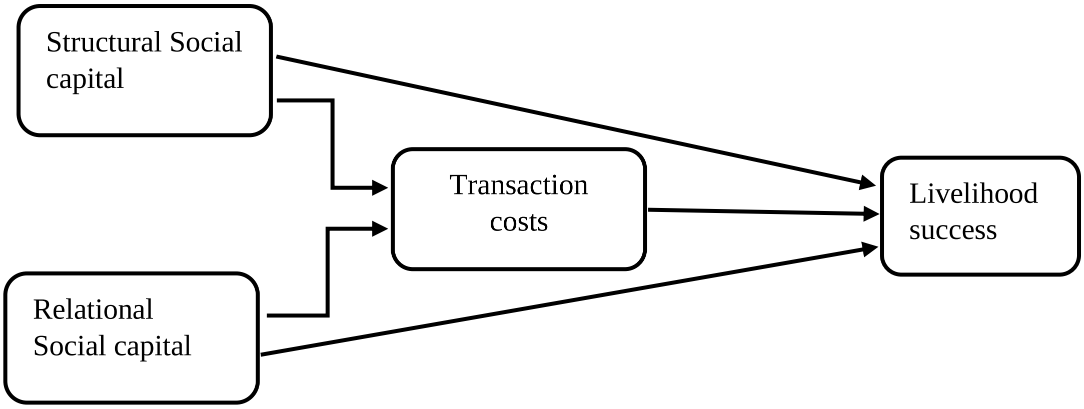

Figure 1: Conceptual Framework

Methodology

Seven hypotheses were developed, combining the SC theory, TC theory, and livelihood concept to solve the research problem, and therefore the research approach is deductive, and thus the method is quantitative. Primary data were collected by employing a questionnaire survey. The study used multi-stage sampling. First, the Badulla district was randomly selected out of 25 districts in Sri Lanka to conduct the survey. Second, SANASA societies functioning in 15 Divisional Secretariats (DS) Divisions in the Badulla district were taken by contacting the Department of Cooperative Development in Badulla. The study selected one SANASA society randomly from each DS Division. Third, it designates all the beneficiaries engaging in livelihood activities as a cluster. Accordingly, 273 members of SANASA beneficiaries were selected as the sample. The data were collected using a structured questionnaire.

The questionnaire items were designed systematically based on the literature. Livelihood is measured using five dimensions; natural capital, financial capital, physical capital, human capital, and social capital, adopted by Piyanath and Habaragamuwa (2020); Gunasekara, Premaratne, and Priyanath (2017), and Fox (1996). The study measured SC using two dimensions;

structural SC and Relational SC. Structural SC was measured employing network size, density, and strength adopted by Bhagavatula (2009) and Burt (2000). Relational capital was measured with the help of interpersonal trust and relational norms adopted by Lu et al. (2012); Manolova et al. (2007). The study used four constructs (Searching, Negotiation, Monitoring, and Enforcement) to measure TC, which Dyer and Chu (2003) accepted.

Partial Least Squares-Structural Equation Modeling (PLS-SEM) was selected as the main data-analyzing technique because it helps to study the interrelationship among multiple independent and dependent variables to evaluate the relationship between more than one construct simultaneously. Assessing the reliability and validity test to enhance the reliability of the construct for made variables and efficiency of the structural model was evaluated by multicollinearity issues, R^2, effect size (F^2), and predictive relevance (Q^2).

Results and Discussion

Out of SANASA beneficiaries, 68% are females, while 32 are males engaging in income-generating activities. Of all the beneficiaries, 53% have received education up to Grade 10 or Ordinary Level, while 18% have obtained A/L education. The majority of beneficiaries are housewives. The age of the majority of beneficiaries is above 40 years, and 96% are married. Their livelihoods have been recorded as 88% doing agriculture, business, or related things, 5% earning daily wages, while only 7% have permanent livelihoods receiving monthly salaries.

Based on the PLS-SEM model, the study initially evaluates the nine variables (as first-order constructs). The study tested the reliability (indicator reliability and internal consistency reliability) and validity (convergent validity and discriminate validity) of the first-order constructs (see annex 01). Standard factor loadings above the minimum criterion of 0.7 confirmed the indicator reliability and factor loggings were significant since t-statistic values are higher than 1.96. The Cronbach's alpha (CA) and composite reliability (CR) show that all values are above in minimum threshold value of 0.7, confirming that the constructs have internal consistency reliability. According to the convergent validity test, the Average Variance of Extracted (AVE) constructs is above 0.5, establishing the first-order constructs' convergent validity. The discriminant validity of the first-order constructs is shown in Annex 02. Table 2 in annex 02 indicates that the discriminant validity of all the first-order constructs is established since the square roots of all AVE values are higher than the correlation values according to the Fornell-Larcker Criterion (Fornell & Lacker, 1981).

Based on the first-order latent variables, the study developed second-order constructs and evaluated the validity and reliability of those 14 constructs (see annex 03). Table 3 in annex 03 exhibits that factor loading and relevant t statistics are above the minimum criterion (Factor loadings are above 0.7 and t statistics are above 1,96), confirming that all constructs contain the indicator reliability. It further shows that internal consistency reliability and convergent validity are established since both satisfy the minimum criterion. Table 4 in annex 4 shows that the discriminant fact of the second-order constructs is satisfied since the squire roots of AVE of each construct are higher than the correlations of other constructs according to the Fornell-Larcker criterion (Fornell & Lacker, 1981).

The study evaluated the reliability and validity of four main variables developed based on third-order latent variables scores (see annex 05). Table 5 in annex 05 shows the reliability and convergent validity of the third-order constructs. Indicator reliability and internal consistency reliability of third-order constructs are established since the loadings are higher than 0,7, t statistics are higher than 1.96, composite reliability is higher than 0.7, and AVE values of all constructs are higher than 0.5, respectively. Table 6 in annex 06 exhibits the discriminant validity of the third-order constructs, and according to the Fornell-Larcker criterion, all the constructs have discriminated validity.

Once the variables are prepared based on the measurement model, the study evaluates the structural model to test hypothetical relationships following the steps suggested by Haire et al. (2012). The first step is to check the multicollinearity among variables with the support of a VIF value which should be less than 5. Table 1 shows no multicollinearity issues among variables since the VIF values are less than 5. The VIF values for the model show minimal collinearity, ranging from 2.015 to 2.693.

Table 1: VIF Values

	Livelihood Success	**TC**
RSC	**2.693**	**2.055**
SSC	**2.109**	**2.015**
TC	**2.132**	

Source: Survey data, 2022

The second step is to check the hypotheses between the dependent and independent variables. Table 2 shows each relationship's path coefficient (Beta value) and significance (T statistics). All the hypothetical relationships are significant at a 99% significant level (since t statistics are higher than 2.56).

Table 2: Path Coefficient and Significant

	Hypothesis	**Beta**	**T Statistics**	**Decision**
1	**RSC -> Livelihood Success**	0.817	34.689	**Accepted**
2	**RSC -> TC**	-0.564	10.321	**Accepted**
3	**SSC -> Livelihood Success**	0.075	2.667	**Accepted**
4	**SSC -> TC**	-0.210	3.760	**Accepted**
5	**TC -> Livelihood Success**	-0.105	4.105	**Accepted**

Source: Survey data, 2022

The predictive power of the model is checked using the R squire. The study predicted a 73% variance of livelihood success by both SC and TC, whereas SC explained a 53% variance of TC. Also, to know the predictive relevance (Q^2) of the model fit, The Q^2 value is 0.66 for livelihood success and 0.34 for TC, indicating that the model has a higher predictive relevance. The bootstrapping of the indirect path in Smart PLS-3 has been conducted to evaluate the mediator role of TC, and table 3 shows that the TC partially mediates the relationship between SC and livelihood success.

Table 3: Mediate Effect

	Beta	T Statistics	P Values	Type
SSC -> TC -> Livelihood Success	0.022	2.488	0.013	**Partial**
RSC -> TC -> Livelihood Success	0.059	4.080	0.000	**Partial**

Source: Survey data, 2022

According to table 2, the beta (β) coefficient of RSC and livelihood success is 0.817, which is higher than the significant path coefficient value of 0.05 (t statistics = 34.68). It means that if RSC increased by 100%, the livelihood success of SANASA beneficiaries would increase by 81.7%, showing a strong relationship between RSC and livelihood success. The β coefficient of the relationship between SSC and livelihood success is 0.075, which is significant at a 99% statistical confidence level (t-statistics = 10.31). Thus, empirical results confirmed that SC significantly impacts livelihood success. These findings are in line with prior studies by Abenakyo et al. (2007); Adugna (2013); He et al. (2022); Kiboro (2017), who revealed that SC has a significant impact on livelihood development. According to the research objectives, the study calculates the relationship between RSC, TC, and SSC and TC. β coefficient in the relationship between RSC and TC is recorded as -0.564 (T statistics is 10.321), revealing that RSC has a significant negative impact on TC of SANASA beneficiaries. Similarly, the results revealed that SSC negatively affects the TC of SANASA beneficiaries showing a -0.210-beta coefficient and 4.105 t statistics. It means that both RSC and SSC have negatively associated with TC. Some studies have provided similar findings. Scholars (Henningsen & Henning, 2013; Yenidogan, 2013) explained that the SSC enables reliable information with low costs and identifies reliable exchange partners, which leads to a decrease. The beta coefficient in the relationship between transaction cost and livelihood success is -0.105 which a p-value less than 0.005 (t-statistics = 4.105), revealing a significant negative relationship between TC and livelihood success. It means that if the TC increased by one unit, livelihood success decreased by 10.5%. This study proved the result obtained by Priyanath and Habaragamuwa (2020), and they found that TC has a powerfully negative effect on livelihood success.

