Dr. Indrajit Roy Chowdhury, Editor

Proceedings of the National Seminar on Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products Across the Districts of West Bengal

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Department of Geography & Applied Geography

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University OF North Bengal

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FRSC (London)

Professor of Chemistry and Dean of Science and Arts, Commerce and Law and Founder Vice-Chancellor of Alipurduar University

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June 03, 2025

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MESSAGE

"Live as if you were to die tomorrow. Learn as if you were to live forever"

Mahatma Gandhi

It is with great pleasure and a profound sense of pride that I extend my warmest greetings to all participants, contributors, and delegates attending this esteemed ICSSR-SPONSORED TWO DAYS NATIONAL SEMINAR UNDER SPECIAL CALL FOR VISION VIKSIT BHARAT @2047 embodied in the title "**Geographical Indication as a Tool for Regional Development : An Investigation of Different Types of Products Across the Districts of West Bengal**" Organized by the Department of Geography, University of North Bengal held on 12-13 February 2025.

On behalf of the University of North Bengal, I am honored to welcome you to what promises to be a stimulating and enriching academic event.

The University of North Bengal has always been committed to the pursuit of excellence in teaching, research, and innovation. This Seminar serves as a vital platform for scholars, researchers, and professionals from diverse disciplines to come together, exchange ideas, and engage in meaningful dialogue on the pressing issues of our time. The variety of topics presented in this volume of proceedings reflects the dynamic and interdisciplinary nature of contemporary research, and it is heartening to see such enthusiastic participation from institutions across the country and beyond.

I commend the organizers, editorial committee, and all contributors for their dedication, hard work, and academic rigor in bringing this event and its documentation to fruition. I am confident that the insights and knowledge shared through these proceedings will inspire further inquiry and collaboration, fostering a spirit of intellectual curiosity and critical engagement.

Let this Seminar mark the beginning of new partnerships and pathways for academic exploration. I wish all participants a successful and rewarding experience.

With warm regards,

Mahendra Nath Roy

Professor (Dr.) Mahendra Nath Roy, FRSC (London)

Dean of Faculty of Science and Dean (Addl.) of Arts, Commerce and Law.

UNIVERSITY OF NORTH BENGAL

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Dr. Swapan Kumar Rakshit
Joint Registrar
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Ref. No.:1734/R-2025 *Date : 29-05-2025*

From the Desk of the Joint Registrar

It is a matter of great honour and privilege to offer my congratulations to the Department of Geography & Applied Geography for organizing the ICSSR-sponsored National Seminar on *"Geographical Indication (GI) as a Tool for Regional Development,"* held on 12–13 February 2025. The seminar brought together a distinguished group of academics, researchers, and stakeholders who engaged in thoughtful and interdisciplinary discussions on the critical role of GIs in shaping the socio-economic and cultural landscape of India.

Geographical Indications are not merely intellectual property tools; they are potent expressions of the legacy, innovation, and livelihoods of rural and indigenous communities. They encapsulate stories of craftsmanship, regional identity, and economic resilience. This seminar took an important step in foregrounding these dimensions and interrogating the developmental possibilities that GIs can unlock, particularly for marginalized regions and communities.

The decision to publish a collection of selected papers from the seminar is indeed a timely and valuable undertaking. These proceedings, I am certain, will add significant scholarly value and stimulate further academic engagement on the subject. They will also serve as a reference for institutions and policymakers striving to align GI promotion with regional planning, livelihood generation, and cultural sustainability.

I commend the faculty, researchers, organizing committee, and all contributors for their dedication and commitment to academic inquiry and social relevance. I hope this publication finds a wide readership and contributes meaningfully to the academic and policy discourse on regional development through GIs.

With sincere appreciation and best wishes,

Dr. Swapan Kumar Rakshit
Joint Registrar
University of North Bengal

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HEAD OF THE DEPARTMENT OF GEOGRAPHY & APPLIED GEOGRAPHY

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RAJA RAMMOHUNPUR, P.O. NORTH BENGAL UNIVERSITY, DIST. DARJEELING, WEST BENGAL, PIN - 734013

From the Desk of the Chairperson

It is with great pride and pleasure that I present this volume of proceedings from the ICSSR-NABARD sponsored National Seminar on *""**Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products Across the Districts of West Bengal**"*, organized by the Department of Geography & Applied Geography, University of North Bengal, on 12–13 February 2025. Geographical Indications, as markers of identity, tradition, and uniqueness, have increasingly gained attention for their potential to promote regional economies, protect local craftsmanship, and contribute to sustainable development. The seminar was conceived with the objective of fostering academic discourse and policy-oriented dialogue on the various dimensions of GI—from legal and economic aspects to cultural, geographical, and socio-political implications.

We were fortunate to have among us a distinguished panel of scholars, policy makers, practitioners, and researchers who enriched the event through their insightful presentations and thought-provoking discussions. Their contributions have not only broadened our understanding of GI-related issues but also opened up new avenues for future research and collaboration.

I express my sincere gratitude to the ***Indian Council of Social Science Research (ICSSR), New Delhi and National Bank for Agriculture and Rural Development (NABARD)*** for their generous sponsorship and continued support for academic initiatives of this kind. I also extend my heartfelt appreciation to all paper presenters, participants, invited speakers, and delegates for making this seminar a truly engaging and meaningful experience.

I would like to acknowledge the tireless efforts of the organizing committee, faculty colleagues, research scholars, and students of our department whose dedication made this seminar a resounding success. I am confident that the proceedings of this seminar will serve as a valuable resource for researchers, students, and policymakers working in the field of regional development and intellectual property rights.

Let us continue to engage in critical inquiry and collective reflection to advance our understanding of how geographical indications can be harnessed as a strategic tool for inclusive and sustainable regional growth.

