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Sustainability of Dokra Craft Industry: A Study of the Traditional Artisans of Bikna Village in Bankura District of West Bengal

Baisakhi Somondal*, Sudeshna Saha**

Abstract

Dokra is an ancient lost-wax metal casting craft practiced in various parts of the country having its roots in the Indus Valley Civilisation; it embodies India's rich cultural heritage. However, in the era of globalisation and changing market demand, sustaining the livelihoods of dokra artisans in Bikna village, Bankura, has become challenging. The study employed explanatory sequential mixed-method research design grounded on the Sustainable Livelihood Framework (SLF) to examine the sustainability of the dokra craft industry. Through structured interviews and focus group discussions the study explored the socio-economic condition of the artisans, strategic implementation of innovative tools and techniques to increase production efficiency, the emergence of the co-operative marketing model that improves market access, and persistent livelihood challenges resulting from income instability, rising cost of raw materials, and limited awareness of support schemes. The adaptive strategies demonstrated community resilience but the problems with digital literacy, infrastructure, and policy execution continue to hinder its long-term sustainability. The study concluded with policy recommendations aimed at enhancing financial services, expanding capacity building initiatives, and upgrading infrastructure to foster an inclusive technology-driven ecosystem that can preserve dokra's cultural heritage and ensure economic prosperity of the artisans.

Keywords: Dokra Craft Industry, Traditional Artisans, Cultural Heritage, Innovation and Co-Operative Marketing, Livelihood Challenges, Sustainability

Introduction

India is renowned for its exquisite arts and crafts throughout the world since centuries as its rich cultural history, traditional multitudes, and varying geography have contributed in giving rise to a variety of craft forms and artisanal skills, many of which have been passed down through generations (Kennedy, 2020; Dash & Mishra, 2021). The Indian handicraft industry has been identified as the second-largest source of employment after agriculture, helping in livelihood generation to a large number of artisans and craftsmen, contributing to the socio-economic development of the country (Ministry of Textiles, Government of India, 2025; Export Promotion Council for Handicrafts, 2020). Thus, it not only preserves the rich cultural heritage of the country but also plays a vital role in promoting sustainable employment in rural and semi-urban areas and generating substantial foreign exchange for the country (Ministry of Textiles, Government of India, 2025). Around seven million regional artisans and 67,000 exporters promoted the arts and handicrafts in national and international markets (India Brand Equity Foundation, 2025). India produces a wide ranged category of crafts, including sculptures, pottery, glassware, metal wares, hand-printed textiles, embroidered and zari items, and imitation jewellery (India Brand Equity Foundation, 2025). Among the varied traditional crafts dokra is a non-ferrous metal

* Research Scholar, Department of Social Work, Visva-Bharati, Sriniketan, West Bengal, India.
Email: baisakhisomondal17@gmail.com
** Assistant Professor, Department of Social Work, Visva-Bharati, Sriniketan, West Bengal, India.
Email: sudeshnasaha1@gmail.com