Conclusion

The study revealed that social capital directly affects the enhancement of the livelihoods of SANASA beneficiaries. The study revealed that the RSC has a more powerful impact on the decrease of TC and the increase of livelihood success than the SSC. The results further confirmed that TC leads to a decrease in the livelihood success of SANASA beneficiaries, and TC has a significant partial mediate role in the relationship between SC and livelihood success. Thus, the study contributes to the knowledge by disclosing empirical evidence studying the effect of SC on TC and livelihood success. The study tested the theoretical framework developed by combining SC theory, TC theory, and livelihood success and contributed to the knowledge by realizing the practical efficacy of the framework through empirical results. The study contributes to the methodological knowledge by quantifying the multidimensional variables of SC, TC, and livelihoods. The study suggests policymakers develop a mechanism to strengthen social capital and market networks vertically between SANASA beneficiaries and reliable exchange partners and develop a mechanism to provide sufficient market information (prices, quality, and exchange partners) utilizing ICT technologies SANASA beneficiaries for easy access to information which helped to minimize TC and arrange more activities to develop close relationships with reliable exchange partners expecting to minimize TC. Future researchers are recommended to carry out broad research on focusing all the dimensions of SC and how it influences the TC determinants and livelihoods.

Acknowledgements

This research was supported by the Accelerating Higher Education Expansion and Development (AHEAD) Operation of the Ministry of Higher Education funded by the World Bank (AHEAD PAT DOR SUSL No.47).

References

Abenakyo, A., Sanginga, P., Njuki, J., Kaaria, S., & Delve, R. (2007). *Relationship between Social Capital and Livelihood Enhancing Capitals among Smallholder Farmers in Uganda*, AAAE Conference Proceedings, 539-541.

Adugna, H. (2013). Cooperative approach to community livelihood improvement: The case of Ada's district, Oromia regional state, Ethiopia. *International Journal of Development and Sustainability,* 2(3), 2124-2145.

Avila-Foucat & Rodríguez-Robayo, (2018). "Determinants of livelihood diversification: The case wildlife tourism in four coastal communities in Oaxaca, Mexico". *Tourism Management. 69*, 223-231, DOI: 10.1016/j.tourman.2018.06.021

Beall, J. & Kanji, N. (1999). *Households, Livelihoods, and Urban Poverty*. Urban Governance, Partnership, and Poverty, Theme Paper 3, Department of Social Policy and Administration, London School of Economics.

Bhagavatula, S. (2009). *Weaving social networks performance of small rural firms in India as an outcome of entrepreneurs' social and human capital*. Ph.D. Dissertation, Visakhapatnam University, India.

Bhattarai, R. C., & Bhusal, T. P. (2015). Transaction costs and evolution of new institutions in farmers' managed irrigation system in Nepal. *Economic Journal of Development Issues,* 1-21.

Burt, R. S. (2000). The network structure of social capital. *Research in Organizational Behavior, 22*(5), 345-423.

Burt, R. (1992). *Structural Holes: The Social Structure of Competition*, Harvard University Press: Cambridge, Massachusetts.

Carmel, E., & Nicholson, B. (2005). Small firms and offshore software outsourcing: high transaction costs and their mitigation. *Journal of Global Information Management*, *13*(3), 33-54.

Chiles, T. H. & McMackin, J. F. (1996). Integrating Variable Risk Preferences, Trust, and Transaction Cost Economics. *The Academy of Management Review, 21*(1), 73-99. https://doi.org/10.2307/258630

Coase, R.H. (1960). The Problem of Social Cost. In: Gopalakrishnan, C. (eds) Classic Papers in Natural Resource Economics. Palgrave Macmillan, London. https://doi.org/10.1057/9780230523210_6

Coase, R. H. (1937). The Nature of the Firm. *Economica, 4*, 386-405.

Coleman, J. S. (1988). Social capital in the creation of human capital. *The American Journal of Sociology, 94*(12), 95-120.

Doucette, W. R. (1996). The influence of relational norms and trust on customer satisfaction in inter-firm exchange relationships. *Journal of Consumer Satisfaction, Dissatisfaction, and Complaining Behavior, 9*(5), 95-103.

Dyer, J. H. & Chu, W. J. (2003). The role of trustworthiness in reducing transaction costs and improving performance: empirical evidence from the United States, Japan, and Korea. *Organization Science, 14*(1), 57-68.

Dyer, J. (1997). Specialized supplier networks as a source of competitive advantage: evidence from the auto industry. *Strategic Management Journal*, 18(7), 535-556.

Dyer, J. & Sing, H. (1998). The relational view: cooperative strategy and sources of Inter-organizational competitive advantage. *The Academy of Management Review, 23*(4), 660-679.

Feldman, M. (2014), The character of innovative places: entrepreneurial strategy, economic development, and prosperity, *Small Business Economics, 43,* (1), 9-20.

Fitzpatrick, E., Akgungor, S. (2020). The contribution of social capital on rural livelihoods: Malawi and the Philippines cases. *The Annals of Regional Science*. https://doi.org/10.1007/s00168-020-01005-2

Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 8*(1), 39-50.

Foucat, V.S.A., & Robayo, K.J.R. (2018). Determinants of livelihood diversification: The case wildlife tourism in four coastal communities in Oaxaca, Mexico, *Tourism Management, 69*, 223-231, https://doi.org/10.1016/j.tourman.2018.06.021.

Fox, J. (1996). How does civil society thicken? the political construction of social capital in rural Mexico. *World Development, 24*(6), 1089-1103. https://doi.org/10.1016/0305-750X(96)00025-3.

Gunasekara, R.W.M.N., Premaratne, S. P. & Priyanath, H. M. S. (2017). Impact of social capital on livelihood success of the members of community-based organizations in Sri Lanka, *International Journal of Academic Research in Business and Social Sciences, 7*(12), 1156 -1167. https://doi.org/10.6007/IJARBSS/v7-i12/3746

Hair, J. F., Ringle, C.M. & Sarstedt, M. (2012). Partial least squares: the better approach to structural equation modeling? *Long Range Planning, 45*(5), 312-319.

He, R.W., Guo, S.l., & Deng, X. (2022). Influence of social capital on farmers' livelihood strategies under China's rural revitalization strategy in poor mountain areas: A case study of the Liangshan Yi autonomous prefecture. *Journal of Management and Science. 19*, 958–973. https://doi.org/10.1007/s11629-020-6395-6

Henningsen, G. A. & Henning, C. H. C. A. (2013). Networks and transaction costs. *American Journal of Agricultural Economics, 94*(2), 377-385.

Hobbs, J. E. A. (1996). The transaction cost approach to supply chain management. *Supply Chain Management, 1*(2), 15–27. https://doi.org/10.1108/13598549610155260.

Hiroe Ishihara, H., & Pascual, U. (2008). Social capital in community-level environmental governance: A critique, *Ecological Economics*, 1449 – 156. https://doi:10.1016/j.ecolecon.2008.11.003

Jagwe, J., Ouma, E., Machethe, C. (2009). *Transaction Costs and Smallholder Farmers' Participation in Banana Markets in the Great Lakes Region*. CEGA Working Paper Series No. AfD-0909. Center of Evaluation for Global Action. University of California, Berkeley.

Jones, C., Hesterly, W. S. & Borgatti, S. A. (1997). A general theory of network governance: Exchange conditions and social mechanisms. *Academy of Management Review, 22*(4), 911-945.

Ishihara, H., & Pascual, U. (2009). Social capital in community level environmental governance: A critique, *Ecological Economics, Elsevier, 68*(5), 1549-1562.

Kiboro, C. N. (2017). Influence of Social Capital on Livelihood Outcomes for the Internally Displaced Persons in Kenya: A Social Capital Approach. *European Scientific Journal, 13*(26), 266. https://doi.org/10.19044/ESJ.2017.V13N26P266

Lu, H., Feng, S., Trienekens, J. H. & Omta, S. W. F. (2012). Network strength, transaction-specific investments, inter-personal trust, and relationship satisfaction in Chinese Agri-food SMEs. *China Agricultural Economic Review,* 4(3), 363-378.

Lu, H. (2007). *The role of guanxi in buyer-seller relationships in China*, Ph.D. thesis, Wageningen University, China.

Manolova, T. S., Gyoshev, B. S., & Manev, M. I. (2007). The role of interpersonal trust for entrepreneurial exchange in a transition economy. *International Journal of Emerging Markets, 2*(2), 107-122.

Miththrananda, B.Y.G.W. & Priyanath, H.M.S. (2020). The Impact of Asymmetric Information on Opportunism and Business Performance: An Empirical Investigation of Small Enterprises in Sri Lanka, *Asian Journal of Multidisciplinary Studies*, 8(4), 44 – 57.

Mushongah, J. & Scoones, I. (2012). Livelihood Change in Rural Zimbabwe over 20 Years. The Journal of Development Studies, 48(9), 1241-1257, https://doi:10.1080/00220388.2012.671474

Nahapiet, J. & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, *23*(2), 242-266.

Narayan, D. & Pritchett, L. (1999). Household Income and Social Capital in Rural Tanzania. *Economic Development and Cultural Change, 47*(4), 871-897.

Nooteboom, B. (1993). Firm size effect on transaction cost, *Small Business Economics*, 5, 283-295.

Priyanath, H. M. S., & Buthsala, W. K. A. (2017). Information, opportunism and business performance: A case of small businesses managed by women entrepreneurs in Sri Lanka. *Asian Journal of Multidisciplinary Studies, 5*(11), 230–239.

Priyanath, H. M. S., & Habaragamuwa, H. R. N. R. (2020). Inter-Personal Trust, Transaction Cost and Livelihood Success of the Members in Community-Based Organizations. *Wayamba Journal of Management*, *11*(1), 55 - 78.

Priyanath, H. H. S., & Premaratne, S. P. (2017). Power of social capital on mitigating transaction cost of small enterprises in Sri Lanka: An empirical investigation, *International Journal of Arts and Commerce, 6*(4), 17 – 35.

Priyanath, H. H. S., & Premaratne S. P. (2015). Effect of social capital on transaction cost: a case study of small enterprises in Sri Lanka, *International Journal of Arts and Commerce*, *4*(4): 127–140.

Priyanto, E., Mazkie, M., & Khusaini, M. (2014). Effects of asymmetric information, transaction cost to corporate governance, and public organization performance. *IOSR Journal of Business and Management, 15*(6), 14-27.

Putnam, R. D. (1995). Making democracy work: Civic traditions in modern Italy. Princeton: Princeton University Press. *Relational Contracting.* New York, NY: The Free Press.

