REVITALIZING TRADITIONAL POTTERY: EXPLORING STRATEGIES FOR SUSTAINABILITY AND GROWTH

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Abstract

Kerala's pottery is a traditional craft-based industry that has been an integral part of the state's cultural heritage and economy. Currently, the industry is facing challenges in adapting to the changing modes of modern business, stiff competition and inability to cope-up with new market trends. An attempt to explore the prospects of sustainability and growth in the pottery industry is made in the study through discovering the perception and awareness of pottery manufacturers on sustainable pottery. The study examines sustainable practices prevailing in the industry and identifies the strategies for revitalizing the proud heritage industry of the state. The study is based on primary data collected from a sample of 120 potters in Kerala, using a structured questionnaire. From the data, it was evident that the pottery sector in Kerala severely lacks sustainable practices in terms of awareness and adoption. There is a high need for designing and implementation of strategies for revitalizing the pottery industry thereby bringing sustainable growth. Finally, recommendations are made to promote and sustain the industry with the help of policy support and government initiatives.

Keywords:- Pottery, Kerala, Sustainability, Growth, Heritage Industry.

Kerala, a southern Indian state, is globally praised for its rich cultural heritage and traditional crafts. Among these, pottery marks a significant place, reflecting the state's deep connection to its ancestral roots and the natural environment. However, in modern business scenario, the traditional pottery industry in Kerala faces extreme challenges due to impulsive market dynamics, diminishing artisan participation, and competition from modern materials.

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Revitalizing this industry requires a comprehensive as well as holistic approach that interweaves cultural preservation, modern innovation, and sustainable practices. The pottery industry in Kerala has deep roots in the region's culture and history and sustainability is becoming an increasingly important consideration as the world focuses on environmental preservation and responsible manufacturing. Sustainability intersects with Kerala's pottery industry in a multitude of dimensions and an examination and analysis of this is crucial in designing strategies to revamp the proud traditional industry of Kerala. Despite its cultural significance, the pottery sector in Kerala's village industries faces numerous challenges, including competition from mechanized industries, changing consumer preferences and lack of innovation. In this regard, shaping and implementation of strategies to revitalize the pottery sector in Kerala brings in much attention, for ensuring its sustainability and growth.

Review of Literature

Sarkar, Sarkar (2022) identified that potters in the current business era are improving their economic status due to better aesthetic and environmental sense of present sustainability conscious generation. Improvements in online business and amazon parcel sending facility have become an easy mode for transporting clay and pottery products to distant customers. Thus, financial improvement is happening for the potters.

Shrestha (2018) in his study pointed out that there are much growing scopes and opportunities in pottery industry but the people involved in this industry are facing a multitude of hindrance like shortage of raw materials, labour and lack of space to dry the raw pottery, firing pottery and storing the finished goods along with the different raw materials. However, the domestic and international sales are getting increased noticeably.

Rathi (2018) in her study explained that potters are suffering from irregular supply of raw materials, lack of working capital, obsolete technology, lack of diversification of products, competition from the organized sector, proper marketing facilities, management problems, and lack of research and development facilities. Many were under severe exploitation by middleman. The government and NGO initiatives can solve the problem and develop the industry at its best level. Moreover, artisans are still using stereotype machinery and hence the entire development programme may be arranged by the governmental institutions.

Kaesmi (2014) found out that traditional potters still employ low technology and low levels of production. The artisan himself is the owner and works with his own inventiveness and with his own capital.

Statement of the Problem

The pottery industry having deep roots industrial heritage of Kerala and traditional craftsmanship, is facing several sustainability challenges. These crises span across resource employment, production processes, and waste management. The key sustainability concerns in the pottery industry begins withraw material extraction in terms of clay mining and it

extends into habitat destruction, soil erosion, and biodiversity destruction. The use of glaze materials made up of toxic or non-renewable materials, such as lead, cadmium, or other heavy metals are capable of causing environmental and health impacts. When it comes to the firing process, pottery kilns consume high temperatures, often exceeding 1,000°c, which intakes significant amounts of energy, especially if fossil fuels are used. Carbon footprint is yet another question here. Undoubtedly, the reliance on non-renewable energy sources in many pottery facilities contributes to greenhouse gas emissions badly affecting the local air quality. Like most other industrial sectors, pottery too need water usage to aid its production processes. Pottery production requires substantial water, especially for shaping, glazing, and cleaning activities. improper disposal of wastewater containing glaze residues or clay particles can pollute local water systems. Though widely regarded as an eco-friendly or bio-degradable product, pottery is not free from waste generation. Defective products resulting from kiln failures, breakages, or production errors can generate a large amount of ceramic waste, which is often non-recyclable in traditional means.The traditional pottery lacks circularity. There are certain levels of non-biodegradability. i.e., fired ceramics are durable and do not break down easily in landfills, contributing to long-term waste issues. Limited levels of recycling are a serious drawback of South Indian pottery. Recycling or repurposing of broken or defective pottery is not widely practiced. Finally, social and economic concerns revolving around the pottery industry is less echoed. In South Indian states, it is still practiced as an inherited family business. Several communities still look upon pottery as their sole source of livelihood. But in some regions, artisanal pottery relies on low-paid labour, Mass production and competition from low-cost manufacturers obviously lead to compromises in sustainable practices.