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craft that dates back to the Indus Valley Civilisation, created by the lost-wax technique or *'cire-perdue'* process (Mukherjee, 2016). Dokra craft is an ancestral craft practiced by the Chitraghasi and Ghasi tribes (Horne, 1987; Mukherjee, 2016). It derived its name from the nomadic tribe renowned as dokra damar tribe scattered over West Bengal, Jharkhand, Odisha, Chhattisgarh, and Madhya Pradesh, who turned into traditional metalsmiths (Smith & Kocchar, 2003; Mukherjee, 2016). In West Bengal these artisanal clans settled in Bikna village in Bankura and Dariyapur in Purba Barddhaman (Samanta, 2015). Before 1940s most of them settled in small groups outside the agricultural villages and were highly mobile as per the market demand (Mukherjee, 2016). They called themselves as Mal, Malar, Maral, Malhor, and Mahuli, variants of the same name, who shared a common origin in the tribal area of Chota Nagpur Plateau (Horne, 1987). Among major hubs of dokra craft in India, Bikna village in West Bengal has been a significant centre where the traditional dokra artisans are continuing to practice their ancestral work passing down to the next generations (Bhattacharya, 2011). The dokra craft of Bikna has been historically a community-based activity involving each household individuals at different stages of the work (Bhattacharya, 2011). Traditionally, the artisans produced religious idols, animal figurines, and household items that were sold through middlemen or in the exhibitions and fairs (Bhattacharya, 2011). However, since the last few decades the community is facing mounting challenges like inconsistent income, rising cost of raw materials like brass and wax, and lack of access to mainstream markets (Bhattacharya, 2011). To address these issues and ensure sustainability of dokra craft, various developmental initiatives have been implemented by the government and some non-government bodies (ICH NGO, n.d.). A notable initiative is 'Art for Life', a project implemented by the Micro, Small and Medium Enterprises and Textiles, Government of West Bengal, in collaboration with NGOs and craft activists (ICH NGO, n.d.). This project assisted Bikna to be a model craft village through training programmes, design development, infrastructure creation, and direct market linkages (ICH NGO, n.d.). Moreover, a community workshop, museum, and guest accommodation facilities have been made to promote rural cultural tourism, attracting both national and international visitors (Das, 2024; ICH NGO, n.d.). Despite the advancements brought about by the developmental interventions, the sustainability of the dokra craft in Bikna is a pressing concern in terms of globalisation, fluctuating market demand, and evolving consumer preferences (ICH NGO, n.d.). This study adopted Sustainable Livelihood Framework (SLF) as a guiding theoretical lens to have a better understanding of these dynamics. Developed by the UK's Department for International Development (DFID), SLF offers a holistic, people-centred framework that focuses on how individuals, groups, and communities utilise various forms of capital – human, social, physical, financial and natural – to sustain their livelihood over time (DFID, 1999; Scoones, 1998; Carney, 1998). The framework also takes into account vulnerability context, institutional structure, and livelihood strategies that ultimately results in outcomes like income stability, well-being, and resilience (Chambers & Conway, 1991). In the context of Bikna, this framework facilitated in a comprehensive analysis of artisan's access to skills and traditional knowledge (human capital), their networking and co-operatives (social capital), tools and the infrastructure (physical capital), credit and loans (financial capital), and raw materials like clay and beeswax (natural capital) (Chambers & Conway, 1991). SLF also helped in highlighting the institutional gaps, challenges, and policy disconnects that continue to hinder the sustainable growth in this sector (Chambers & Conway, 1991). This study sought to explore the complexities in sustaining the dokra craft in Bikna by examining the interrelationship between socio-economic conditions, innovations, marketing practices, and institutional support. The study used a mixed-method approach combining both quantitative and qualitative techniques to capture a more holistic understanding of the artisan's livelihoods.

Review of Literature

Socio-Economic Condition of Traditional Dokra Artisans

Dokra craft production in Bikna is primarily a hereditary occupation dominated by OBC-B Karmakar community and has turned into the main or only source of livelihood for around 80 families in the village (SIDBI & AMFI-WB, n.d.). The income of the artisans depends on season, going up during festivals and tourist visit times but falling drastically in the lean months specially during summer and monsoon (Samanta, 2014; Kundu, 2016; Haldar &

Datta, 2023). The young generation, seeing the decline, is reluctant to continue with the dokra work, preferring other works, which endangers the transmission of craft skills to future generations (Haldar & Datta; Smith & Kochhar, 2003). The artisans live and work in terrible conditions since they do not have proper sanitation, drainage, or storage system, which make their lives and livelihood even worse (Shaw, 2021). During the monsoons, production slows down due to lack of enough work sheds, compelling the families to depend on moneylenders, leading them to fall into debt trap (Haldar & Datta, 2023; Samanta, 2015). The artisans rely on the intermediaries for marketing purposes; these intermediaries take away a large part of the profit margin and control access to large markets and exports, due to which the artisans remain left with little bargaining power and low returns for their labour (Haldar & Datta, 2023; Samanta, 2015). The artisans lack formal training, secure institutional credit, and accessibility of government schemes thus causing infrastructural shortcomings (SIDBI & AMFI-WB, n.d., Haldar & Datta, 2023). Most of the artisans are either unaware of the existing welfare schemes or face bureaucratic hurdles in accessing the benefit of the schemes (SIDBI & AMFI-WB, n.d., Haldar & Datta, 2023). The artisans are economically precarious since the price of raw materials keeps going up, market demand is hard to anticipate, and machine-made products are becoming more popular (Samanta, 2015; Haldar & Datta, 2023).

Innovation in Traditional Techniques

The ancient lost-wax metal casting method has been employed by the dokra artisans of Bikna in their work (Das, 2024; Chatterjee, 2015). The artisans along with preservation of this traditional method, are gradually adapting innovative tools and materials such as buffs and drills for polishing and wielding, and efforts to experiment with new product forms (Das, 2024). The inclusion of modern finishing equipment and design diversification helps artisans to meet the changing consumer tastes and expand market appeal while optimising labour and increasing efficiency (Bhuin et al., 2025). Despite these advances, adoption remains uneven due to capital limitations, lack of effective technical training, and the cautious outlook of elder community members. Technology in Indian handicraft sector can include digital marketing platforms, which can be the initial phase to be explored by rural craft hubs (Salgia, 2024; Office of the Principal Scientific Adviser to the Government of India, 2023).