Qin Zhang, Haili Xue, Xueyan Zhao & Haiping Tang. (2019). Linking livelihood assets of smallholder households to risk management strategies: an empirical study in China, *Environmental Hazards, 18* (3), 191-211. I: 10.1080/17477891.2018.1538866

Scoones, I. (2009). Livelihoods perspectives and rural development. *The Journal of Peasant Studies, 36(1), 171–196.* https://doi:10.1080/03066150902820503

Serrat, O. (2017). The Sustainable Livelihoods Approach. In: Knowledge Solutions. Springer, Singapore. https://doi.org/10.1007/978-981-10-0983-9_5

Silva, A.A. (2021). Transaction costs in the pharmaceutical retail market: Impacts of opportunism and analytical dimensions of transactions. *Resources and Entrepreneurial Development*, 22(4), eRAMR210037, https://doi.org/10.1590/1678-6971/eRAMR210037

Uzzi, B. (1997). Social structure and competition in inter-firm networks: the paradox of embeddedness administrative. *Science Quarterly*, *42*(3), 35-67.

Wang, N. (2003). *Measuring transaction costs: an incomplete survey*. Working Paper 2, The Ronald Cease Institute.

Williamson, O. (1981). The Economics of Organization: The transaction cost approach. *American Journal of Sociology* (3), 548-577.

Williamson, O. (1985). *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting.* New York, NY: The Free Press.

Williamson, O. E. (1985). The economic institutions of capitalism. New York: Free Press.

Xin Guo, Charles-Albert Lehalle & Renyuan Xu (2022) Transaction cost analytics for corporate bonds, Quantitative Finance, 22:7, 1295-1319, DOI: 10.1080/14697688.2022.2054723

Yenidogan, T. G. (2013). The impact of transaction attributes and trust on ex-post opportunism. *International Journal of Management Sciences and Business Research*, *2*(6), 39-44.

Zhang, F. (2006). Information uncertainty and stock returns. *The Journal of Finance*, *61*(1), 105-136.

Annex - 01

Table 1: Reliability and Convergent Validity of the First-order Constructs

Construct	Loading	T Statistic	Composite Reliability	Cronbach's α	AVE
Competency			**0.934**	**0.894**	**0.826**
Trustworthiness of knowledge	0.940	97.966			
Trustworthiness of attitude	0.912	55.549			
Trustworthiness of skills	0.873	39.163			
Consistency			**0.943**	**0.919**	**0.804**
Trustworthy	0.897	62.039			
Not break the promises	0.918	73.533			
Not hide anything (very open)	0.887	40.027			
Disclose all information	0.885	34.767			
Integrity			**0.947**	**0.916**	**0.856**
Honesty	0.930	82.336			
Always tell truth	0.904	52.603			
Fairness	0.941	82.205			
Loyalty			**0.912**	**0.855**	**0.775**
Respect me	0.914	67.536			
Ready to support	0.825	27.839			
Collective Action			**0.924**	**0.876**	**0.801**
Support voluntary	0.885	58.937			
Support collectively	0.909	61.092			
Corporation			**0.929**	**0.904**	**0.726**

Not a selfish behavior	0.740	20.374			
Ready to discuss any disputes	0.867	45.970			
Flexible in maintaining the relationship	0.864	42.530			
Devoted time and money to continue the relationship	0.911	52.014			
They agreed to collective action	0.867	49.646			
Flexibility			**0.857**	**0.748**	**0.667**
Flexible to change agreement	0.746	21.168			
Not forced to act according to the pre-agreement	0.815	27.704			
Flexible to adjust corporate	0.883	48.753			
Information Sharing			**0.900**	**0.851**	**0.693**
Provide important information	0.880	48.035			
Provide information that helps to pre-plan	0.874	44.831			
Provide secret information	0.823	31.163			
Provide trustworthy information	0.746	19.085			
Reciprocity			**0.854**	**0.742**	**0.662**
Always fulfill assign role correctly and honestly	0.900	68.362			
Do not try to gain short-term benefits that harm the relationship between us	0.761	20.697			
Do not engage in cheating or any other dishonest conduct	0.773	22.231			

Source: Survey data, 2022.

Annex – 02

Table 2: Discriminant Validity of the First-order Constructs

		1	2	3	4	5	6	7	8	9
1	Competency	**.909**								
2	Consistency	.850	**.897**							
3	Integrity	.827	.814	**.925**						
4	Loyalty	.820	.826	.807	**.880**					
5	Collective Action	.252	.235	.185	.277	**.895**				
6	Corporation	.338	.340	.283	.353	.811	**.852**			
7	Flexibility	.277	.349	.294	.271	.716	.782	**.817**		
8	Info Sharing	.291	.300	.240	.284	.798	.819	.813	**.832**	
9	Reciprocity	.318	.324	.276	.329	.700	.806	.713	.713	**.814**

Source: Survey data, 2022.

Annex 03

Table 3: Reliability and Convergent Validity of the Second-order Constructs

Construct	**Load ing**	**T Statistic**	**Composite Reliability**	**Cronbach 's α**	**AVE**
Financial Capital (FC)			**0.882**	**0.821**	**0.651**
Increase the direct income	0.788	18.691			
Increase the savings	0.853	45.666			
Increase the assets	0.759	31.603			
Increase the accessibility to credit	0.825	32.076			
Human Capital (HC)			**0.950**	**0.937**	**0.760**
Increase the vocational knowledge	0.851	44.641			
Increase the general knowledge	0.879	50.890			
Increase the vocational skills	0.880	56.722			
Increase the health status	0.817	35.121			
Increase the professional experiences	0.882	56.160			
Natural Capital (NC)			**0.906**	**0.795**	**0.827**
Availability of favorable	0.933	155.07			

soil					
Availability of sufficient water facilities	0.886	47.886			
Physical Capital (PC)			**0.910**	**0.876**	**0.761**
Improve the housing condition	0.808	41.325			
Improve the water supply	0.743	26.982			
Increase the audio-visual communication facilities	0.857	53.944			
Increase the vehicle/machinery	0.772	23.974			
Increase the furniture	0.904	77.966			
Social Capital (SC)			**0.977**	**0.973**	**0.860**
Develop a relationship with many members of the SANASA society	0.955	0.955			
Ability to meet many people regularly	0.892	0.892			
Ability to build relationships with many people	0.939	0.939			
Ability to exchange many information/ knowledge	0.937	0.937			
Increase mutual support	0.933	0.933			
Decrease the selfish behaviors	0.888	0.888			
Increase the flexibility among members	0.946	0.946			
Network Density (ND)			**1.000**	**1.000**	**1.000**
Supportive Network	1.000	1.000			
Network Size (NS)			**0.796**	**0.527**	**0.666**
SANASA Members	0.700	10.145			
Supportive Network	0.917	42.683			
Network Strength			**0.940**	**0.922**	**0.724**
SANASA Member -1	0.855	40.175			
SANASA Member -2	0.926	89.175			
SANASA Member -3	0.902	74.245			
SANASA Member -4	0.860	52.700			
SANASA Member -5	0.822	31.523			

Neighbor -1	0.727	21.777			
Interpersonal Trust			**0.967**	**0.955**	**0.881**
Competency	0.932	90.275			
Consistency	0.957	122.80			
Integrity	0.944	107.83			
Loyalty	0.920	82.081			
Relational Norms			**0.958**	**0.945**	**0.820**
Collective Action	0.887	55.705			
Corporation	0.947	136.11			
Flexibility	0.890	66.282			
Infor Share	0.926	102.66			
Reciprocity	0.874	46.045			
Searching Cost (SC)			**0.929**	**0.885**	**0.813**
Time and labor costs to find buyers and suppliers	0.894	56.004			
Costs for transportation and communications to find buyers to sell products and suppliers to buy inputs.	0.902	66.828			
Cost to find buyers to sell products and suppliers to buy inputs.	0.909	56.666			
Negotiation Cost (NC)			**0.945**	**0.913**	**0.851**
Time and high labor costs to negotiate with buyers and sellers	0.914	77.179			
Costs for transportation and communications to negotiate with buyers and sellers	0.914	54.013			
Cost of negotiating with buyers and sellers	0.940	117.41			
Monitoring Cost (MC)			**0.901**	**0.838**	**0.753**
Time and labor costs to oversee sales and purchasing activities.	0.852	41.292			
Costs for transportation and communication to oversee sales and purchasing	0.896	60.872			

activities.					
Costs to oversee sales and purchasing activities	0.855	31.591			
Enforcement Cost (EC)			**0.904**	**0.841**	**0.758**
Costs to settle transaction disputes, pay commissions to after-sales agents/intermediaries, and pay license fees and sales taxes.	0.849	30.323			
Resolving transaction disputes, paying commissions to after-sales agents/intermediaries, and paying license fees and sales taxes can cost me a considerable amount of labor and time.	0.906	68.634			
Setting up transaction disputes, paying commissions to after-sales agents/intermediaries, and paying license fees and sales taxes incur significant transportation and communication costs.	0.855	39.980			

Source: Survey data, 2022.

<u>Annex 04</u>

Table 4: Discriminant Validity of the Second-order Constructs

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	FC	**.81**													
2	HC	.61	**.87**												
3	NC	.70	.59	**.91**											
4	PC	.73	.65	.62	**.87**										
5	SC	.77	.71	.81	.66	**.93**									
6	ND	.54	.50	.46	.71	.50	**1**								
7	NS	.50	.37	.56	.27	.60	.47	**.82**							
8	Strength	.50	.52	.52	.46	.59	.45	.44	**.85**						

9	Norms	.78	.76	.77	.74	.89	.55	.54	.59	**.91**					
10	Trust	.25	.34	.23	.32	.31	.22	.08	.20	.34	**.94**				
11	EC	.42	.40	.36	.43	.47	.31	.26	.42	.50	.09	**.87**			
12	MC	.51	.50	.44	.54	.53	.39	.23	.48	.55	.15	.71	**.87**		
13	NC	.62	.68	.58	.57	.67	.45	.39	.52	.70	.14	.51	.70	**.92**	
14	SC	.57	.63	.57	.55	.57	.42	.32	.49	.63	.15	.43	.60	.80	**.90**

Source: Survey data, 2022.