A. Basak

Dr. Arindam Basak
Associate Professor, Head
Department of Geography &
Applied Geography
University of North Bengal

ICSSR FUNDED MAJOR RESEARCH PROJECT
UNDER SPECIAL CALL FOR VISION VIKSHIT BHARAT @ 2047
DEPARTMENT OF GEOGRAPHY & APPLIED GEOGRAPHY
Indian Council of Social Science Research
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From the Desk of the Editor

It gives me immense pleasure to extend my heartfelt congratulations to the Department of Geography & Applied Geography, University of North Bengal, for successfully organizing this ICSSR and NABARD sponsored Two-Day National Seminar on such a timely and pertinent theme– **"Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products Across the Districts of West Bengal."**

The subject of this seminar is not only academically rich but also strategically significant for the socio-economic development of our nation, particularly in the context of rural and regional upliftment. In an era where globalization and local identity must go hand-in-hand, Geographical Indications (GIs) emerge as powerful tools that serve both economic and cultural functions. By safeguarding the uniqueness of region-specific products—be it in agriculture, handloom, handicrafts, or processed foods—GIs offer producers both protection and market leverage, while also preserving traditional knowledge and community heritage.

As India envisions its transformative journey towards Viksit Bharat@2047, the role of geographical indications (GI) in fostering socio-economic progress, sustainable livelihoods, and cultural heritage preservation becomes ever more significant. The role of indigenous products, traditional knowledge, and region-specific economic activities is becoming increasingly pivotal. In that sense, Geographical Indication (GI) certification serves as a crucial instrument in protecting traditional products, ensuring quality assurance, and enhancing market value. This seminar serves as a pivotal platform to explore the impact of GI certification on different product categories across West Bengal—ranging from traditional handicrafts and textiles to indigenous agricultural produce and unique culinary practices.

The growing recognition of GI-tagged products reflects not only their economic potential in domestic and international markets but also their crucial contribution to community empowerment, rural development, and environmental sustainability. As researchers, policymakers, and stakeholders deliberate on these dimensions, it is our hope that this seminar will foster insightful discussions, innovative solutions, and collaborative frameworks to strengthen the GI ecosystem in India.

West Bengal, with its rich tapestry of cultural and ecological diversity, is home to an impressive array of GI-tagged products such as Darjeeling Tea, Baluchari Saree, Santiniketan Leather Goods, Nakshi Kantha, and Joynagar Moa, to name a few. Each of these products tells a story—not just of craftsmanship or natural bounty, but of communities, histories, and local ecosystems. The seminar's focus on investigating the impact of these GIs across various districts is thus critical, not only for advancing academic inquiry but also for formulating grounded, policy-relevant insights that can shape future regional development strategies.

The support extended by the Indian Council of Social Science Research (ICSSR) and National Agricultural Bank for Rural Development (NABARD) for this endeavour reflects the Council's enduring commitment to fostering impactful, interdisciplinary research that bridges the gap between theory and practice. It is through such initiatives that we can empower our institutions to contribute more meaningfully to the vision of an Atmanirbhar Bharat and the goals envisioned in the Vision Viksit Bharat@2047 roadmap.

I am confident that the deliberations and papers presented at this seminar have paved the way for innovative perspectives and collaborative frameworks. May this academic congregation inspire new directions in the study of GIs and stimulate further research into how such designations can be leveraged for sustainable and inclusive regional development. The decision to publish a collection of selected manuscripts from the participants are indeed a timely and valuable undertaking. These proceedings, I am certain, will add significant scholarly values and stimulate further academic engagement on the subject like Geographical Indications and Rural Development. They will also serve as a reference for institutions and policymakers striving to align GI promotion with regional planning, livelihood generation and economic sustainability.

I commend the faculties, scholars, independent researchers, organizing committee, and all contributors for their dedication and commitment to academic inquiry and social relevance. I hope this seminar proceedings finds a wide readership and contributes meaningfully to the academic and policy discourse on regional development through GIs.

Date : 30 May, 2025

Dr. Indrajit Roy Chowdhury
Editor
ICSSR and NABARD Sponsored National Seminar Conference Proceedings on *Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products across the Districts of West Bengal*
&
Assistant Professor, Department of Geography & Applied Geography
University of North Bengal, Darjeeling, West Bengal, India

ICSSR & NABARD SPONSORED TWO DAYS NATIONAL SEMINAR UNDER SPECIAL CALL FOR VISION VIKSIT BHARAT@2047

On

Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products across the Districts of West Bengal

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ICSSR & NABARD SPONSORED TWO DAYS NATIONAL SEMINAR UNDER SPECIAL CALL FOR VISION VIKSIT BHARAT@2047

On

Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products across the Districts of West Bengal

HOSPITALITY & MANAGEMENT COMMITTEES

Committees	Name of the Research Scholars/ Students
Technical Session Assistant	Suity Ghosh, Sujay K. Malo, Subhum Dey Sarkar, Karabi Debnath, Ishani Chatterjee, Bikash Mahato, Aneswa Mondal, and Poritosh Das
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ICSSR & NABARD SPONSORED TWO DAYS NATIONAL SEMINAR UNDER SPECIAL CALL FOR VISION VIKSIT BHARAT@2047

On

Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products across the Districts of West Bengal

ABOUT THE DEPARTMENT OF GEOGRAPHY & APPLIED GEOGRAPHY, NBU

Established in 1962 concurrently with North Bengal University, the Department of Geography and Applied Geography offers postgraduate education & Ph.D. programs on both the NBU and Jalpaiguri campuses. The department, having successfully completed the UGC SAP DRS I and II program, specializes in Agriculture Geography, Applied Hydrology, Applied Pedology, Cartography, Fluvial Geomorphology, Population Geography, Tourism Geography, & Urban Geography at the postgraduate level. It's further enhanced by the attached Centre for Geo-Spatial Sciences. The department's faculty includes 2 Professors, 3 Associate Professors, and 3 Assistant Professors, all actively engaged in research that spans physical and human geography. Featuring a cutting-edge GIS laboratory with 40 terminals equipped with GIS software, it supports both students and research scholars. Currently, over 70 research scholars, including JRFs and SRFs, are pursuing their fellowships funded by organizations like UGC, ICSSR, & NBU.