Co-Operative Marketing Strategies

Bikna's dokra artisans have participated in government- or NGO-facilitated self-help groups and village-level co-operatives after encountering volatile market and exploitative role of middlemen (Samanta, 2015). Co-operative model enables bulk procurements of raw materials, standardisation of quality, and more direct access to urban buyers and national or international craft markets (Kundu, 2016; Samanta, 2015; Menon, 2013). Moreover, artisans can make better negotiation with suppliers, bear risk, and organise transportation and participation in regional and national fairs by pooling such resources (Kundu, 2016; Samanta, 2015; Menon, 2013). Thus, the artisans are instructed to run business and sell their work directly in fairs without any middlemen taking advantage of them by these organisations (Shaw, 2021). Different problems like uneven engagement, inadequate professional management, and irregular access to digital technology still persists even after improvisation (Shaw, 2021).

Livelihood Challenges and Craft Sustainability

The sustainability of the dokra craft is dependent on various factors: access to raw materials, market linkage, cultural valuation, and international transmission of skills (Singh, 2018; Banerjee, 2020). The rising cost of raw materials, environmental degradation, and unreliable electricity supply have increased the production costs of dokra craft and thus reduced the artisans' profit margins (Bhattacharya, 2011; Kundu, 2016). Due to low income and lack of social recognition many youths of Bikna are becoming reluctant to pursue the traditional artwork of dokra (Das, 2024). Inadequate institutional support and gaps in policy implementation are widening these trends (Das, 2024). As per several studies sustainability of traditional craft sectors requires integration of cultural, economic and environmental dimensions (UNESCO, 2013; Venkatesan, 2009). Although the government policies have started to recognise the importance of craft-based livelihoods, they often apply the one-size-fits-all approach, ignoring the local variations in the craft sectors.

Sustainable Livelihood Framework

The Sustainable Livelihood Framework (SLF) developed by DFID (1999) offers a comprehensive tool to understand the complexities of artisan livelihoods. It identifies five key types of capital, like human, social, natural, physical, and financial, the artisans can draw upon the livelihood strategies (Scoones, 1998; Carney, 1998). These are influenced by vulnerability contexts and mediated through policies, institutions, and processes to yield livelihood outcomes (Scoones, 1998; Carney, 1998). The rural development studies widely use SLF to assess how people cope with change, manage risk, and secure sustainable earnings (Chambers & Conway, 1991).

The literature review examined the socio-economic challenges faced by the traditional dokra artisans of Bikna, Bankura, trapped in the web of interconnected issues threatening their livelihood and its sustainability. The artisan's community faces persistent poverty with irregular seasonal income patterns, hike in price of raw materials, lack of education, and inadequate access to basic amenities (Samanta, 2014; Kundu, 2016; Shaw, 2021; Haldar & Datta, 2023). The artisans while following the traditional lost-wax casting technique are gradually adopting modern tools and exploring technological innovation although advancement remained limited to financial constraints and generational resistance (Das, 2024; Bhuin et al., 2025). The review highlighted the role of emerging co-operative marketing models and SHGs in combating the exploitation by middlemen although there is existence of lack of digital literacy, proper management system, and ineffective implementation of government policies (Samanta, 2015). The SLF has been used in rural development literature, which provides a comprehensive lens to analyse how communities can utilise various capitals to secure livelihood in various circumstances (Chambers & Conway, 1991).

There is substantial documentation on dokra as an art form and its historical significance but there is lack of empirical, interdisciplinary studies which integrate socio-economic data with craft sustainability framework. Most of the existing studies are either anthropological, design-focused, or descriptive. They often overlook artisans' own narratives, co-operative dynamics, and innovation from below. This study addresses these gaps by adopting a mixed-method approach, employing the SLF to access livelihood sustainability from grassroot perspective. It not only captures socio-economic indicators but also highlights innovation, co-operative marketing, and systematic barriers that affects sustainability.

Objectives

- To understand the socio-economic condition of the traditional dokra artisans of Bikna.
- To explore the use of innovative techniques and co-operative marketing strategies by the traditional dokra artisans of Bikna.
- To explore the challenges encountered by the traditional dokra artisans of Bikna in sustaining their livelihood.

Methodology

Research Design: This study employed Explanatory Sequential Research Design of Mixed Method Research, where quantitative data collection and analysis was followed by qualitative data collection and analysis to gain deeper understanding of the findings.

Study Area: The study was conducted in the dokra craft cluster of Bikna village, located in Bankura district, West Bengal. Bikna is a nationally recognised centre for traditional dokra craft, with a high concentration of artisan households engaged in ancestral metal casting practices.