Annex 05

Table 5: Reliability and Convergent Validity of the Third-order Constructs

Construct	**Loading**	**T Statistic**	**Composite Reliability**	**Cronbach's α**	**AVE**
Livelihood Success (LS)			**0.938**	**0.918**	**0.753**
Financial Capital	0.885	32.131			
Human Capital	0.821	26.424			
Natural Capital	0.865	45.128			
Physical Capital	0.842	44.693			
Social Capital	0.923	51.399			
Relational Social Capital (RSC)			**0.970**	**0.962**	**0.867**
Interpersonal Trust	0.945	49.392			
Relational Norms	0.961	166.16			
Structural Social Capital (SSC)			**0.844**	**0.629**	**0.729**
Density	0.845	44.299			
Strength	0.863	91.937			
Transaction Costs (TC)			**0.913**	**0.873**	**0.725**
Searching Cost	0.860	49.392			
Negotiation Cost	0.913	95.564			
Monitoring Cost	0.877	40.213			
Enforcement Cost	0.748	17.780			

Source: Survey data, 2022.

Annex 06

Table 6: Discriminant Validity of the Third-order Constructs

	LS	**RSC**	**SSC**	**TC**
LS	**0.868**			
RSC	0.945	**0.931**		
SSC	0.719	0.710	**0.854**	
TC	-0.734	-0.713	-0.611	**0.852**

Source: Survey data, 2022

SAMODHANA JOURNAL
Faculty of Social Sciences and Humanities,
Rajarata University of Sri Lanka,
Mihintale

2021 **Volume 10** **Issue I**

Sri Lanka Can Prosper by Converting Waste to Energy: with Special Reference to Colombo Municipality

S. Akishla Batuwanthudawa [1] DMSLB Dissanayake[2]

Received Date: 05th July 2022
Accepted Date: 10th March 2023
Published Date: 06th June 2023

Abstract

Waste-to-Energy is one of the most popular approaches to reducing municipal solid waste in developed and developing countries today. The Waste-to-Energy concept is the latest one that Sri Lanka currently focuses on. Colombo Municipal Council (CMC) views the concept of Waste-to-Energy through which Sri Lanka can prosper by generating energy sustainably from its waste while managing it in an environmentally friendly manner. The general objective is to investigate how Sri Lanka can prosper by converting Waste-to-Energy based on the solid waste in the Colombo Municipal Council. Mixed methodology method was adopted and both qualitative and quantitative data collection methods were used. Thematic analysis was used for the analysis of qualitative data. The current solid waste management system of the Colombo Municipal Council is not fully systematic and still problematic. However, the waste-to-energy power plant, which was created as a first step based on the CMC, could be identified as an existing successful project. In view of the above, it can be concluded from the special mention made in connection with

[1] *Department of Environmental Management Faculty of Social Science & Humanities Rajarata University of Sri Lanka, Mihintale* abatuwanthudawa@gamail.com
[2] *Department of Environmental Management Faculty of Social Science & Humanities Rajarata University of Sri Lanka, Mihintale* dissanayakedmslb@ssh.rjt.ac.lk

CMC that Sri Lanka can mainly prosper by converting the waste generated into Waste-to-Energy.

Keywords: Waste-to-energy, CMC, Renewable Energy, Solid Waste, Energy Demand

Introduction

Today, the main concern is focusing on alternative energy strategies for the stability of the future world. Most importantly, these non-conventional renewable energies are generated according to environmental consistency and in an eco-friendly and eco-related way. Thus, this alternative energy or non-conventional renewable energy has already become one of the most attractive energy substitutes in the world. This is basically due to global warming effects and the rapid depletion of natural resources in conventionally generating energy. With non-conventional renewable energy, we do not have to deplete or destroy natural resources. Hence, these non-conventional renewable energy sources are gaining more and more attention.

The Sustainable Development Goals (SDGs) have been introduced to achieve the 17 goals. There is a strong link between solid waste management and the Sustainable Development Goals, which has great significance. Sustainable development goals cannot be achieved if waste management is not a priority. That is specially done through the concept of Waste-to-Energy, which can simultaneously provide solid waste management and sustainable solutions to the energy crisis. Recent research identified urban solid waste as an excellent non-conventional renewable energy source due to its various compositions. The world currently generates 2.01 billion tons of urban waste, which is expected to grow further by 2050 (Kaza, et al., 2018). This increase in global solid waste is due to consistent economic development, population growth and urbanization of the world. Sri Lanka is a developing country. Developing countries like ours are facing rapid urbanization worsening the solid waste management issue.

Moreover, simultaneously, the said circumstances of rapid urbanization in developing states create energy crises and various socioeconomic and environmental issues. Sri Lanka emits more than 9000 MT of solid waste daily, of which 60% are decomposed materials, and the rest is non-decomposed. About 400 MT of 40% of non-decompose materials are discharged into the environment as plastics and polythene. Other substances include environmentally harmful batteries, electronic wastes, and clinical and chemical wastes (Ministry of Health, 2020).

CMC is the largest and most developed local government body in Sri Lanka. Moreover, it is the city which is most rapidly urbanizing. Accordingly, the amount of waste generated daily is approximately 900MT (Nuzrath, 2017). Of this, 500MT is the daily solid waste generated by the people living in the CMC (Colombo Municipal Council, 2015). Thus, the Colombo District alone generates about 70% of the island's solid waste (Nuzrath, 2017). Mainly, urbanization contributes to the disposal of solid waste management. As mentioned above, not only the waste problem is the energy crisis, another complex issue Sri Lanka faces. The growing energy crisis and the waste problem are significant obstacles to the sustainable development of Sri Lanka. According to the 2019 Annual Report of the Ministry of Power and Energy, the total annual electricity generation of 2018 in Sri Lanka was 15,925 GWh. The daily average electricity demand of Sri Lanka was 42.66 GWh, and the maximum daily power consumption was 45.86 GWh. The total annual electricity demand in 2019 was 17,285 GWh (Karunanayake, 2019).

The Government of Sri Lanka has undertaken several solid waste management initiatives, and the Waste-to-Energy concept is the latest one that Sri Lanka is currently focusing on. CMC reviews the concept of Waste-to-Energy through which Sri Lanka can prosper by generating energy sustainably from its waste while managing it in an environmentally friendly manner. Waste-to-Energy is one of the most popular approaches today to reduce this urban solid waste. Countries worldwide are increasingly embracing this concept, making it a more popular approach to environmentally Friendly Waste Management and Non-conventional Renewable Energy production as the most effective alternative to economically, environmentally and socially prospering (Ministry of Health, 2020). The first Waste-to-Energy Power Plant was established in Kerawalarapitiya as the initial step in Sri Lanka to use knowledge, technology and proper control methods to manage waste by producing energy.

The research question in this study is how Sri Lanka can prosper through the Waste-to-Energy concept. This new technology manages the existing solid waste in the Colombo Municipal Council and other cities in an environmentally friendly manner and converts it into energy.

This general objective is to investigate how Sri Lanka can prosper by converting Waste-to-Energy based on the solid waste in the Colombo Municipal Council. Specific objectives of this study; include gaining a comprehensive understanding of the existing solid waste management and energy generation in Sri Lanka, a study on current solid waste and energy levels in Sri Lanka and its environmental, social and economic impacts, the study of the cost-effectiveness of Waste-to-Energy, identify the composition of Colombo municipality solid waste and Sri Lankan solid waste and its total volume through Primary and secondary sources.

Accordingly, this study focuses on the CMC and reviews the concept of Waste-to-Energy through which Sri Lanka can prosper by generating energy sustainably from its waste while managing it in an environmentally friendly manner.

Literature review

Today, the concept of waste is an extensive perception. It can be defined in many ways when it comes to defining waste. Waste is generally defined as a substance or object that the person who created it wants to dispose of. The United Nations Statistics Division (UNSD) on Environmental Statistics defines "Wastes are materials that are not prime products for which the generator has no further use in terms of his/her own purposes of production, transformation or consumption, and of which he/she wants to dispose. Wastes may be generated during the extraction of raw materials, the processing of raw materials into intermediate and final products, the consumption of final products, and other human activities. Residuals recycled or reused at the place of generation are excluded." (Wikipedia, 2022). Presently world creates massive quantities of waste, which causes many environmental, social and economic problems. As a peasant, it is quite the opposite that the society, due to overconsumption of resources, generates a huge amount of waste. Waste depends on urbanization, population growth, technology, inhabitants' culture and traditions, consumer or community lifestyle, food habits, climate and economic conditions.

The waste material that human society throws away on their daily consumption can be called solid waste. Solid waste includes municipal, industrial, agricultural, biodegradable, and radioactive waste. According to the United States Environmental Protection Agency, Solid Waste is any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material resulting from industrial, commercial, mining, and agricultural operations, and from community activities (United State Environmental Protection Agency, 2021).

Among the waste problem, urban waste can be found in all countries. Accordingly, With the increase in population density in urban areas, it is observed that urban solid waste or municipal solid waste is increasing exponentially day by day. As a clear definition of municipal solid waste, we can define municipal solid waste can also be described as a by-product of the consumer-oriented lifestyle that drives most of the world's economies. As living standards and disposable incomes increase, so does the consumption of goods and services, resulting in a corresponding increase in waste generated (Hoornweg & Bhada-Tata, 2012).

When considering urban solid waste, MSW can be divided into two parts, developed and developing countries. Focusing on the generation of MSW in the world, the amount of waste generated in developing countries is relatively higher than in developed countries. Based on the United Nations Population Sector estimates and the World Bank's GDP, the total MSW will increase from 13 billion to 27 billion tons by 2050 (Karak, Bhagat, & Bhattacharyya, 2012). At present, more than 17 million tons of MSW are generated annually. People generate at least 1.2kg of waste daily (Hoornweg & Bhada-Tata, 2012). All of these MSWs are manufactured in developed and developing economies. Waste generation is high in developed countries such as Europe, America, Asia and Australia. MSW generation and the amount of waste one person produces yearly are large. Most Asian and African countries fall into the category of developing countries. These countries generate the largest amount of waste in the world. According to Tanmoy Karak's research, by 2025, waste in developing Asian countries will increase by 1.8 billion tons. Furthermore, India will increase by 16.6 million tones MSW by 2026. It is said that 14.5 million tons of MSW are generated now in African countries (Karak, Bhagat, & Bhattacharyya, 2012).