ABOUT THE INDIAN COUNCIL OF SOCIAL SCIENCE RESEARCH ((ICSSR), INDIA

The Indian Council of Social Science Research (ICSSR) is a premier national organization dedicated to promoting research in social sciences in India. Established in 1969 by the Government of India, ICSSR aims to foster an environment of academic excellence by funding, supporting, and coordinating research activities across various social science disciplines. The council manages a vast network of social science research institutions, documentation centers, and libraries across the country. ICSSR encourages international academic cooperation, facilitating joint research, scholar exchanges, and collaborative studies. ICSSR supports scholars through fellowships, research grants, and projects that address critical social, economic, and political issues. ICSSR's initiatives play a crucial role in addressing social challenges by informing policy-making, fostering inclusive development, and nurturing the next generation of social scientists in India.

ICSSR & NABARD SPONSORED TWO DAYS NATIONAL SEMINAR UNDER SPECIAL CALL FOR VISION VIKSIT BHARAT@2047

On

Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products across the Districts of West Bengal

ABOUT THE NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT (NABARD)

NABARD (National Bank for Agriculture and Rural Development) is India's apex development bank, established in 1982. It promotes sustainable and equitable agriculture and rural development by providing financial and technical support, particularly through refinancing and development schemes. NABARD also plays a supervisory role for Regional Rural Banks, State Cooperative Banks, and District Central Cooperative Banks.

GEOGRAPHICAL INDICATION (GI)

A Geographical Indication (GI) is a form of intellectual property that identifies a product as originating from a specific geographical location, where its unique qualities, reputation, or distinct characteristics are inherently linked to that region. Governed under the Geographical Indications of Goods (Registration and Protection) Act, 1999 in India and internationally recognized under the TRIPS Agreement, GI protection ensures that only authorized producers from the designated area can use the product's name, preventing unauthorized use and maintaining authenticity. GI applies to various product categories, including agricultural goods (e.g., Darjeeling Tea, Gobindobhog Rice), handicrafts & textiles (e.g., Baluchari Saree, Nakshi Kantha), processed foods (e.g., Joynagar Moa, Bardhaman Sitabhog), and natural or industrial products (e.g., Bengal Dokra, Purulia Chhau Mask). The benefits of GI registration are immense—it enhances the market value of traditional products, protects against counterfeiting, promotes sustainability, and boosts tourism by preserving cultural heritage.

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Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products across the Districts of West Bengal

GEOGRAPHICAL INDICATION (GI) AS A TOOL FOR REGIONAL DEVELOPMENT

Imagine a world where a cup of Darjeeling Tea is not just tea—it is a legacy, a mark of authenticity, and a symbol of an entire region's identity. This is the power of Geographical Indication (GI)—a tool that transforms local heritage into global recognition. By granting exclusive rights to products deeply rooted in their place of origin, GI ensures that the unique craftsmanship of Baluchari Sarees, the delicate artistry of Nakshi Kantha, or the rich flavors of Joynagar Moa are not just preserved but thrive in competitive markets. Beyond protecting traditional knowledge, GI fuels regional economies by creating jobs, increasing tourism, and giving artisans and farmers a fair price for their work. It prevents imitation, ensuring that only authentic products gain market value, thus strengthening local branding. Moreover, it paves the way for sustainable development by promoting eco-friendly practices, organic farming, and cultural preservation. When strategically harnessed, GI is not just a label—it is a game-changer. It can turn overlooked rural communities into thriving economic hubs, making them globally competitive while keeping their cultural soul intact. By integrating innovation, policy support, and digital marketing, GI can be the bridge between tradition and progress, ensuring that local heritage is not just remembered but celebrated and monetized for future generations.

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On

Geographical Indication (GI) as a Tool for Regional Development: An Investigation of Different Types of Products across the Districts of West Benga

LUMINARIES IN THE SPOTLIGHT

Speakers	Abstract Title
Prof. Vishwambhar Prasad Sati	A Sustainable Livelihood Approach to Poverty Reduction in Mizoram, the Eastern Extension of the Himalaya
Prof. Sohel Firdos	Harnessing Natural Resource Capital for Sustainable Livelihoods and Prosperous Communities
Prof. Sarfaraz Alam	Production of Indigenous Geographical Knowledge Through Participatory Rural Appraisal
Prof. Nilanjana Das Chatterjee	Traditional Ecological Knowledge and Conservation of Biodiversity and Natural Resources In Junglemahal Region of West Bengal, India
Prof. A K M Anwaruzzaman	Geographical Indication and Geographical Bounty: Place Matters
Prof. Sanat Kr. Guchhait	Indeterminism and the Problems of GI for Tattoo Culture
Prof. (Dr.) Ranjan Roy	A Study on the Potentiality of Geographical Indication across the Products in The Koch Bihar District, West Bengal
Prof. (Dr.) Deepak. K. Mandal	Status of Using Geographical Indications Tag in India
Prof. Sunil Kumar De and Shreya Bandyopadhyay	Human Intervention on the Health of Haora River, Tripura
Dr. Kaustav Chakrabarti	Showcasing West Bengal's Rich Diversity Through GI
Prof. (Dr.) Mahalaya Chatterjee	GI Tags and Local Development: An Econometrics Perspective
Prof. Suman Paul	Safeguarding the Livelihoods of Chou Mask Artisans in Purulia: Assessing the Role of GI in Regional Development