Sampling: A combination of systematic random sampling and purposive sampling was used for the quantitative and qualitative phases respectively. For the quantitative phase, 30 respondents of both the genders in the age group of 18–50 years were selected using systematic random sampling from the artisans' households in Bikna. For the qualitative phase, purposive sampling was employed to select participants of both the genders actively engaged with dokra craft. While some qualitative participants may overlap with the quantitative respondents, the primary criterion for the selection was based on their relevance and knowledge of the craft rather than the representativeness.

The following explains the inclusion criteria for sample selection: a) artisans actively involved in dokra craftwork for at least five years, b) individuals between 18 and 50 years, c) permanent resident of Bikna village residing there for not less than 10 years, d) individuals willing to participate with informed consent.

Tools for Data Collection: For the quantitative phase of data collection, a structured interview schedule was used and for the qualitative phase FGD guide was used to facilitate discussions.

Livelihood Framework

To understand the livelihoods of traditional craft communities a conceptual lens is required that captures the complexity of their resource base, institutional environment, and vulnerability context. Distinct livelihood frameworks have been developed by different international agencies like CARE International, UNDP, and DFID. A comparative assessment of the above-mentioned frameworks is therefore essential to identify the most appropriate analytical approach for this study. The comparison between the major livelihood frameworks is explained in Table 1.

Table 1: Comparison of Livelihood Frameworks: CARE International, UNDP, and DFID

Framework	*Core Components*	*Focus*	*Relevance for Artisan-Based Studies*
DFID (1999) Sustainable Livelihood Framework	Five capitals: human, social, natural, physical, financial	Holistic asset-based approach; emphasises vulnerability, transforming structures, livelihood strategies, and outcomes	Highly relevant as artisans rely on multiple capitals (skills, networks, resources, tools, finance) and face vulnerabilities such as market fluctuations and resources
UNDP Livelihoods Approach	Emphasis on employment, income, human development, capabilities, and access to opportunities	Focus on expanding people's choices, capabilities, and access to sustainable income sources	Useful for analysing skills and capacity-building, but less detailed in terms of asset categories and vulnerability context specific to traditional crafts
CARE International Household Livelihood Security (HLS) Framework	Components include human capabilities, access to resources, and economic activities	Primarily household-level focus; strong emphasis on well-being outcomes, food security, and coping strategies	Suitable for understanding household security but less comprehensive for analysing production processes, supply chain, and structural constraints faced by artisans' clusters

The comparison indicates that although all the three frameworks put forward valuable analytical insights, DFID's SLF provides the most comprehensive and contextually appropriate structure for examining an artisanal craft economy. The DFID SLF allows for an in-depth assessment of how the artisans mobilise various capitals, interact with social institutions, and cope with the vulnerabilities. Its holistic design makes it appropriate for analysing the interplay of traditional knowledge, co-operative networks, resource availability, and economic strategies within the artisan community of Bikna.

To operationalise the DFID framework within the present study, the five core livelihood capitals were examined in detail. The capitals as displayed and explained in Table 2 act as the foundation upon which individuals and communities build and sustain their livelihood.

Table 2: Livelihood Capitals Under the DFID (1999) SLF

Capital/Asset	*Definition/Key Components*	*Relevance to the Dokra Artisans*
Human Capital	Skills, knowledge, labour capacity, and health	For artisans: their craft skills, training, health (ability to work), traditional knowledge
Social Capital	Networks, social relationships, membership in groups, norms of trust and reciprocity	For artisans: co-operative groups, artisan associations, kinship networks, shared resources, trust within communities
Natural Capital	Natural resources stocks (land, water, forests, biodiversity) and ecosystem services	For artisans: raw materials (clay, metals), access to natural resources, environmental sustainability of resources
Physical Capital	Infrastructure (roads, buildings), producer goods (tools, equipment), shelter, water supply, energy, communication	For artisans: their workshops, tools, electricity, storage spaces, transportation for the goods
Financial Capital	Economic resources: savings, credit, cash, remittance	For artisans: capital to buy raw materials, invest in tools, buffer against income shocks, reinvestment

The analysis in this study is thus guided by the SLF (DFID, 1999), which conceptualises livelihood sustainability in terms of how individuals' access combine and mobilise a set of core capitals. The asset categories – human, social, natural, physical, and financial – constitute the fundamental resource base that structures how individuals and communities pursue and secure their livelihoods. Within the context of this study these capitals were examined to understand how traditional dokra artisans draw upon available assets, navigate structural constraints, including market intermediaries, limited institutional support, and fluctuating demand, and respond to vulnerabilities to sustain their crafts-based livelihoods. The DFID framework is particularly appropriate for the dokra artisans of Bikna in shaping their livelihood decision as it captures the interplay of traditional knowledge, resource constraints, co-operative networks, and institutional support mechanisms that shape the livelihood decision of the artisans.