Researchers said, With the rapid growth of Asian countries, this problem is exacerbated as people in those regions seek to improve their living conditions and change their consumption patterns. Hwa stated in 2007 said that the low levels of awareness, lack of technical knowledge, strong policies & legislations, and proper plans & strategies for MSW are the major challenges in low-income countries in Asia (Silwal, 2019). Third-world countries, in particular, are taking a leading role in this. All countries worldwide need to look at this environmental issue critically to achieve its critical role in protecting the environment and improving productivity and effective urban solid waste management.

Sri Lanka, being a developing country, suffers greatly from these challenges. Urban waste accumulates in large in many urban areas in Sri Lanka & its collection and disposal is a serious problem. According to the study by Nilanthi J.G.J. Bandara in 2004, per capita waste generation in Sri Lanka is 0.85kg per day in the Colombo municipal council (CMC), 0.75kg in the other Municipal Councils, 0.60kg in the Urban Councils and 0.4kg in the Pradeshiya Sabha. She says that by 2025, the MSW generation rate will increase to 1 kg per person (Bandara , n.d). Accordingly, the total waste generation in Sri Lanka is 8000-15000 MT daily. That is 4.5 million MT per year. According to the JICA National Solid Waste Management Report, the amount of waste collected daily by 311 local authorities is 2838 MT. That is annually 1.04 million MT (Gunaruwan & Gunasekara, 2016). The biggest challenge is how the waste generated due to these reasons is collected and disposed of by the local authorities. The most common disposal method in Sri Lanka is open-dumping, open-burning, and landfilling. MSW are unwanted disposals in Sri Lanka, resulting in loss of wetland habitat, destruction of flora and fauna, pollution, health problems, etc. In particular, greenhouse gases such as carbon dioxide and methane are released into the atmosphere, causing changes in the climate.

Although a good MSW management system has been introduced in Sri Lanka, local authorities do not properly implement, maintain, monitor and evaluate it. Therefore, this has become a national issue. Several laws and regulations have been enacted regarding waste in Sri Lanka. Among them are the National Environmental Act No. 47 of 1980, the Pradeshiya Sabha Act No. 15 of 1987, the Municipal Council Act No. 31 of 1939 and the Municipal Council

Ordinance No. 16 of 1947. Accordingly, it is unfortunate that waste management is still slow, despite many favourable laws. Sri Lanka has a good policy framework; neither the public nor the officials know to understand it. In addition, the relevant officials do not have adequate training and knowledge about the management of MSW. They do not engage in social partnerships and do not encourage their residents. Therefore, the concept of 'we dump - they collect' has been formed in society (Karunarathne, 2015).

Accordingly, although several projects are in operation in Sri Lanka, considering the Colombo Municipal Council of Sri Lanka, these problems are more prevalent than in other urban areas. The Solid Waste Management Division of the CMC Department of Urban Engineering oversees MSW Management. Under the supervision of that management, MSW is divided into three, i.e., biodegradable, recyclable and non-recyclable. According to a study by A.N.N Nuzrath and Dr Fareena Ruzaik relevant to the CMC area, residents dump waste into open spaces, water sources and drains when there is no infrastructure to collect waste. Although many residents are concerned about the environment, there is a lack of involvement in domestic solid waste management processes and all stakeholders (Nuzrath & Ruzaik, 2017). The management is not sustainable due to a lack of awareness, support from the authorities and a lack of landfill to dispose of the waste.

Various worldwide waste management programs are already underway. Sustainably reduce the wastes generated while minimizing the increasing consumption of human beings. Changing the attitude of the public towards consumption is a key factor. There is a significant point to be made before managing MSW. According to Sristi Silwal's research, many European countries use Integrated Solid Waste Management (ISWM) for waste management. The special reason for this is that the above characteristics of the generated waste are intertwined. Then the amount of waste they take to the landfill or disposal area is very small (Silwal, 2019). Many industrialized nations follow the "Waste Management Hierarchy" philosophy in developing MSW management strategies. It is currently being used not only in industrialized countries but also in developing countries. Accordingly, this could be referred to as a menu for developing integrated strategies for MSW management. It consists of 5 different components. There is prevention, reuse, recycling, recovery and disposal. In addition, the world uses many new technologies. There are; Open dumping, Landfilling, Open Burning, Composting, etc. These technologies always apply in Sri Lanka. The technology of Waste-to-Energy is a new one that applies in Sri Lanka.

In 1903, Waste-to-Energy (WtE) technology was introduced in the history of the world in Denmark as a combustion technology (Silwal, 2019). Waste-to-energy, which generates energy from solid waste converted into electricity, heat or fuel, is a rapidly growing system worldwide. Generating energy using machines through this method can be considered a commercial business opportunity. With the ability to convert Waste-to-Energy, waste can be transformed into an economically valuable resource, providing sustainable solutions to the energy crisis and reducing environmental pollution. The remaining resources at the end of the process can also be used as resources.

MSW can be converted to power according to various WtE conversion processes, such as thermal treatment technology and biological treatment technology. Thermochemical conversion is used for low-moisture waste, and biochemical conversion for high-moisture waste, such as organic waste. It is common for many low-income countries to deal with large-scale environmental problems and energy crises. Accordingly, using WtE technology in MSW can be defined as a technology that contributes to energy recovery by converting it into other alternative fuels such as heat, electricity or biogas. WtE technology is a new solution to the uneven distribution of energy. It will also help alleviate the long-running energy crisis in developing countries. According to Richa Kothari and others, WtE technology has made it possible for developing countries to access sustainable renewable resources through alternatives such as biogas technology and hydrogen energy from solid waste generated from various activities to reduce the unequal energy distribution and energy crisis in the world (Kothari, Tyagi, & Pathak, 2010). The initial costs and infrastructure involved in implementing this technology are expensive. However, there is potential for capital development through WtE technology. Even if the start-up costs are high, the benefits can be reaped later. Research on this technology must be compiled and documented. Because it helps future generations with a great deal of information about its progress, researchers' attention, and new technology.

Materials and Methodology

Study Area

Colombo, the main commercial capital of Sri Lanka, is located south of the Kelani River on the island's southwest coast. This Colombo area is bounded on the north by the Kelani River, on the south by the Dehiwala Canal, on the east by the Kelaniya, Kolonnawa and Sri Jayawardenapura Kotte Pradeshiya Sabha areas and on the west by the Indian Ocean. This Colombo District is made up of three main Municipal Councils. Namely, Colombo, Dehiwala-Mount Lavinia and Kotte. Accordingly, this study has been conducted based on the Colombo Municipal Council area consisting of 47 urban wards. This study area (CMC) is located between east longitude 99 ^{0} 50 $'$ - 79 ^{0} 59 $'$ and northern latitude 6 ^{0} 50 $'$ - 6 ^{0} 60 $'$ (Matharaarachchi, Manawadu, & Gunatilake, 2016). The Colombo Municipal Council covers an area of 4361.6 hectares and falls under the administrative boundaries of the Colombo and Thimbirigasyaya District Secretariats. That is, the city covers an area of 37 square kilometers. The lowest administrative unit, 55 Grama Niladhari Divisions, is also included in this limit. Its administration is divided into six districts.

The residential population of the Colombo Municipal Council is between 555,031 - 561,314. More than 600,000 people from different parts of the country migrate daily to the Colombo Municipal Council area for various purposes (Colombo Municipal Council, 2015). The population density of this area is 115 persons/ha, according to 2017 records. According to 2012 reports, CMC has a Total number of households of 122,421 and a total number of housing units 118,594. From it, there are 110,467 permanent houses, 7915 semi-permanent houses, 171 improvised houses and 41 not-classified houses. According to this study area, the number of houses covered by garbage collection is 120,313, and the number of houses not covered by garbage collection is 2108 (State of Sri Lankan Cities, 2019). Thus, population growth, migration and land use and Spatial patterns in the Colombo Municipal Council, the commercial capital of Sri Lanka with a democratic society, can be understood from these data.

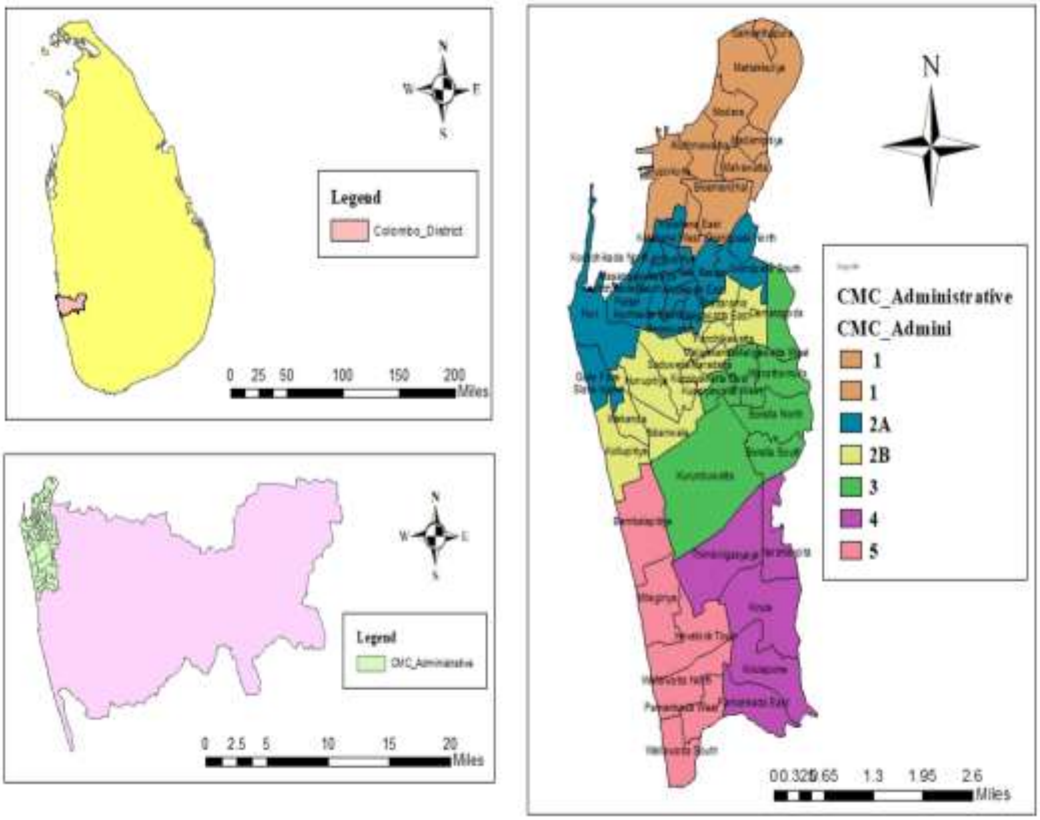

Figure 1: Administrative Districts of the Colombo Municipal Council, 2022

Data Collection

Data is the most important section to conduct research and make it successful. Qualitative data is generally in words, and quantitative data is in numerical form. Due to the use of both quantitative and qualitative data types for this research, the study was conducted under a mixed-method strategy. Mainly, focused Qualitative method. Quantitative and Qualitative data were obtained under two categories, such as primary and secondary data. Therefore, as primary data, qualitative data were collected through field observation and semi-structured interviews and qualitative and quantitative data were collected through a questionnaire. As secondary data, research articles & journals, public books & textbooks, government annual reports & document and website articles & etc., were used for research.