Scope of the Study

The study examines the current manufacturing processes adopted in the pottery industry and its scope is limited to the pottery manufacturers in Kerala. It encompasses the data collected from pottery manufacturers located in Kerala, especially from pottery villages and pottery clusters like Balaramapuram, Attingal, Pandandu, Pazhayangadi, Kidangoor etc. The sustainability concerns in production process is concentrated and revitalizing strategies are put forward.

Significance of the Study

A sustainability study in the pottery industry not only helps reduce its environmental footprint but also ensures its viability, cultural significance, and social responsibility for future generations.The study proved that pottery industry in Kerala heavily relies on natural resources like clay for raw materials and minerals for glazes, which are of finite supply. The firing process consumes significant energy and contributes to greenhouse gas emissions. Analysing this can lead to energy-efficient alternatives and renewable energy adoption. Ceramic waste, especially non-biodegradable fired ceramics, poses a long-term environmental challenge. The effective ways to recycle or repurpose waste are to be studied seriously. Economic viability

and resilience can be ensured in pottery industry through envisaging sustainable practices like energy efficiency, water recycling, and material re-use that can in turn reduce production costs in the long term. Modern eco-friendly practices can be incorporated into this sector without losing traditional craftsmanship. Unsustainable practices like improper waste disposal or excessive resource extraction can harm surrounding communities. Sustainability efforts address these concerns and support social equity.

Most important, the United Nations' Sustainable Development Goals (SDGs) call for responsible production, minimal environmental impact, and decent work. The push for carbon neutrality in various sectors can extend to pottery production, especially through energy-efficient kilns and renewable energy use. The study can promote research into alternative materials and resources, such as biodegradable or recycled clay substitutes, and non-toxic glazes. Further, a focus on sustainability can lead to the development of industry-wide benchmarks, encouraging collective progress toward eco-friendly practices. Resource Security is most crucial in pottery industry as without sustainable practices, the depletion of raw materials and environmental degradation could threaten the future of the precious heritage industry. Thus, the study 'Revitalizing Traditional Pottery: Exploring Strategies for Sustainability and Growth in Kerala's Heritage Industry' turns significant.

Objectives of the Study

- To study the perception and awareness of pottery manufacturers in Kerala on sustainable pottery practices.
- To examine the sustainable industrial practices prevailing in the pottery industry in Kerala.
- To identify strategies for revitalizing the pottery sector.
- To bring out recommendations to promote and sustain the pottery sector in Kerala.

Methodology

The study is both analytical and descriptive in nature. Both primary and secondary data are used in the study. Primary data was collected from a sample of 120 manufacturers in pottery industry in Kerala with the help of a structured questionnaire. Snowball sampling technique was employed for selecting the sample respondents. Information from various magazines, journals, reports and newspaper articles constitutes the secondary data. The collected data was analyzed with the help of tables, using percentage analysis and weighted average.

Results and Discussions

Adoption of Sustainable Practices in Pottery Industry.

Classification based on the adoption of sustainable practices in pottery industry is summarised in Table 1.

Analysis of data shows that clay and clay-based raw materials are not available and derived locally, according to most of the respondents (85 per cent). Entire respondents make use of the raw materials from conventional clay mining and extraction processes. There is no re-use and re-cycle of clay-based raw materials as per the response of 86.7 per cent of respondents. The lion-share of

them (72.5 per cent) use conventional firing methods like fuelwood and coal for firing and heating kilns (70.8 per cent). 65.8 per cent agrees to non-generation of waste in significant amount. Moreover, 90.8 per cent of them use synthetic paints, colorants, heavy metal based glazing and chemical based finishing in pottery production.

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Awareness of Pottery Manufacturers in Sustainable Pottery

Classification based on the awareness level of respondents regarding sustainable pottery is shown in Table 2.