"Geography is the science of the relationships between people, places, and environments"

Carl O. Sauer

Economic Impact of Geographical Indication Tags on Indian Artisans and Farmers: A Study of West Bengal and Odisha

Priyanka Ghosh[1] and Soumik Sarkar[2]

Abstract

Geographical Indication (GI) tags serve as a crucial mechanism for protecting and promoting traditional knowledge and region-specific products. In India, GIs have played a significant role in enhancing the economic prospects of artisans and farmers by providing their products with a distinct identity, facilitating premium pricing, and enabling market differentiation. This paper examines the economic impact of GI tags in India, with a particular focus on their contribution to sustainability and the socio-economic development of artisans and farmers. While the growing global demand for authentic and ethically sourced products underscores the potential benefits of GI tags, their effectiveness in delivering sustainable economic advantages depends on factors such as producer awareness, market accessibility, and the long-term viability of traditional practices. To explore this, the paper presents case studies of Darjeeling Tea from West Bengal and Pattachitra Art from Odisha, illustrating how GI protection has helped establish unique product identities, enhance market accessibility, and preserve cultural heritage. However, despite these benefits, challenges persist, including inadequate infrastructure, low awareness among producers, and weak enforcement mechanisms. Addressing these issues is essential to maximizing the potential of GI tags as a tool for economic empowerment and cultural preservation.

Keywords: Geographical Indications, Indian economy, Darjeeling Tea, Pattachitra Art, Sustainability.

1. Introduction

Geographical indication (GIs) is a type of intellectual property right that identifies a product's geographical origin and attributes its quality, reputation, or other characteristics to that location. Geographical Indication (GI) is an important intellectual property right under the World Trade

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Organization's (WTO) agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS). GIs convey information about a product's quality that is associated with natural or human factors unique to a particular region or locality. Unlike other types of intellectual property rights, GIs are regarded as a collective right (Vinayan, 2017). GI-tagged products have the potential to diversify the rural economy and promote local development (Belletti & Marescotti, 2011). Also, GI tags on products can empower a region's human resources while also protecting the local environment and culture (ibid.). This paper examines the economic impact of GI tags on Indian artisans and farmers, with a focus on the states of West Bengal and Odisha. The study explores the role of GIs in fostering economic development, safeguarding cultural heritage, and enhancing the quality of life for communities engaged in the production of GI-tagged goods. Customers in the marketplace often have little knowledge of the product's key features and struggle to assess product quality without firsthand experience. However, the manufacturers are well aware of the product's features and benefits over competing products on the market. This kind of information asymmetry can have a negative effect on the market and consumer purchasing decisions. In such situations, GIs can help to restore information symmetry by providing customers with more information about the item's reputation and quality, thereby protecting them from being unfairly held against manufacturers.

The concept of Geographical Indications originated in France with the establishment of the *Appellation d' Origine Contrôlée or Controlled Appellation of Origin* (AOC) system in the early twentieth century, which was originally designed to ensure wine authenticity. It eventually spread to other agricultural products, preserving their distinct regional characteristics while maintaining traditional methods. The Paris Convention for the Protection of Industrial Property in 1883 introduced terminologies such as "Indication of Source" and "Appellation of Origin" to protect

good originating from a specific place or locality (Vats, 2016). Inspired by this, the European Union established the Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) frameworks, which provided strong legal protections and marketing benefits. India took a similar approach with the Geographical Indications of Goods (Registration and Protection) Act, 1999. India is one of the 166 members of World Trade Organization (WTO) and it was one of the signatories of the General Agreement on Tariffs and Trade (GATT) negotiations (Uruguay round). The term Geographical Indication (GI) was coined in the Trade Related Aspects of Intellectual Rights (TRIPS 1994) which was part of the GATT, Uruguay Round (Singh and Bharti, 2023). Article 22 of TRIPS agreement provides for the protection of the GI. The section 3 of article 22 states that "indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin." (WTO, 2020, p. 328). As per this statement, a product should fulfill three conditions to be certified as GI: 1) Protected Designation of Origin (PDO), 2) Protected Geographical Indication (PGI), and 3) Traditional Specialty Guaranteed (TSG). These three key aspects help producers to differentiate their products in the international market as well as to be competitive in the market. Additionally, these three aspects ensure the product's authenticity and protect the producers from any commercial fraud (Dias and Mendes, 2018). TRIPS provides a two-tier system of protection: 1) general protection applicable to GIs for all products under Article 22, and (ii) additional, specialized protection exclusively for GIs related to wines and spirits under Article 23 (Das, 2006). At the general level, the member countries are required to protect all the GIs from deceptive or misleading use and other forms of unfair competition. Article 23 provides an additional level of protection for geographical indications related to wine and spirits. This additional level of

protection requires member countries to prohibit the use of GI regardless of whether consumers are misled or the use constitutes unfair competition (ibid). The additional protection under article 23, combined with the protection under article 22, provides absolute protection to GIs related to wine and spirits, protecting these products from all forms of misuse. Aside from wine and spirits, other GIs lack such "absolute" protection, making them vulnerable to misappropriation (ibid.). Following TRIPS, GI has emerged as an important dimension of intellectual property (IP) for developing countries as it can serve multiple objectives such as boosting rural economy, increasing the availability of high-quality products, developing tourism, creating job opportunities, and preserving traditional knowledge, heritage, and culture (Rangnekar, 2004; Das, 2010; Buch & Trivedi, 2021).