Data Analysis: The quantitative data collected through structured interviews were first analysed using descriptive statistics in SPSS (IBM Corp., 2020). The qualitative data collected using the FGDs were analysed manually using thematic analysis (Braun & Clarke, 2006).

Ethical Considerations: All the participants were informed about the purpose of the study and their voluntary participation. Verbal informed consent was obtained, and strict confidentiality was maintained. Participants were assured of their right to withdraw from the study at any point of the study without any consequences.

Results and Discussion

Quantitative Findings of the Study

Socio-Economic Background

In Table 3, we can see that the age distribution of the 30 artisans interviewed revealed that 40% of them were in the age group 31–40 years, representing the active artisanal workforce. Both the genders actively participated in the work, comprising 66.7% males and 33.3% females, thus showing gender inclusivity in this craft sector. It was a Hindu-dominating community where majority of the respondents i.e., 80%, belonged to the 'Karmakars' category, who declared themselves to be OBCs, whereas the rest of them belonged to the General caste category. Among the respondents, 93.3% were married with majority living in joint families where most of the members were engaged with the work. There was lack of educational interest in this craft community, where only 6.7% of the respondents secured education equal to and/or above higher secondary whereas 20% did not have any formal education. Thus, it can be said most of the respondents were middle-aged men who were skilled enough in their field of work although not possessing formal education. 40% earned below INR10,000 per month from this craft business, which shows they were not earning enough to meet their needs such as access to some basic amenities and assets. Majority of them i.e., 46.7%, lived in semi-pucca houses, with only 20% living in pucca houses where most of the houses had access to some basic amenities and services such as electricity, internet, and LPG connection but only few had access to safe drinking water and proper sanitation. There were various government schemes to safeguard their livelihood, like Swastha Sathi Scheme, Training and Skill Upgradation Programme, PM Vishwakarma Kaushal Samman, etc., which were available to all of the respondents; 6.7% reported inability to receive benefits from any of these schemes. Majority of them reported lack of awareness about the available government schemes, complained about the complicated application process, and expressed the delay in receiving benefits.

Table 3: Socio-Economic Profile of the Respondents (N = 30)

Variables	*Categories*	*Frequency*	*Percentage*
Gender	Male	20	66.7
	Female	10	33.3
Age Group (Years)	18–30	8	26.7
	31–40	12	40.0
	41–50	10	33.3

Variables	*Categories*	*Frequency*	*Percentage*
Religion	Hindu	30	100
Caste	General	6	20.0
	OBC (Karmakar)	24	80.0
Marital Status	Married	28	93.3
	Unmarried	2	6.7
Educational Status	Illiterate	6	20.0
	Primary	14	46.7
	Secondary	8	26.7
	Higher secondary & above	2	6.7
Type of House	Kutcha	10	33.3
	Semi-pucca	14	46.7
	Pucca	6	20.0
Monthly Income (in INR)	<10,000	12	40.0
	10,000–15,000	10	33.3
	>15,000	8	26.7
Basic Amenities	Electricity	30	100
	Safe drinking water	11	36.7
	Toilet facility	16	53.3
	LPG connection	16	53.3
	Internet access	25	83.3
Govt Schemes Benefit Received	PM VIKAS	6	20.0
	Skill Upgradation Training	22	73.3
	Swastha Sathi Scheme	28	93.3
	None	2	6.7

Innovation and Co-Operative Marketing Strategies

Table 4 shows that 100% the respondents reported using at least one innovative technique in moulding, casting, and polishing, and adopted modern tools to make the production process easier. Most of the respondents i.e., 87%, attended training programmes for skill upgradation and 100% introduced new designs or modified old designs to remain competitive in the global market. However, innovation had impacted them positively, as all of the respondents reported that they incurred benefits such as improvement in product quality, increased productivity and income, and better market demand. The co-operative society in Bikna Shilpagram was built to support the dokra artisans of Bikna in marketing their products. The co-operative society mainly assisted them through organising training programmes, exhibitions, and fairs; 70% of them were accessing the trainings and 86.7% of them participated in fairs and exhibitions. However, in addition to this, all of them were employing personal marketing strategies, which included selling to retailers and wholesalers. Due to lack of digital literacy, 90% of them were relying on cash payment, 60% were depending on bank account transfers, and only 46.7% were using online payment methods. Thus, innovation and co-operative society played a crucial role in increasing productivity and market reach, although there were obstacles in frequent adoption of new techniques and accessing government marketing support. The respondents relied more on traditional marketing methods but moderately benefited from the co-operative activities.