From the data collected, it was found that majority of the potters were having full awareness regarding the environmental impacts of traditional pottery methods (58.3 per cent), need for adopting sustainable practices in pottery manufacturing (53.3 per cent), current demand for eco-friendly and sustainable products in the market (70 per cent) and mechanization of wheel-based pottery production (85 per cent). Most of them had no awareness on energy efficient firing processes by using electric kilns, heaters and burners powered by renewable sources like solar, wind, natural gas etc. (73.3 per cent), use of eco-friendly colorants, glazers and finishers (71 per cent), use of Plant-based dyes and coloring agents for pottery products (86.7 per cent), training programs (73 per cent) and specialized financial assistance schemes (70 per cent).

Table 1

Adoption of Sustainable Practices in Pottery Industry

Sustainable Practice	Yes	%	No	%
Local sourcing of raw materials	18	15	102	85
Depending on conventional clay mining and extraction	120	100	-	-
Raw material (clay) re-use and recycling	16	13.3	104	86.7
Conventional firing methods in practice	87	72.5	33	27.5
Firing the pottery kilns using fuelwood and coal	85	70.8	35	29.2
Minimal waste generation	79	65.8	41	34.2
Synthetic paints, colorants, heavy metal based glazing and chemical based finishing for pottery products	109	90.8	11	9.2

Source: Primary Data

Table 2

Awareness of Pottery Manufacturers in Sustainable Pottery

Statement	Fully Aware	Percentage	Partially Aware	Percentage	Fully Unaware	Percentage
Environmental impacts	70	58.3	30	25	20	16.7
Need for sustainable practices	64	53.3	30	25	26	21.7
Demand for eco-friendly and sustainable products	84	70	20	16.7	16	13.3
Energy efficient firing processes	6	5	26	21.7	88	73.3
Mechanization of wheel-based pottery production	102	85	-	-	18	15
Use of eco-friendly colorants, glazers and finishers	18	15	16	13.3	86	71.7
Plant-based dyes and coloring agents	10	8.3	6	5	104	86.7
Training programs	18	15	14	11.7	88	73.3
Industry specific financial assistance schemes	14	11.7	22	18.3	84	70

Source: Primary Data

Strategies and Methods for Revitalizing Pottery Industry

Response of pottery manufacturers on sustainability improving strategies and methods based on their preference are shown in Table 3.

In order to ensure better ESG compliance and integration in pottery industry, certain measures and strategies were put forward to be ranked by the respondent potters based on their urgent requirement. These strategies are expected to bring sustainable development and responsible participation among the members. Based on the data analysis, it was found that the most urgent method or strategy demanded by the potters were usage of locally derived alternatives of raw materials (rank-1). The second most urgently required strategy was the certification of sustainable and eco-friendly pottery products, that can be easily marketed through Government outlets and emporiums. Thirdly, extending adequate financial assistance for modernization and technology upgradation was needed (rank-3), followed by arranging training programs on sustainable pottery manufacturing methods and techniques (rank-4). In addition, recognizing and appreciating ESG complying pottery units was required by them (rank 5). However, organizing awareness campaigns on ESG integration was the least demanded requirement for the respondents (rank-6).

Findings

1. Majority of the potters belonged to above poverty line (APL) category (65 per cent).
2. Pottery is the traditional occupation of most of the respondent potters (66.7 per cent).

Table 3

Strategies for Revitalizing Pottery Industry

Strategies	Rank – 1 (6)	Rank – 2 (5)	Rank – 3 (4)	Rank – 4 (3)	Rank – 5 (2)	Rank – 6 (1)	Total	Weighted score	Rank
Local raw materials	64	16	12	14	10	4	120	578	1
Financial support	22	62	8	10	14	4	120	536	3
Sustainability training	18	14	52	18	12	6	120	470	4
Recognition and appreciation	16	14	18	54	10	8	120	428	5
Awareness programs	24	16	18	8	52	2	120	426	6
Certification	36	24	16	30	12	22	120	556	2

Source: Primary Data

3. The type of products offered by the lion share of potters include cook-ware, garden-ware (55 per cent).
4. Majority of the potters stated that raw materials are not available and not derived locally (85 per cent).
5. Majority of the potters employ raw materials derived from conventional clay mining and extraction processes (100 per cent).
6. Re-use and re-cycle of clay-based raw materials are not prevalent in majority of pottery making centers (86.7 per cent).
7. Most potters make use of conventional firing methods (72.5 per cent).
8. A good deal among the respondent potters use fuelwood and coal for firing the pottery kilns (70.8 per cent).
9. There is no significant waste generation in the business according to the majority of potters (65.8 per cent).
10. Most of the potters are using synthetic paints, colorants, heavy metal based glazing and chemical based finishing methods in their pottery work (90.8 per cent)
11. Traditional potters marked their full awareness in the following aspects:

- Environmental impacts of traditional pottery methods (58.3 per cent)
- Need for adopting sustainable practices in pottery manufacturing (53.3 per cent)
- Current demand for eco-friendly and sustainable products in the market (70 per cent)
- Mechanization of wheel-based pottery production (85 per cent)

12. For the following aspects, the potters are fully unaware:

- Energy efficient firing processes by using electric kilns, heaters and burners powered by renewable sources - solar, wind, natural gas etc. (73.3 per cent)
- Use of eco-friendly colorants, glazers and finishers (71.7 per cent)
- Plant-based dyes and coloring agents for pottery products (86.7 per cent)
- Training programs for enhancing the productive skills and capabilities of potters (73.3 per cent)
- Industry specific financial assistance schemes (70 per cent)

13. Various strategies and measures are identified for better ESG compliance in the pottery industry and are subsequently ranked by the potters. The most urgent measure demanded by majority of them is ensuring supply of locally derived alternatives for clay based raw materials (rank-1), followed by certification of sustainable pottery products (rank-2). After this, providing adequate financial support was needed (rank-3) followed by the demand for training programs (rank-4). Recognition and appreciation for the pottery manufacturing units that strictly abide by the ESG norms and practices and awareness programs for sustainability were least demanded by potters (rank-5 and rank-6 respectively).

Conclusion

Sustainable pottery emphasizes environmentally friendly practices, resource conservation, and ethical production. It involves using non-toxic, locally sourced materials, recycling clay and glaze waste, and employing energy-efficient kilns to reduce carbon emissions. Water conservation and renewable energy further minimize the environmental footprint. Additionally, sustainable pottery supports fair labour practices and preserves traditional craftsmanship, fostering cultural heritage and community well-being. By focusing on durability, biodegradability, and waste reduction, sustainable pottery aligns with the principles of a circular economy, meeting consumer demand for eco-conscious products while protecting the planet for future generations. When it comes to the matter of sustainable operations in Kerala's pottery industry, non-availability of locally derived raw-materials, excessive mining of clay, absence of reuse, recycling and reclaiming of clay-based inputs, prevalence of conventional firing methods of pottery kilns like firewood and coal, use of synthetic colorants, heavy metal glazing and chemical finishing etc. indicated the environmentally harmful practices, but commonly adopted in the industry. The traditional potters mainly lacked essential awareness on modern sustainable pottery practices like energy efficient firing process, eco-conscious glazers and finishers, plant-based dyes and colorants, sustainable manufacturing training programs and financial assistance schemes for modernizing their venture. Other issues in this regard were unfavorable attitude of young generation to continue their pottery tradition, lacking social equity for traditional potter communities and disappearing pottery skills and creativity of existing potters. To overcome this sustainability crisis, they

advocated ensuring supply of local alternatives for clay-based raw materials, financial supports and incentives, training on eco-friendly manufacturing processes, and recognition for potters complying with sustainable practices. Hence, adoption of sustainability principles, guidelines and practices in pottery industry requires restructuring the manufacturing process, educating and training the potters on the same and ensuring strict compliance. Thus, pottery industry can achieve a major position in a circular economy with ample opportunities for growth.

Recommendations

- Use of locally sourced materials such as clay and other raw materials should be promoted. It significantly reduces the carbon footprint associated with transportation and also caters the local economies.
- For firing and heating of kilns and burners, use of renewable energy sources like solar, bio-fuel or wind power can substantially fight the carbon emissions associated with conventional methods.
- Potters can use re-cycled materials like re-claimed and re-cycled clay to reduce the demand for virgin materials. They can also make use of re-cycled waste products like clay scraps and broken terracotta to reduce waste creation.
- Usage of low-flow faucets and pipelines and recycling of wastewater can conserve a great deal of water used in pottery industry.
- Switching into natural means of glazing and finishing as well as using plant-based colorants and dyes can help the industry in receiving a green flag.
- The principle of circular economy – *the economic system that aims to eliminate waste and the continual use of resources by designing products with their life cycle in mind* can act as a driving force behind better ESG integration in pottery sector.
- The Government can take necessary steps (technical, financial and managerial assistance) to update the pottery technology in practice by improving the processes and adding modern machinery with strict compliance of ESG norms.
- Pottery workshops, eco-friendly clay-art training, customized pottery making, pottery studios and pottery cafes should be promoted.
- Pottery and pottery villages should be made an integral part of local tourism.
- Customers must be made aware of the importance of sustainable and eco-friendly pottery products and their consumption must be promoted.

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