GI tags provide several benefits to artisans and farmers, including premium pricing (GI products frequently command higher market prices due to their perceived authenticity and quality), market differentiation (GI tags help products stand out in a crowded marketplace, providing a competitive advantage), and cultural preservation (GIs encourage the preservation of traditional knowledge and cultural practices associated with the production of these goods). However, geographical indications law is arguably the most complicated of the various domains of intellectual property rights (Hughes 2017, 61). To get a sense of the relative importance of GIs, in 2023 alone India received a staggering high of 90,300 patent applications. Every 6 minutes, one technology seeks intellectual property protection in India, and 250 patents are granted every working day (PIB, 2024). In comparison, only 1,408 GI applications have been filed and 658 have been registered in India, with the first being Darjeeling tea and the 658th being Nicobari Hut of the Andaman and Nicobar Islands, according to the GI register. The present paper attempts to explore the impact on the Geographical Indication (GI) tags on the economic well-being of artisans

and farmers in India, specifically in the two on the two neighboring states of West Bengal and Odisha. To illustrate the practical effects of GI tags on local economies and communities, we examine the case studies of two well-known commodities that have GI tags: Darjeeling tea from West Bengal and Pattachitra art from Odisha. This not only allows us to understand the economic impact of GI tags, but also to examine their role in promoting sustainable practices and preserving cultural heritage, as well as the impact of these intellectual property rights on local economies and communities.

2. Literature Review

Scholars have examined Geographical Indications (GIs) from various perspectives. The economic impact of GIs is a topic of considerable debate, with differing opinions on the best policies to balance producer and consumer interests (Teuber, 2011). While GIs have the potential to create value and stimulate rural development, their economic impact often depends on the specific context (Török et al., 2020; Cei et al., 2018). Studies show that GIs can create market stability, preserve local varieties, and add value to regions (Barjolle et al., 2009). However, the benefits are often unevenly distributed along the supply chain, with consumers and retailers benefiting more than producers (Cei et al., 2018).

Cardoso et. al. (2022) in their paper conducted a systematic literature review to identify the barriers and benefits of geographical indications (GIs) for producers, arguing that GI can lead to higher quality products and contribute to sustainable development and rural development, especially in developing countries, as producers have incentives to improve production. In India, the implementation of the Geographical Indications of Goods (Registration and Protection) Act, 1999, has been instrumental in registering and protecting GIs, particularly for agro-based products. The Act aims to safeguard producers against counterfeiting and balance trademark and GI

protection (Bagade and Metha, 2014). However, scholars have also highlighted the challenges persist, including lack of awareness among stakeholders and absence of quality control mechanisms (Das, 2007; Vinayan, 2017; Kumar, 2020).

Vinayan (2017) presents a compelling case of commodification and commercialization of belief through GIs, as exemplified by the registration and subsequent dispute over the proprietorship of the Payyannur Pavithra Ring and the registration of Tirupati Laddu. These cases sparked debates about whether places of worship can register their sacred offerings (naivedyam or prasadam) as GIs (Vinayan, 2017, p. 9). Verma and Mishra (2018) examined the marketing opportunities of a GI tag in handloom products, such as Banarasi Saree and observed a lack of proper procurement of raw materials and market linkages for the artisans as well as lack of proper working conditions for the workers (Verma and Mishra, 2018). Radhika, Thomas, and Raju (2021) studied Kerala's rice GIs—Navara Rice, Palakkadan Matta Rice, Pokkali Rice, Wayanad Jeerakasala Rice, Wayanad Gandhakasala Rice, and Kaipad Rice. They have observed that, despite marketing these products as GIs and raising the average price of these rices in the market, the benefits are not reaching the producers, making it difficult to sustain the farming of these specialty rice.

3. Understanding Geographical Indication (GI) Tags: The Application Process in India

The GI tag is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin. The legal framework for GI tags in India is primarily governed by the Geographical Indications of Goods (Registration and Protection) Act, 1999. This legislation aims to recognize and protect products that have a geographical significance, ensuring that only genuine products using the name can be marketed. It also provides mechanisms for conflict resolution and infringement protection. Under this Act, the Central Government of India

has established the Geographical Indications Registry in Chennai (Ravindran and Mathew, 2009). The GI Act 1999 provides a *sui generis* system of protection which is distinct from the prescribed protection under TRIPS. The TRIPS agreement provides special protection to wine and spirits, while the GI Act in India does not provide such specific protections (Buch & Trivedi, 2021). T The Act in India is comprehensive, encompassing names, symbols, and words that may not directly indicate geographical names For example, "Basmati" is not a geographical name but signifies a particular variety of fragrant rice produced in India and Pakistan, renowned for its quality (Das, 2006). The primary objective of the Indian Government is to increase the production of GI products so that it can boost trade by establishing new markets for these goods. In addition, the Government of India aims to implement a legal framework to safeguard both producers and consumers from counterfeit, false, or reproduction goods, ensuring fair competition and fostering rural development (Datta, 2010).

Application Process for GI Tags:

The procedure to apply for a GI tag involves several key steps[3]:

1. **Filing an application:** An application for registration must be made to the Registrar of Geographical Indications, along with the prescribed fee to the Geographical Indications Registry in Chennai. The product must be associated with a specific geographical region and possess qualities, reputation, or characteristics inherent to that region. The application can be made by any association of persons, producers, organization, or authority established by or under the law. It should include details such as the geographical area of

[3] For further details, see The Registration Process of GI, Office of the Controller General of Patents, Designs and Trade Marks, Department for Promotion and Industry and Internal Trade, Govt. of India.: https://ipindia.gov.in/the-registration-process-gi.htm

production, the special characteristics or reputation of the product, and the method of production.