Table 4: Innovation and Co-Operative Marketing Strategies of Respondents (N = 30)

Variables	*Category/Response*	*Frequency*	*Percentage*
Use of Innovative Techniques	Uses at least one innovative technique (moulding, casting, polishing, modern tools)	30	100
Skill Upgradation Training	Attended training programmes	26	87.0
Design Innovation	Introduced new design/modified old designs	30	100
Benefits of Innovation	Improved product quality, productivity, income, and market demand	30	100
Support from Co-operative Society	Assessed co-operative training programmes	21	70.0
	Participated in exhibitions/fairs	26	86.7
Personal Marketing Methods	Sells to retailers/wholesalers (traditional)	30	100
Payment Method Used	Cash payment	27	90.0
	Bank transfers	18	60.0
	Online payments	14	46.7

Livelihood Challenges

Table 5 depicted that the respondents faced several production-related challenges such as high cost of raw materials, high production cost, and lack of access to raw materials. They encountered various barriers in implementation of new techniques, with 63.3% reporting high implementation cost and 46.7% expressing lack of training and lack of financial support. There were market-related challenges faced by the respondents such as seasonal change in demand and dependence on middlemen. Most of the respondents reported financial instability due to irregular income, indicating their financial vulnerability. In balancing the traditional craftsmanship with modern market demand, 63.3% cited lack of awareness of current trends and 33.3% found it difficult to modernise designs without losing the tradition. Despite all the challenges, 80% believed that the younger generation was interested in continuing this traditional work, whereas 20% reported that they had lack of interest due to the history of hard physical labour and low income associated with this work. Majority of the respondents expressed a need for better financial assistance, improved market access, and regular skill-based trainings and infrastructural development to sustain their livelihood.

Table 5: Livelihood Challenges Faced by the Respondents (N = 30)

Challenge Category	*Specific Challenge*	*Frequency (n)*	*% of Respondents*
Production-Related Challenges	High cost of raw materials	30	100
	High production cost	25	83.3
	Lack of access to raw materials	20	66.7
	Manufacturing of defective products	15	50.0
	Poor infrastructure	11	36.7
Barriers in Adopting New Techniques	High cost of implementation	19	63.3
	Lack of training/skill development	14	46.7
	Lack of financial support	14	46.7
	Limited access to tools and technology	7	23.3
	Uncertainty about benefits	4	13.3
	No barriers	6	20.0
Marketing-Related Challenges	Seasonal demand fluctuations	9	30.0
	Dependence on middlemen	2	6.7
	Low bargaining power	1	3.3
	Competition from machine-made products	1	3.3

Challenge Category	*Specific Challenge*	*Frequency (n)*	*% of Respondents*
Difficulty in Accessing Government Schemes	Lack of Awareness	29	96.7
	Complicated application process	27	90.0
	Delay in receiving benefits	26	86.7
Balancing Traditional Craft and Market Demands	Lack of awareness of market trends	19	63.3
	Difficulty modernising designs without losing tradition	10	33.3
	No challenges	9	30.0
Availability of Orders	No challenges in receiving regular orders	30	100
Younger Generation's Interest	Interested	24	80.0
	Not interested	6	20.0

Qualitative Findings of the Study

Two FGDs were conducted with FGD 1 consisting of 10 participants i.e., P1 to P10 (six males and four females) with mean age of 35 years and FGD 2 consisting of 11 participants i.e., Q1 to Q11 (six males and five females) with mean age of 26 years, where all of them were dokra artisans of Bikna village. Thematic analysis (Braun & Clarke, 2006) of both the transcripts identified six themes representing the qualitative data collected from both the FGDs.

Evolution in Innovative Adoption

There had been evolution in the technique used to prepare the dokra crafts, usage of tools and machineries, designing patterns, etc. Initially, the artisans used to prepare some specific traditional craft items using temporary brick furnaces but now they prepare customised show pieces, decorative items, jewelleries, etc., due to diversification of consumer preferences, using permanent furnaces that helped them to have better casting of their products. However, they are yet to use the electric furnaces due to high implementation and maintenance costs, which could have been a better addition to sustainable livelihood. They now use electric machines at different stages of their work, like buffing machine, grinding machine, wax press machine, etc., for which they can produce more in less time and earn better than before. "*Previously we used to use temporary furnace (locally called hatsal) using bricks but now we have well-built furnace (locally called vati). We used to polish the artifacts using sour water and using nitric acid but now we have machines which helps us in finishing the work quickly. Moreover, we are using chemical polish for instant selling of products. Previously to polish 100 pieces of dokra crafts we used to take 10–15 days, but now it just takes maximum 2 hours 30 minutes*" [P5, Male, FGD 1]. "*I feel that the primitive way of designing will completely be replaced by the modern wax designing because it is easy to preserve till moulding and casting. We used to polish the crafts using hand brush only but now we use the conch-shell polishing machine to polish the crafts by adding some features to it. Previously we used to do the casting through bricks furnace, now we have proper furnace*" [Q1, Male, FGD 2]. They became familiar with the new techniques after working at different places and/or by attending various training programmes. Thus, innovation played a crucial role in the positive growth of these artisans.