For this research, data were found using semi-structured interviews. Accordingly, data was collected through semi-structured interviews with senior officials and employees of the Waste Management Authority, the Colombo Municipal Council, and Sri Lanka's first Waste-to-Energy power plants. The answers and special facts collected from these interviews were noted, and it also used an audio recorder with the permission of those agencies to verify its accuracy. Both types of qualitative data and quantitative data were collected through a questionnaire for research. In this study, questionnaires are divided into three categories. That includes general information, solid waste generation by residents and solid waste collection in CMC, solid waste-related issues, and management. It was possible to inquire about the public's awareness, attitudes, needs and interests regarding waste management. As the CMC is spread over a wide area, a sample was required to provide the questionnaire. Accordingly, a simple random sampling method was used as a sampling method for presenting this questionnaire. The 100 residents who came to the CMC office were randomly selected and presented with a questionnaire. Field observation methodology was used to collect primary data for this research. The non-participating observational method was used for this research. The field of study was monitored as it was necessary to understand and gain adequate knowledge about the waste of the area and the impact of pollution on good environmental development. Non-participatory observations could verify the information gathered from the questionnaire and semi-structured interviews. Secondary data can be used for this study. Secondary data was used to review the study literature, identify the study area, understand the research subject, formulate research questions, and much more.

Data Analysis

After obtaining data for research, the next important stage in the research process is data analysis. The whole study depends on this analysis. This is a completely mechanical procedure. Questionnaires, semi-structured interviews and field observations are integrated through the data analysis. Before beginning the study analysis, all the collected data were properly recorded. The data was then encoded for classification and analysis according to its content. However, since qualitative and quantitative data are used for this research, different methods were used to analyze them.

Thematic analysis, one of the most common qualitative data analysis methods, was used for this research. Accordingly, the qualitative data thus collected was subjected to a thematic analysis under four steps. First, this raw data was cleaned up to start. There took out the first found data and arranged them in order. Facts irrelevant to the research were removed, and Necessary facts were carefully or well-prepared. Thus, the selected data were subdivided into subcategories. The same subcategories were then clustered or chunked. It is then coded. Finally, according to how the data is represented, it is observed, and the conclusion is drawn. Microsoft Excel 2016 was used to analyze the quantitative data collected. This software analyzed the data, and the relevant results were obtained. Graphs, flow charts and tables were used to represent the result obtained through this software. It can manage large amounts of data.

Methodology Framework

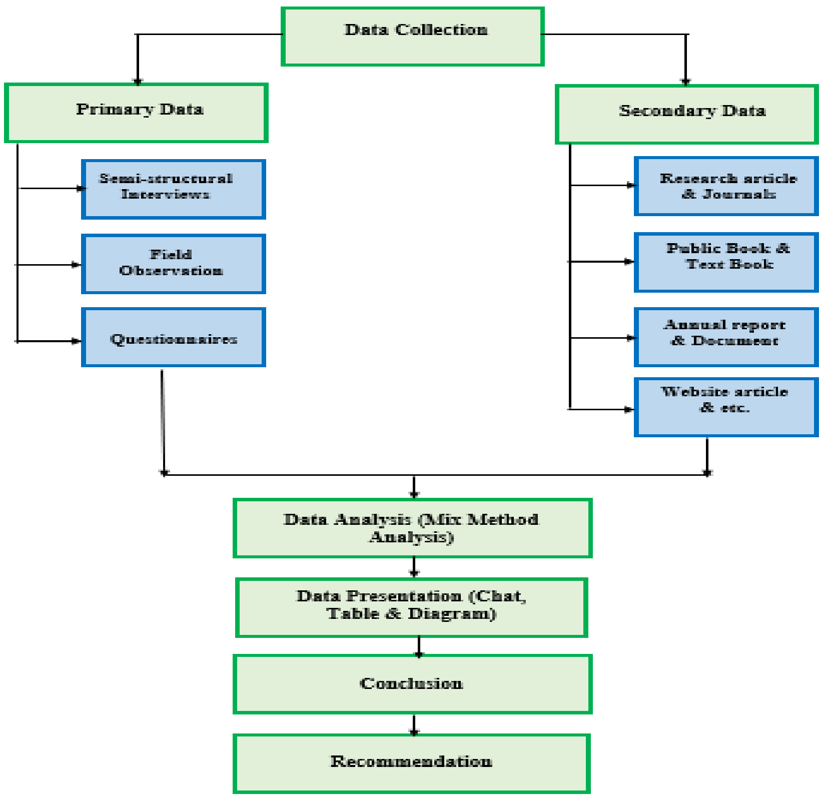

Figure 2: Methodology Framework

Result and Discussion

As mentioned above, CMC has made efforts to manage solid waste and related issues in its territory. However, there are some weaknesses due to its institutional contradictions. The municipal authorities found a gap that needed to be effectively addressed. There is a crisis here because the public, private sector and public opinion do not match. This study examines CMC's waste management, public perceptions, and Waste-to-Energy power plant progress.

Today, the area collects between 450MT and 500MT of waste per day. Last year approximately 900MT of waste was collected per day, and after 2021 that volume will be around 450MT (Ministry of Health, 2020). The main reason for this waste reduction is the construction of the Waste to Energy power plant. There are no reports of waste being classified. Previously, domestic, corporate and commercial waste collection was done. However, due to the supply of waste to energy power plants, there will be no segregation as before.

Furthermore, there are no separate reports on the composition of the waste. This is because the plant carries non-perishable waste such as glass, iron, black stone, pottery, porcelain and all other waste except hospital and electrical waste. According to the data collected through the questionnaire, CMC waste is currently segregated under three methods—organic, non-recyclable, and recyclable. Most of the organic waste, in addition to polythene, plastic and paper, is collected here. The graph shows 60% organic waste and 35% non-recyclable waste. The remaining 5% is a recyclable material. Since plastics, polythene, and plates can earn extra income, the employees working in CMC give the waste to those places and earn income.

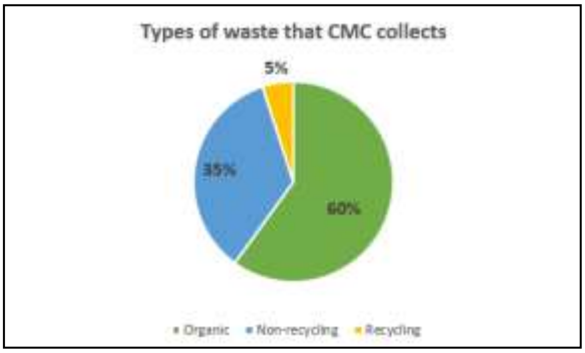

Figure 3: Type of Waste that CMC collects
Source: Field Survey, May 2022

In a survey of generated household waste, Data from humans also indicate that organic waste is being generated in large quantities. As this represents, most household waste is organic waste. The second is generated by polythene, and the third is paper. Finally, there are glass and other waste. Thus, it seems that organic waste is the type of waste that has become a significant problem in this area.

Table 1: Composition of waste in CMC

Waste type	Highest	Second	Third	Fourth	Lowest
Organic	83	8	2	2	5
Polythene	11	47	34	6	2
Paper	0	41	57	1	1
Glass	1	4	4	64	27
Other	5	0	3	27	65

Source: Field Survey, May, 2022

As this represents, most household waste is organic waste. The second is generated by polythene, and the third is paper. Finally, there are glass and other waste. Thus, it seems that organic waste is the type of waste that has become a major problem in this area.

Here, the waste collection takes place effectively in this region. It was much clearer in the survey that was done. Here, the result is that 93% of the waste is collected through CMC, and only about 7% of the waste is not collected. Thus, waste collection is done on different days through the Colombo Municipal Council. There, waste is often collected through the CMC every three days. About 40% of respondents said the CMC visits every three days to collect their waste. Mahawatta, Modara and Mattakkuliya are good examples. CMC comes in for only 32% of the daily waste collection. The survey confirmed that waste is collected daily in the main cities of the Colombo Municipal Council.

The average household generates 5 - 10kg of waste daily or weekly. 34% of respondents generate 5kg of waste. 33% of 10kg of waste generates an amount of waste. Accordingly, most people living in the CMC area generate between 5kg-10kg of waste per day or week. In addition, 32% of households generate 15kg of waste. Most people in CMC dispose of waste through 62% polythene bags. In addition, large quantities of waste are disposed of through the Basket

/ Bucket. This increases the amount of waste and polythene that accumulates. Several factors cause the disposal of it in polythene bags. That is because it is a substance that should be discarded after use. After all, it is easy to store because it is easy to dispose of, etc., do the respondents raise the main ideas.