2. **Preliminary Scrutiny and Examination:** After filing, the application is examined for compliance with the GI Act. The application is examined by the Registrar for any discrepancies. If any are found, the applicant is given two months to rectify the issues. If accepted, it is published in the Geographical Indications Journal.

3. **Opposition and Hearing:** If the Registrar has objections to the application, a show cause notice is issued to the applicant, who must respond within two months. Also, any person can oppose the registration within three months (which can be extended to another month) from the date of publication. If there is opposition, a hearing is conducted.

4. **Registration:** If there is no opposition or if the opposition is decided in favor of the applicant, the GI tag is registered, and a certificate of registration is issued. A registered GI shall be valid for 10 years and can be renewed on payment of renewal fee.

In this process, however, artisans and farmers encounter several challenges when applying for a GI tag. A primary issue is the lack of awareness about the GI system and its benefits, leading to underutilization of this intellectual property right (Vinayan, 2017). Many artisans and farmers are unaware of how a GI tag can help in protecting their products and enhancing their market value. The application process itself is another major challenge. It is intricate and demands comprehensive documentation and legal expertise, which can be overwhelming for small-scale producers who often lack the necessary experience and resources. The extensive paperwork and procedural requirements can be daunting and time-consuming, discouraging many from even starting the process. Financial constraints further complicate the situation. The costs associated

with the GI application—including fees for documentation, legal assistance, and subsequent follow-ups—can be prohibitive for many artisans and farmers. These communities often operate with limited financial resources and cannot afford the expenses involved in the application process. Access to resources and support is also limited. Many artisans and farmers do not have easy access to the information and guidance needed to navigate the GI application process. There is a lack of institutional support, advisory services, and awareness programs that could help them understand and leverage the GI system. Even after successfully obtaining a GI tag, the challenges do not end. Promoting the GI-tagged product and protecting it from misuse or imitation require sustained efforts and resources. However, many artisans and farmers struggle with inadequate marketing capabilities and lack the means to enforce their rights effectively. This limits their ability to capitalize on the GI tag and fully benefit from the potential market advantages.

To illustrate these challenges and the impact of GI tags in practice, we examine case studies of Darjeeling Tea and Pattachitra Art—two renowned Indian products that have secured GI registration. These examples can shed light on the complexities of GI implementation and its effects on local producers and communities.

4. Case Study: Darjeeling Tea (West Bengal)

India is the second largest tea producer after China[4]. It is also the largest consumer of tea worldwide. The key tea producing regions include Darjeeling, Assam, and Nilgiri. Among all the teas produced in India, Darjeeling tea has distinct characteristic in terms of quality and flavor (Ravindran and Mathew, 2009). It is produced in the hilly areas of Darjeeling District, West Bengal, located at an altitude of 2,130 meter above the sea level and also known as "Queen of the

[4] "Top 10 tea-producing countries in the world": https://timesofindia.indiatimes.com/world/top-10-tea-producing-countries-in-the-world/articleshow/111838663.cms, accessed on Jan 31, 2025.

Hills" (Datta, 2010). In 2004, Darjeeling Tea became the first product in India to receive a Geographical Indication (GI) tag.

The history of Darjeeling Tea dates back to the 1840s during British colonial rule. Prior to the British arrival, the forests of the Darjeeling area were inhabited by the Lepcha tribes (Ravindran and Mathew, 2009). In 1828, Captain George Lloyd, a British officer, visited the region nestled against the backdrop of the Himalayas and recognized its potential to be developed into a hill station or sanatorium. In 1839, Darjeeling was placed under the supervision of Dr. Archibald Campbell, a civil surgeon transferred from Kathmandu, who became the first Superintendent of the Darjeeling District—a position he held for 22 years (ibid.). In 1841, Dr. Campbell introduced seeds of the Chinese variety of tea from the Kumaon region of India and planted them near his residence at an elevation of 2,134 meters above sea level. The success of Dr. Campbell's experimental tea nursery prompted the British government to establish additional tea nurseries in the region by 1847. Following India's independence in 1947, many tea gardens remained under British ownership; however, by the late 1970s, most had transitioned to Indian ownership(ibid.).

As per the government record, presently there are around 87 tea gardens in and around Darjeeling town that produce premium-quality Darjeeling Tea at altitudes ranging from 600 to 2,000 meters above sea level[5]. These 87 tea plantations cover an area of 17,500 hectares and produce approximately 6.5 million kgs every year (Goswami, 2022). The major portion of this annual production is exported to the United States, Japan, Russia, United Kingdom, and several nations of European Union such as France, Germany, and Netherlands (Ravindran and Mathew, 2009). All the 87 tea estates are owned by the state government of West Bengal which grants lands

[5] Read more about Darjeeling tea, Tea Board of India, Government of India https://www.teaboard.gov.in/TEABOARDCSM/NQ==

to the growers at a fixed rent for a minimum of 30 years and up to a maximum of 99 years (Datta, 2010).