Co-Operative Marketing and Sale Strategies

The co-operative society existed to help them in net-working with customers by facilitating them to participate in fairs and exhibitions but still lacks in full-fledged functioning. It received orders from Biswa Bangla and Manjusha but failed to make even distribution of orders among the community artisans owing to biasedness. Moreover, Manjusha and Biswa Bangla made payments after two–three months of delivery of the products, which created imbalance in their business. "*There is unequal distribution of orders among artisans from the co-operative society. Moreover, Manjusha and Khadi when [they] place orders through co-operatives make delayed payment so we face difficulty in buying raw materials. Thus, we find [it] easier to sell things independently*" [P9, Male, FGD 1]. "*The co-operative society is actually biased about distributing orders. We don't get any more*

orders from the co-operative society like earlier. Also, we are unaware if the society is getting any more orders. Now I am doing work for Burdwan; if the co-operative society would have thought about us then I wouldn't have to depend on orders from outside. All artisans are thinking about their own profit, there is no practical existence of the co-operative society" [Q2, Male, FGD 2]. Due to lack of education, they avoided using digital marketing platforms for the promotion or sale of their crafts. Moreover, they preferred cash payments or bank account transfers over digital payment methods. Thus, there is an urgent need to look after the proper functioning of the co-operative society, which can help in uplifting the position of the craft community in the international market.

Livelihood Challenges

The artisans faced constant barriers in sustaining their livelihood like difficulty in obtaining raw materials either due to lack of availability and/or constant hike in their prices. It was difficult for them to work during the summer as wax designs tended to melt in the heat and during monsoon their homes and furnaces got filled with water causing them seasonal unemployment. The use of machineries in the craft making procedure consumed too much electricity leading to their inability in paying the high-cost electricity bills. Many of them said that there was hike in competition with other brass metal products which were made using dice, causing the customers' reluctance to pay the genuine cost while purchasing dokra products as those appeared expensive. "*Yes, it affects. Suppose I prepared a locket, then someday I may get to see that same kind of locket has been prepared by dice by somebody. As we prepare things by hand, our products cost higher but the artisans who make things with dice keep the price low. So, customers become reluctant to purchase our products. So, we are getting affected by this*" [Q1, Male, FGD 2]. Some believed that those customers who can recognise the original dokra products would never go for purchasing cheap dice-made crafts. "*The customer who knows the difference between dokra handicrafts and machine-made similar-like products will always rely on our creation*" [P3, Female, FGD 1]. Moreover, instability in their income actually made them more financially vulnerable.

Skill Development and Support System

The use of digital technology is vital to make progress in their craft business but lack of education is a barrier to them, debarring them from using digital marketing platforms and payment methods. An NGO named Amar Kutir took the initiative in providing digital literacy training to the women artisans, aimed at enhancing their knowledge in digital marketing so that they could excel in their field. "*Some days ago, Amar Kutir was providing us training about how to use mobile phones and internet in our work, how to use different applications like Mera Bill*" [P3, Female, FGD 1]. They were scared to use mobile phone and internet in their business out of fear of committing mistakes due to lack of knowledge. "*A didi from Amar Kutir was teaching us how to use PhonePe, Google Pay, but we are scared to use because of lack of education. We are scared that if some error occurs and our money gets retrieved from the bank account. But as the market is changing, we have to learn and adopt such techniques*" [Q5, Female, FGD 2]. There were various active government schemes for the artisans like West Bengal Artisans Financial Scheme, PM Vishwakarma Kaushal Samman, and Training and Skill Upgradation Programme, which were initiated to support them but most of them were unaware of the availability of such schemes due to the bureaucratic hurdles. Thus, if any NGO or government organisation can take up the initiative to educate them about the schemes and the application procedures, it will help them to access the benefit of those schemes. With effective and rigorous education and training, the artisans can be helped to come out of the vicious cycle of poverty.