This separation is done into organic waste, non-recyclable waste and recyclable waste. Here organic and non-recyclable waste is added together. This is because all that waste goes to the Waste to Energy plant. CMC is collected waste use of Compact trucks and tippers, giving to door-to-door visitors, handcarts, dumping in bins set up in the city, delivery to secondary collection points, and more. Most of the waste collection in CMC is done by compact trucks and dump trucks. According to data from respondents, it carries 52% of its waste through this method. In addition, handover is done to those who come from house to house. It is 27%. CMC does Slight waste removal through other methods.

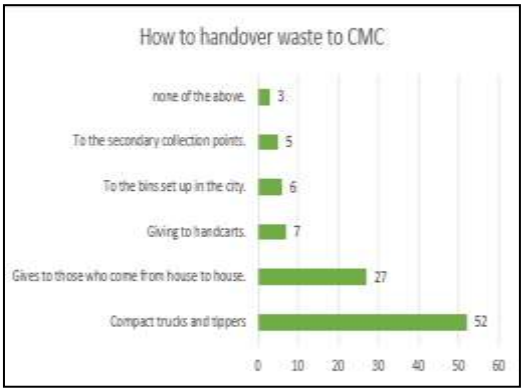

Figure 4: How to Handover waste to CMC
Source: Field Survey, May 2022

Table 2: How to Handover Waste in CMC,

How to collect waste	Frequency	Precentage
Compact trucks and tippers	52	52%
Gives to those who come from house to house.	27	27%
Giving to handcarts.	7	7%
To the bins set up in the city.	6	6%
To the secondary collection points.	5	5%
none of the above.	3	3%
Total	**100**	**100%**

Over the last few years, waste has been disposed of at Blumenthal, Muthurajawela, Madampitiya and Aruwakkalu landfills. The damage caused by there is huge. The main reason for the large accumulation of waste in the Colombo Municipal Council, legal protests and public protests against it, the dumping of waste was stopped in these lands. Madampitiya waste dump is the only landfill currently in operation. The landfill is located in the middle of 5,000 family units. Not only in the waste dump but also on both sides of the roads where the waste dump is located, there is a great threat of waste disposal by outsiders (Colombo Municipal Council, 2015).

Figure 5: Madampitiya Dumping Site, Source: Field observation, May 2022

Here, the price of a ton of mixed waste is Rs. 2500; for non-mixed waste, Rs. 3500 is required by CMC for transportation. Accordingly, a large percentage of the revenue collected in CMC is spent on waste disposal. Looking at this information, it is clear that CMC is facing a significant crisis in waste disposal. These include the lack of land for waste disposal, public protests when lands are available, transportation problems, and cost issues (Ramaesh, 2022). When asked about the suffering caused by waste in the responses received from the people living in CMC, 81% said they are suffering from waste somehow. 19% do not suffer from waste. These are high-income families living close to the city in the area. However, CMC people from low-income families respond that many suffer from waste.

There, they are mostly suffering from odours and various diseases. Here, most of the victims are suffering from short-term illnesses and some from long-term illnesses to some extent. As a percentage, 82% are susceptible to short-term illness and 18% to long-term illness. In addition, flies and mosquitoes, the destruction of water sources, disruption of urban aesthetics, and soil degradation are reasons for suffering. Here, in the respondents' opinion, they at least suffer from the damage caused by soil degradation.

Many of the respondents are not satisfied with the views expressed by the respondents regarding the waste disposal program through the Colombo Municipal Council. Further investigation revealed that the actions were not within a proper framework and in accordance with a policy. Here, 51% of respondents are unsatisfied with CMC's waste disposal. Accordingly, more than half of the respondents were dissatisfied with the disposal and collection of waste at CMC.

Various waste management methods have been adopted through CMC to avoid these problems, mainly using 4R methodology, compost production, and recycling centres. This is currently known as the flagship waste management process in CMC. However, this process is not going well. The reason 4R is not working properly is due to a lack of proper procedures and lack of public support. Although it is said that a large number of projects have been taken up for recycling, there are no reports of such projects. Although compost production has been successful, compost production is not done in CMC now. The main reasons are lack of space, people in Colombo not using fertilizer, outdated methods and a long process (Priya, 2022).

Looking at all this, it is clear that there is a gap between the CMC and the public regarding waste management. When asked about the existing waste management awareness, most respondents said they are aware of waste management. 90% have some understanding of waste management. 10% have never heard of it. Most of this 10% live in low-income families. Most respondents know about waste management through a media network or educational institution. This makes it difficult for the public to gain an understanding of the waste management that takes place within the CMC area. Awareness programs through CMC are mandatory for this. Only 43% have gained awareness through awareness programs conducted in CMC. The remaining 57% did not receive the notifications provided by CMC. That is a big problem. There is a gap in the waste management of the CMC and the public. According to the data collected, many people are interested in and learning about waste management. The information obtained from the respondents, a high percentage, like 96%, would like to know about this. Fewer than 4% do not like to pay attention to it. The main reason is to lead a busy life and not like it much.

They are interested in reuse. Due to economic difficulties, they are focused on getting the most out of a product during this time. However, there is less focus on this among high-income families. 50% of the respondents' compost products through waste. They use this fertilizer for their plants despite not growing it in large quantities. They have also benefited from it. Many people have benefited effectively from this waste management. Almost 90% of the respondents are willing to earn extra income by sorting and handing the waste to the waste management centres. Starting such a project will enable further resolution of the waste crisis. However, it is unfortunate that despite starting such a project, people are not even aware of the waste management centre at CMC.

Respondents believe that the measures taken to manage the waste in the CMC are inadequate. However, in 2021, the government laid a huge foundation for waste management. That is the establishment of a waste-to-energy plant. This is the latest method of waste management. It manages the waste in partnership with the Chinese company Aitken Spence. Here, the heat energy from the combustion of the collected waste is converted into electricity. This waste management process was first done in CMC in the Colombo District.

Thus, it is an excellent answer not only to the waste problem but also to the waste energy crisis, which is a big problem today. Due to the increasing population, this construction has been done as there is not enough space to dispose of the waste generated in the separate Colombo District. Today, the plant receives all the organic and non-recyclable waste collected in CMC. When the waste-to-energy plant cannot dispose of it, it will be disposed of at the Madampitiya landfill. The plant was initially scheduled to be built near the Aruwakkalu landfill but was halted due to the high cost of garbage disposal, as mentioned above. Subsequently, due to that problem, this project was first created in Kerawalapitiya. Here the collection and handover of waste are done through the private sector. The cost has been reduced as the waste in the Colombo Municipal Council is transported to the power plant by the private sector in their vehicles. Accordingly, the waste from all the districts except a few districts of CMC is collected by the private sector and delivered to the power plant.

Here, the waste received at the plant is stored in the waste pit for about 5 days, allowing the leachate to drain and waste to get fermented. The leachate is treated to produce clean water through a leachate treatment plant. After, the fermented waste is fed into the feeding hoppers through grab cranes, and the waste is burnt inside the moving grate incinerators to produce heat which is used to generate superheated steam in heat recovery steam boilers. Finally, the superheated high-pressure steam drives the steam turbine with a generator to produce electricity. The generated electricity is dispatched to the national grid through a transmission line. By-products are produced from the material that remains after power generation. Bottom ash is used as a substitute for sand and block stones in the construction industry. This process takes place every day.

The plant receives an average of about 700 MT of waste per day. CMC alone produces between 400MT and 450 MT. Most of the waste collected at this plant is through CMC. The plant has received about 230,000 metric tons of waste since its inception. On average, 800MT of waste can produce 10MWh of electricity. Accordingly, they generate 240MWh of electricity daily after being subjected to their operations. The amount of electricity added to the national electricity monthly is about 7GWh. Since its inception, about 100

GWh of electricity has been added to the national grid nationally. That is a significant increase.

This technology is still new to Sri Lanka. So technically, it has to be improved. Therefore, in the Waste-to-Energy power plant, continuous improvements are being made to improve the generation efficiency through new technologies. In addition, research and development work is being done to explore new technologies and dimensions for improvements. It does not generate electricity to repair machinery every 6 months. The repairs will take about a month. Waste will then be dumped at the Madampitiya waste dumping site, the only existing landfill at CMC.

On average, this process's monthly and annual cost is more than LKR 2 billion per annum. It is much money, but the benefits are enormous. The Waste-to-Energy plant provides full support to CMC for waste management. The future design of this waste-to-energy plant is Contributing to the country's socioeconomic development by recovering energy from waste, in line with the principles of circular economy, preferably by adding more capacity.

Accordingly, the launch of this concept to the whole of Sri Lanka will provide a sustainable solution to the ever-increasing waste and energy crisis. It will take Sri Lanka to become a prosperous country.

Recommendation and Conclusion

Recommendation

This provides recommendations for the best MSWM system in the CMC and for further development of this new technology. These recommendations are based on the findings of these studies. The environmental, social, economic, and health implications of evaluating and analyzing current MSWM practice are significant. The following recommendations are made.

To solve the current inefficiencies in the CMC's overall solid waste supply chain, it is essential to develop a systematic MSWM framework focusing on sustainability and the management hierarchy. Before incorporating the PPP (Public Private Partnership) approach, the existing SMW policy needs to be revised, and the CMC must formulate a specific policy, including details of cooperation with the various stakeholders. The formulated policies should be adequately implemented and not limited to a report. The energy generated from these power plants can be further technologically developed to generate automotive fuels, cooking gas and high-capacity electricity.

The main problem with CMC is the lack of specific MSWM-related data and information. Further, a great deal of effort has to be put into obtaining that data. Research is beneficial in minimizing the weaknesses that exist in MSW. However, obtaining data to conduct such research would be challenging and would lose the ability to make the necessary recommendations to address those issues. Therefore, It is highly recommended that the CMC Office and the Institute conduct research and periodically collect and update data. Ensuring that the project meets international emission standards is essential. Emissions monitoring systems must be in place before the project can proceed, especially for burning alternative technologies. The public sector should intervene to monitor it. Especially the CEA. This may require changes in the legal framework.

A financial system that allows for the cost-covering operation of WtE power plants needs to be set up. That is, additional financial mechanisms must be applied. In addition to direct income from households through taxes and waste taxes, subsidies, gate fees, or nutrition charges for electricity can be included. The lack of experts in designing, operating and overseeing WtE power plants has profoundly affected MSWM. Therefore, the municipal staff of the Waste Management Authority and the power plant engineers should be allowed to enhance their knowledge and support the academic and scientific initiatives that nurture education in the field. Waste-to-Energy power plant currently uses the combustion technique. It is imperative to develop combustion techniques that are adapted to local conditions. Failure to do so will make it challenging to deal with future problems.