Figure 1: The women workers are plucking tea leaves in a tea estate in Darjeeling.
Source: Tea Board of India, Government of India

Darjeeling tea has garnered worldwide reputation for its unique flavor. According to the tea scientists, the unique flavor of Darjeeling tea is a complex interplay of natural, agro-climatic, and other technical factors which include plant genetics, temperature, soil composition, elevation, rainfall, and other characteristics specific to the hilly terrain of Darjeeling (Das, 2006). According to a report by the World Intellectual Property Organization (WIPO), a United Nations agency that manages global patents, the Darjeeling region has ideal soil conditions rich in carbon and organic matter from forest cover (WIPO, 2011). According to Tea Research Association of Toklai, Assam, Darjeeling tea is stronger and more volatile than other teas. (ibid.). In the tea gardens of the Darjeeling district, the first flush is harvested in March and April and the second flush is produced in May and June the premium products which are highly sought after by the tea connoisseurs globally (Tea & Coffee Trade Journal, 2020). Therefore, these two prime quality seasons fetch

the most desirable prices ensuring the economic sustainability of the tea estates (ibid.). According to tea scientists, the distinct flavor of Darjeeling tea is the result of a unique and complex combination of factors found only in the Darjeeling region. As these conditions cannot be replicated elsewhere, the flavor of Darjeeling cannot be replicated too. This geographical influence of the Darjeeling hills on the tea's flavor is what qualifies it for protection as a Geographical Indication (GI) (Das, 2006). Besides geographical influence, the protection of Darjeeling tea as a GI is also defined in term of traditional knowledge of female tea plantation workers who comprise of 70% of the total workforce. The report of the WIPO (2011) mentions that picking tea leaves in the Darjeeling hills are different than picking teas in other parts of India. Here, women workers possess traditional knowledge of tea plucking handed down to them from generation to generation (WIPO, 2011). Darjeeling tea also helps in conserving the soil as the China variety of cultivated in the hills is an excellent soil conserver due to its deep-rooted system (Datta, 2010). Additionally, the reduction in chemical fertilizers and pesticides in the tea gardens helps preserve the biodiversity of the hilly region of the Darjeeling district (ibid.).

Due to the lack of adequate legal protection, the rightful owners of Darjeeling tea have suffered for years from unethical practices by numerous commercial entities. These commercial entities have appropriated the goodwill and reputation of this high-quality Indian tea for their own benefit without authorization. For example, tea produced in Kenya, Sri Lanka, and Nepal have often been misrepresented as “Darjeeling tea” in the global market. Therefore, adequate GI protection both in case of domestic and global market is required to prevent the misappropriation of Darjeeling tea’s reputation causing damage to the Darjeeling Tea consumers and producers (Das, 2006). Since 1998, the Tea Board has hired the services of Compumark, an international watchdog agency, to detect any attempts to register the word "Darjeeling" in any part of the world

in order to prevent the word from being misused (ibid.). Following the appointment, numerous registration attempts were detected. Some of these attempts have been met with opposition and cancellations, while others have been resolved through negotiations (Ibid.).

The Tea Board of India made the first attempt to protect the "Darjeeling" brand in 1983 by creating the "Darjeeling" logo. The tea board secured "home protection" for the Darjeeling logo by registering it as a certification trademark under the Indian Trade and Merchandise Marks Act of 1958, which was later replaced by the Trade Marks Act of 1999 (Das, 2006; Ravindran and Mathew, 2009). In 1986, the registration was granted in class 30 in the name of the Tea Board of India. The logo was registered in several other countries such as USA, UK, Canada, Japan, Egypt and some European nations such as Germany, Austria, Spain, France, Portugal, Italy, and Switzerland. Furthermore, Tea Board of India took the initiatives to register the word “Darjeeling” in several foreign jurisdictions. The UK Trade Registry granted registration of the Darjeeling "word" under the Trade Marks Act 1994 of Great Britain and Northern Ireland on March 30, 1998. Similarly, in October 2002, the United States approved the Tea Board of India's application to register “Darjeeling” as a certification trademark. In 2000, a significant step was taken when the Tea Board of India implemented a mandatory certification system to verify the authenticity of Darjeeling tea exports, as outlined under the Tea Act of 1953 (Das, 2006). The system requires that all dealers of Darjeeling tea must sign a licensing agreement with the Tea Board of India and pay an annual license fee. As part of this process, numerous companies involved in production, domestic trade, or export of Darjeeling tea have registered the Tea Board of India (ibid.). The agreement requires licensees to provide details regarding the production, manufacturing, and sale of Darjeeling tea, whether through auctions or other means. This enables the Tea Board to calculate and record the total volume of Darjeeling tea produced and sold within a specific timeframe (ibid.).

When the GI Act in India was enacted in 2003, the Tea Board of India applied for the GI protection of "Darjeeling" tea. In October 2004, Darjeeling received the GI status in India to become the first product to be registered as a Geographical Indication in the country (Ravindran and Mathew, 2009).

Since 2004, the GI status of Darjeeling tea had led to a boost in district's tourism development. Both domestic and international tourists want to visit tea plantations in Darjeeling and consume Darjeeling tea. Since 1835 when Darjeeling was established as a hill station, the place has created a dualistic identity of both "industry" and "refuge" (Besky, 2013; 90). This dual entity is reflected in the use of Nepali word for plantations or *Kama¯n* and English word "garden" used both by Nepali plantation workers and Tea Board of India to describe plantations (Ibid.). The Nepali word *Kama¯n* evokes an oppressive colonial past in which workers were engaged in repetitive tasks of plucking, pruning, and maintenance of a commercial crop. The word also indicates material elements of *Kama¯n* and an industrial mode of production involving factories, antique machinery, division of labor, and rugged topography, temperature and rainfall which make tea plucking a tenuous job (ibid.). Visting tourists are not only interested in consuming Darjeeling tea but also are interested in experiencing the material aspects of *Kama¯n* which today are repackaged as "heritage." These material aspects of plantations embedded in the colonial past are necessary for the high market value of the Darjeeling tea and tourism development in the region (ibid.).