Cultural Continuity and Youth Engagement

One of the most vital factors that can question the sustainability of the dokra craft community in Bikna is the enthusiasm of the young generation in devoting themselves to their ancestral work of dokra craft making. Some of the artisans cited that their children extended helping hands to their family in this work besides going to school, which expressed their active interest associated with it. "*They are going to the school now, but whenever they are at home they are sometimes initiating help to their families in the work. They work with us, as well as pursue*

their studies" [P3, Female, FGD 1]. However, many of the children were reluctant to join hands in the work because they were uninterested in doing hard physical labour in return for such less profit margin. "*They are reluctant to do such extensive physical labour so are not much enthusiastic about this work. So many of them are willing to work in other sectors after becoming educated"* [Q1, Male, FGD 2]. The active interest of the younger generation in making of this craft is important to preserve this cultural heritage of the country.

Environmental and Infrastructure Constraints

The artisans expressed that the entire production process leaves residue, which if remains untreated results in chocking of drains and water logging, thus causing soil pollution. One of them said he knew about a machine used to crush the wastes into powder, which could be reused as raw material. "*There is a machine available that turns the waste generated after production into powder that can be reused in the craft production. I once went to Ranchi for work. I saw such a machine there which can actually help in preventing soil pollution. We can't purchase that as we don't have that financial capacity*" [P7, Male, FGD 1]. "*We lack proper disposal of the waste produced in the production process. Moreover, there is no proper drainage system for the rainwater to pass in the monsoon causing water logging*" [Q2, Male, FGD 2]. The furnaces produce smoke, which irritated their eyes, blurring their vision with time; if they can have access to electric furnace, it will be safe both for their health and the environment in the long run. Thus, such an infrastructural addition can help them in sustaining their livelihood.

The convergence of quantitative and qualitative findings highlights both common trends and unique insights into the livelihoods of dokra artisans of Bikna. The quantitative data expressed that artisans are facing income volatility and 96.7% are unaware about the existing government schemes. The qualitative data reiterated these vulnerabilities but with added depth, illustrating the immediate effects of seasonal production interruptions like melting of wax thread designs during summer and flooding of workshops during monsoon. Moreover, in FGDs the artisans expressed about their coping strategies like the use of modernised tools such as buffing machine, grinder, etc., and the adoption of permanent furnace for casting products, increasing the pace and quality of production with maximum utilisation of the time. The quantitative results highlighted that 20% have no formal education and majority are scared of incorporating digital technology in their work for lack of education. The qualitative data on the other hand showed emergent digital literacy initiatives and cautious involvement of the youths in the work, which the quantitative data alone could not express. Moreover, there was discussion about environmental constraints like post-craft manufacturing waste management and water logging due to blockage in drainage system, which was overlooked in the quantitative part of the study. Together, these methods illustrate a holistic depiction of structural instability alongside incidents of adaptive innovation and cultural resilience.

The findings of this study both reinforce and amplify previous researches. The findings of this study line up with the study of Haldar and Datta (2023), which cited that majority of the artisans were facing financial instability. Choudhury and Dhar (2024) said the innovative mechanisation increases productivity, which was echoed in both the FGDs, where the artisans explained how the use of modern equipment and upgraded version of the traditional furnace helped them in their work. Unlike some studies, which showed that many of the artisans were using digital technology, the respondents and participants of this study are still scared and reluctant to use it even though they are getting trained on this by some organisations such as Amar Kutir, thus pointing out that there are big differences in digital literacy between regions (Shaw, 2021). The findings highlighted the co-operative society's weak governance efficacy and uneven distribution of order, quite similar to the criticism of Menon (2013) on the same. By the application of SLF (Scoones, 1998), this study synthesises these contributions demonstrating how human, social, physical, natural, and financial capital interact with vulnerability context and institutional support to shape artisanal resilience.

Conclusion

This study has explored the livelihood realities, adaptive strategies, and sustainability challenges faced by the dokra artisans of Bikna village. The artisans utilise the traditional *Cire perdue* technique of production accompanied by

incorporation of modern tools, diversification of designs, and participation in co-operative marketing initiatives to navigate volatile market and rising production cost. However, access to limited capital, uneven digital literacy, policy gaps, and reluctance in generational skill transfer continue to threaten the long-term viability of the craft. Co-operative models and SHGs have emerged as possible solutions to beat the exploitative intermediaries, although operational gap and governance issues remain. Strengthening of training programmes, fostering youth engagement, improving supply of raw materials, and effective policy implementation can help the craft heritage to sustain. Application of the SLF with the amplification of artisans' voices helped this research in contributing to a deeper understanding of how traditional craft communities can adapt while preserving their cultural essence facilitating more resilient and inclusive development pathways for the dokra craft industry.

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