Conclusion

The current solid waste management system of the Colombo Municipal Council is not fully systematic and still problematic. According to these rough conclusions, organic waste is generated in large quantities in this region. The collected waste is dumped at the Waste to Energy Power Plant and the Madampitiya Waste Dump. At present, the concept of reducing MSW volume and using it as a waste resource for power generation, a major crisis in Sri Lanka, is completely non-existent in the current MSW system. However, the waste-to-energy power plant, which was created as a first step based on the CMC, can be identified as an existing successful project. Currently, the concept of Waste to Energy in Sri Lanka is used only for the Colombo District. Although solid waste management issues remain critical, this concept is a sustainable solution for SWM and energy crises. Currently, 240 MWh of electricity is added to the entire grid through waste-to-energy power plants. Sri Lanka currently produces electricity by burning organic, non-recyclable waste. In addition, this technology can potentially reduce the waste generated in Sri Lanka by more than 80%. In view of the above, it can be concluded from the special mention made in connection with CMC that Sri Lanka can prosper by converting the waste generated into Waste to Energy.

Acknowledgment

We would like to thank the Colombo Municipal Council staff for their assistance in making this study a success.

References

Karak, T., Bhagat, R., & Bhattacharyya, P. (2012). Municipal Solid Waste Generation, Composition, and Management: The World Scenario. *Environmental Science and Technology*, 1509-1630.

McAllister , J. (2015). Factors Influencing Solid-W ors Influencing Solid-Waste Management in the De aste Management in the Developing World. *All Graduate Plan B and other Reports,* 1-86.

Abeyakoon, D., & Denagama, T. (2021). Assessment of Municipal Solid Waste Management System in. *Fostering Opportunities for Technoprenureship, INTERNATIONAL RESEARCH SYMPOSIUM 2021*, 192-197.

Bandara , N. J. (n.d). Municipal Solid Waste Management – The Sri Lankan Case. *Paper Presented at Conference on Developments in Forestry and Environment Management in Sri Lanka*.

Bartone, C. R., & Bernstein, J. D. (1993). Improving municipal solid waste management in third world countries. *Resources, Conservation and Recycling*, 43-54.

Basel Convention. (2017). *Basel Convention Glossary of terms.* USA: United Nations Environment Programme (UNEP).

Chen, X., Geng, Y., & Fujita, T. (2010). An overview of municipal solid waste management in China. *Waste Management*, 716–724.

Choudhury, A. (n.d.). *Participant Observation and Non-Participant Observation* . Retrieved from yourarticlelibrary: https://www.yourarticlelibrary.com/social-research/data-collection/participant-observation-and-non-participant-observation/64510

Colombo Municipal Council. (2015). *Engineering Services*. Retrieved from Colombo Municipal Council: https://www.colombo.mc.gov.lk/engineering-services.php

Colombo Municipal Council. (2015). *Engineering Services - Solid Waste Management*. Retrieved from Colombo Municipal Council: https://www.colombo.mc.gov.lk/engineering-services.php

Ekanayake, J. (2022, 05 07). Details of Waste to Energy Plant. (S. A. Batuwanthudawa, Interviewer)

George, T. (2022, 01 27). *Semi-Structured Interview | Definition, Guide & Examples*. Retrieved from Scribbr: https://www.scribbr.com/methodology/semi-structured-interview/

Gunaruwan, T. L., & Gunasekara, W. N. (2016). Management of Municipal Solid Waste in Sri Lanka: A Comparative Appraisal of the Economics of Composting. *NSBM Journal*, 26-45.

Hoornweg , D., & Bhada-Tata, P. (2012). *WHAT A WASTE: A Global Review of Solid Waste Management.* Washington: World Bank.

Horen, B. V. (2003). Fragmented Coherence: Solid Wast Management in Colombo. *International Journal of Urban and Regional Research*, 757-773.

Karunanayake, R. (2019). *Performance 2018 & Programmes for 2019.* Sri lanka: Ministry of Power, Energy & Business Development.

Karunarathne, H. (2015). Municipal Solid Waste Management (MSWM) in Sri Lanka. *1st National Symposium on Real Estate Management and Valuation 2015*, 113-126.

Kaza, S., Yao, L., Bhada-Tata, P., Woerden, F. V., Ionkova, K., Morton, J., . . . Levine, D. (2018). *What a Waste 2.0.* Washington: World Bank.

Kaza, S., Yao, L.C., Bhada-Tata, P., Van Woerden, F. . (2018). *What a Waste 2.0 : A Global Snapshot of Solid Waste Management to 2050.* Washington: World Bank Group.

Kiger, M. E., & Varpio, L. (2020). Thematic analysis of qualitative data: AMEE Guide No. 131. *Medical Teacher*, 1-9.

Kothari, R., Tyagi, V., & Pathak, A. (2010). Waste-to-energy: A way from renewable energy sources to sustainable development. *Renewable and Sustainable Energy Reviews*, 3164–3170.

Matharaarachchi, S., Manawadu, L., & Gunatilake, J. (2016). Evaluation of Urban Air Pollution Distribution in the Colombo Municipal Council Area, Sri Lanka. *Geostatistical and Geospatial Approaches for the Characterization of Natural Resources in the Environment*, 405-411.

McLeod, S. (2018). *Questionnaire: Definition, Examples, Design and Types*. Retrieved from Simplypsychology: https://www.simplypsychology.org/questionnaires.html

Menikpura, S., Sang-Arun, J., & Bengtsson, M. (2016). Assessment of environmental and economic performance of Waste-to-Energy facilities in Thai cities. *Renewable Energy*, 576-584.

Ministry of Health. (2020). *Maw Hale Apata Kasala kalamanakaranayen- Pirisidu Parisarayak.* Sri Lanka: Ministry of Health.

Municipal Waste Europe. (2022). *Difinition*. Retrieved from Municipal waste Europe: https://www.municipalwasteeurope.eu/definitions

Niekerk, S. v., & Weghmann, V. (2019). *Municipal Solid Waste Management Services in Africa.* Africa: Public Services International-PSI.

Nuzrath, A. N. (2017). Public Perceptions of the Effectiveness of Solid Waste Management in the Colombo Municipality Area. *Sri lanka Journal of Population Studies*, Volume 7.

Nuzrath, A., & Ruzaik, F. (2017). Public Perceptions of the Effectiveness of Solid Waste Management in the Colombo Municipality Area. *Sri lanka Journal of Population Studies*.

Pan, S.-Y., Du, M. A., Huang, I.-T., Liu, I.-H., Chang, E.-E., & Chiang, P.-C. (2015). Strategies on implementation of waste-to-energy (WTE) supply chain for circular economy system: a review. *Journal of Cleaner Production*, 1-13.

Perera, K. (2003). AN OVERVIEW OF THE ISSUE OF SOLID WASTE MANAGEMENT IN SRI LANKA. *Third International Conference on Environment and Health*, 346 – 352.

Perrot, J.-F., & Subiantoro, A. (2018). Municipal Waste Management Strategy Review and Waste-to-Energy Potentials in New Zealand. *Sustainability, MDPI*, 3114.

Priya, R. (2022, 05 05). Waste managenment. (S. A. Batuwnthudawa, Interviewer)

Psomopoulos, C., Bourka, A., & Themelis, N. (2009). Waste-to-energy: A review of the status and benefits in USA. *Waste Management*, 1718–1724.

Qazi, W. A., Abushammala, M. F., & Azam, M.-H. (2018). Multi-criteria decision analysis of waste-to-energy technologies for municipal solid waste management in Sultanate of Oman. *Waste Management & Research*, 594–605.

Ramaesh, K. (2022, 05 05). Main Details of Municipla Solid Council. (S. A. Batuwanthudawa, Interviewer)

Sakai, S., Sawell, S., Chandler, A., Eighmy, T., Kosson, D., Vehlow , J., . . . Hjelmar , O. (1996). WORLD TRENDS IN MUNICIPAL SOLID WASTE MANAGEMENT. *Waste Management*, 341-350.

Silwal, S. (2019). Waste to Energy: Solution for Municipal Solid Waste Management in Kathmandu Metropolitan City (KMC) . *MASTER OF ENVIRONMENTAL AND ENERGY MANAGEMENT : MASTER THESIS*, 1-65.

State of Sri Lankan Cities. (2019). *Colombo Municipal Council*. Retrieved from State of Sri Lankan Cities: https://www.soslc.lk/en/cities/colombo-municipal-council

United State Environmental Protection Agency. (2021, June 16). *Criteria for the Definition of Solid Waste and Solid and Hazardous Waste Exclusions*. Retrieved from EPA: https://www.epa.gov/hw/criteria-definition-solid-waste-and-solid-and-hazardous-waste-exclusions

Wang, Y., Lai, N., Zuo, J., Chen, G., & Du, H. (2016). Characteristics and trends of research on waste-to-energy incineration: A bibliometric analysis, 1999–2015. *Renewable and Sustainable Energy Reviews*, 95–104.

Waste Management Industry. (2008). *Survey Guide and definitions for the Waste Management Industry Survey.* Waste Management Industry.

Wijesinghe, H. (2018). *Special Report of the Auditor General on the Solid Waste Management of the Colombo Municipal Council.* Colombo, Sri Lanka: Auditor General's Department.

Wikipedia. (2022, March 01). *Waste*. Retrieved from Wikipedia: https://en.wikipedia.org/wiki/Waste

World Energy Council. (2013). *World Energy Resources: Waste to Energy.* London: World Energy Council.

Zhai, Y. (2020). *Waste to energy in the age of the Circlular Economy.* Philippines: Asian Development Bank.

Zhang, D., Huang, G., Xu, Y., & Gon, Q. (2015). Waste-to-Energy in China: Key Challenges and Opportunities. *Energies, MDPI*, 14182–14196.

සමෝධාන
SAMŌDHĀNA
ISSN 2235-9109

9 772235 910003