

A Study of the Impact of Climate Change and Other Stresses on the Pottery Industry in Sri Lanka

K.A.J.S. Jayasuriya, H.A.M. Peiris, J.M.S.B. Jayasundara and J.E.M.C.L. Gunarathana

Department of Environmental Management, Faculty of Social Sciences and Humanities, Rajarata University of Sri Lanka, Mihintale. jayasankajs11@gmail.com

1. Introduction

Many traditional occupations in Sri Lanka persist today, with the pottery industry standing out as a significant craft that has endured from ancient times to the present, dating back to the prehistoric Iron Age. Over time, various factors have influenced this industry, with climate change emerging as a critical challenge in recent years. The local pottery industry relies primarily on two types of clay: kaolin and red clay. Notably, red clay deposits in the Lulneva area of the Anuradhapura District, part of Sri Lanka's dry zone, have historically been renowned for their superior quality (H.M.S.N. Batagalla, S.I.L. Senawirathna, P.R.C.P.K. Ariyawansa, 2018). This red clay, once usable in its natural state without additives, was a cornerstone of pottery production. However, the availability of high-quality raw materials has diminished, compounded by the rise of substitute products in the market, which cater to consumer demand for cheaper alternatives. Historical land-use patterns in areas engaged in the pottery industry were previously aligned with the resource needs of artisans (Sampath Arunashantha, 2020). However, these patterns have shifted, resulting in a shortage of raw materials. This scarcity, alongside modern challenges, has created significant obstacles for communities reliant on traditional pottery-making. This study primarily investigates the impacts of climate change on pottery-making societies. Sub-objectives include examining the effects of climate change on raw material availability and analyzing its economic impact on rural pottery communities.

2. Materials and Methods

In evaluating the effects of climate change on the pottery sector in Lulneva village situated in Kahatagasdigiliya Divisional Secretariat in Anuradhapura District of Sri Lanka, this study adopted a qualitative research approach. Data was collected through the use of structured interviews informally, while secondary data was obtained from relevant literature sources. As for the gathered data, the techniques used in analyzing them included qualitative and thematic data analysis.

Data collection

Primary data were collected through structured interviews with twenty three selected families from the 60 households involved in the traditional pottery in Lulneva village. The interviews concentrated on stakeholders experiences in pottery making, climate change impacts, legality of separation clay resources, and looking for better means of survival other than clay pottery making.

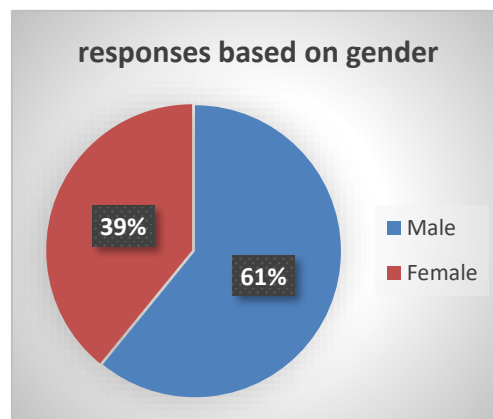


Figure 1. Responses based on Gender

Data analysis

The data collected from 23 families in the traditional village of Lulneva as a convenience sampling was analyzed using the thematic data analysis method. Accordingly, these data were analyzed under three main themes. 01 The impact of current climate change on the traditional clay industry, 02 The economic impact on the people who do the clay industry, 03 The crisis for raw materials. This collected data was analyzed in three main themes.

3. Results and Discussion

A country located in the tropical region of Sri Lanka. With 10-12 hours of sunshine a day, Sri Lanka has been hit by climate change. According to the dry zone division chart of Sri Lanka, the studied village of Lulneva in the Anuradhapura district belongs to the DL1 division. The impact of climate change on the dry region is currently increasing. Rain from the northeast monsoon appears to be a long dry spell every year in this area. The development of long dry weather conditions in this area has significantly affected the quality of the clay, and it has become difficult to maintain the necessary standards for the production of pottery. That was clearly stated by 06 people during the interviews. Due to the current prolonged dry season, the nature of these clays has changed. As evident in the interviews, the durability of clays that change in nature is greatly reduced. It is clear from the study that the climate effect of the natural environment has intensified for this clay. In addition, due to legal regulations, the areas traditionally used to obtain clay are limited. Due to this, the availability of essential resources has rapidly decreased, posing a significant challenge to the local clay industry. For many families in this region, the clay industry is their only source of income, and limiting access to clay has jeopardized their ability to sustain their livelihoods.

It was clear from the interviews that the development activities carried out around the lakes had an indirect effect on their traditional occupations. Many areas where these people obtained raw materials have been reclaimed and it became clear that some areas have been restricted due to problems such as illegal occupation. The wood kiln is mostly used in this village to season the ingredients which are collected with great difficulty. Procuring the required wood for this wood kiln has also been a challenge in some existing legal frameworks. Nowadays, electricity is also required for the clay industry. It is because their main machinery "Sakaporuwa" is now powered by electricity.

Out of the 23 families surveyed in the village, only 6 people have alternative sources of income and the rest are completely dependent on the pottery industry. This over-reliance on pottery, along with challenges caused by the climate, has exacerbated poverty levels in the area. Nowadays, the livelihood of these people is seriously challenged due to the availability of cheaper alternatives in the market instead of pottery. Moreover, lack of access to modern technology and inadequate knowledge of innovative practices further hinders their adaptability. These factors, combined with climatic influences, have affected the socio-economic conditions of the village, hindering the development and sustainability of the pottery industry. It was clear that the government has not paid special attention to the rural people who are engaged in this profession. Poverty has been intensified by not directing them to alternative careers in the face of Climate change impacts.

4. Conclusions

It was found that the people of Lulneva village in Anuradhapura district have faced a problem in getting the basic raw materials needed for their traditional work due to climate change. It was found that many direct and indirect effects are caused to these people due to climate change. As a result, they should be provided with the necessary technology to maintain their jobs in a climate-resistant manner. Accordingly, there is a need for a technology that can improve the quality and flexibility of clay.

A need for mapping the red clay deposits used by these people as a short-term solution to the shortage of raw materials was evident throughout this study. There was a clear need to gradually

shift the wood-burning stoves used by these people to alternative energy-based stoves at a lower cost. Because the forest land is gradually decreasing, it was possible to identify a level where the effect of further clearing for this could occur in the future. Another unique thing identified in this study is that these people have little knowledge about climate-friendly technology and climate adaptation and resilience. It was further identified through this study that they should successfully adapt to climate change to minimize the effects on them in the future. Further research should be done on this significant impact of climate change on the traditional pottery industry and the community.

Generalizing these findings to the broader context of Sri Lanka's pottery industry, it is evident that the challenges faced by Pottery industry in Lulneva, mirror those encountered in other regions reliant on traditional clay production. Climate change, combined with socio economic and legal constraints, threatens the survival of this ancient craft across the country. A national strategy is needed to support pottery making communities by addressing raw material shortages, promoting sustainable practices, and fostering innovation through government-led initiatives and partnerships with non-governmental organizations.

5. References

- Coomaraswamy, A. (1906). Sinhalese earthenware. *In Spolia Zaylanica*.
- Dissanayaka, R. B. (2020). A history of the development of pottery use and design in Sri Lanka.
- H. Scenk, H.L. Weisshaa, H. Roth, W. Wijepala. (2001). The development of pottery at Tissamaharama In Ancient Ruhuna. vol.,1, PP. 59-195.
- H.M.S.N. Batagalla, S.I.L. Senawirathna, P.R.C.P.K. Ariyawansa. (2018). සා මුහුදා සික මැ ටි බදුන් නිශ්පාදන ක්‍රියා වලිමේ විකාශනය පිළිබඳ අධ්‍යයනයක්. *URSARU, RUSL*.
- Sampath Arunashantha, S. M. (2020). The environmental impact of the clay industry in Sri Lanka: with special reference to Dankotuwa Divisional Secretariat Division (DSD). *International Journal of Scientific Research*.
- Senewirathna, P. (2022). An Anthropological Study of Lulneva Pottery Village. *URSARU 2022*, (p. 19).