Despite being India's first registered GI product, Darjeeling tea faces several challenges, including production issues and increased competition from low-cost Nepalese tea, which is frequently marketed as "Darjeeling Tea" in Indian market (Goswami, 2022). The production cost of Darjeeling tea is higher than any other tea grown in India due to the location of the estates in

high altitude areas, high labor cost due to precise and selective leaf peaking technique, poor road conditions, high transportation and fuel cost, and unpredictable climatic condition (Datta, 2010). Changes in weather patterns, erratic rainfall, and landslides in hilly areas can all have an impact on Darjeeling tea production. On top of these issues, climate change is becoming a serious issue that is affecting tea production and may alter the characteristics of this GI product in the future (ibid.). Dry winter conditions are negatively affecting the high-value first flush in March, while unseasonal rains from April to May are resulting in losses during the critical second flush, which usually takes place between May and June (Goswami, 2022). There is always a significant gap between demand and supply of Darjeeling tea in the international market, which leads to misuse and misrepresentation (Datta, 2010). However, Darjeeling tea is one of India's GI products that has received significant legal protection against misuse, with the Tea Board of India typically spending Rs. 9.4 million to safeguard the legal rights of Darjeeling tea (Rangnekar, 2004). To close the huge gap between demand and supply, it is essential to increase the production of this high-quality tea for both domestic and international markets. The Indian government must also implement robust measures to combat the smuggling of Nepal tea and urge the Nepal government to address this issue (Goswami, 2022). A continuous promotional campaign in India and key overseas markets, such as China, is essential for generating demand and preserving the pride and heritage of Darjeeling tea.

5. Case Study: Pattachitra Art (Odisha)

The eastern Indian state of Odisha, known for its rich cultural heritage and artistic prowess, is the proud custodian of the *Pattachitra* tradition. Pattachitra, is a form of traditional cloth-based scroll painting, that dates back to the 5th century BC (Mohanty, 1984). It is characterized by elaborate cloth paintings that illustrate mythological stories, folktales, episodes from the Ramayana and

Mahabharata, and the venerated deities of the Hindu pantheon. The artists, mainly from the *Chitrakara* community, meticulously craft these visual masterpieces using natural pigments, intricate brushwork, and a sharp attention to detail.

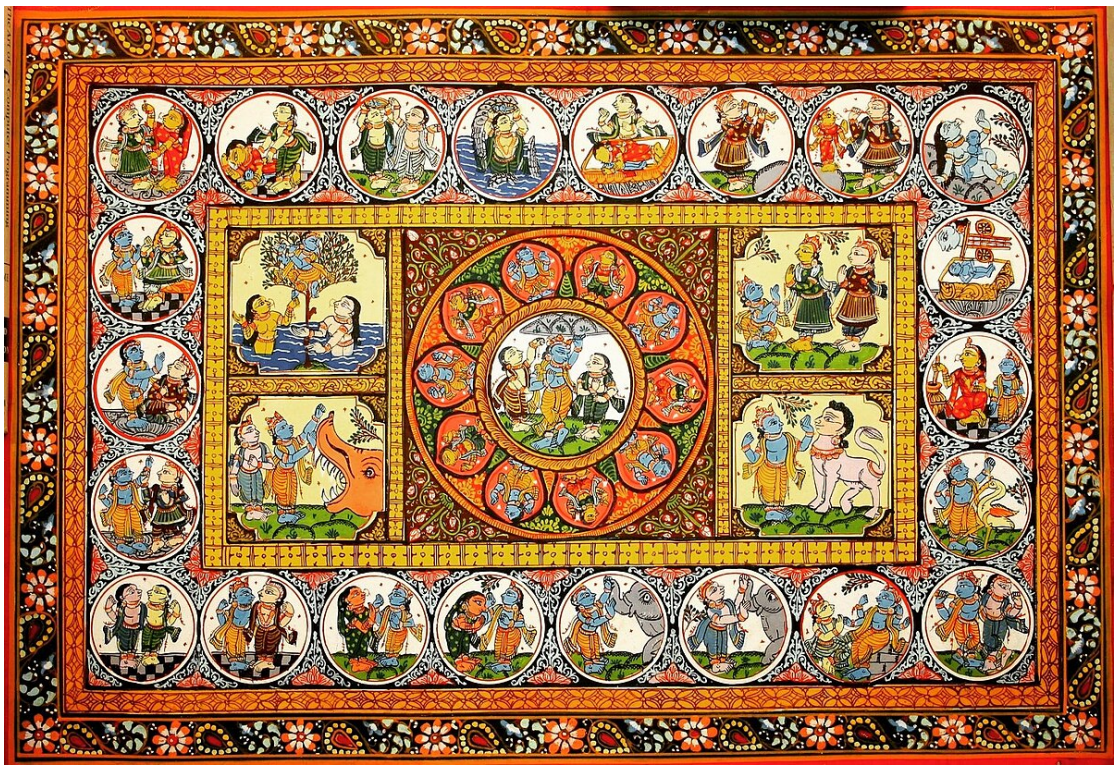

Figure 2: Krishna Lila in Patachitra of Odisha,
Source: Wikimedia Commons

Raghurajpur, a village near Puri, known as a heritage crafts village, is particularly well-known for its diverse artistic traditions, including Pattachitra art and Tala Patra Chitra (Palm Leaf engravings) (Mohapatra, 2005). Broadly, five districts in Odisha—Bhadrak, Khordha, Jagatsinghpur, Kendrapara, and Puri—had the highest concentration of artisans and production of these art forms (Kanungo et. al., 2020). The term "Pattachitra" comes from the Sanskrit words "Patta," which means painted cloth or plate, and "Chitra," which means painting or picture. These artworks often depict scenes from the life of Krishna, the various avatars of Vishnu, and epic narratives from the Ramayana and Mahabharata (GoI, 2013, p. 8). The raw materials for making Orissa Pattachitra

can be divided into two categories: those used for the Patta (the canvas) and those used for the colors. Pattachitra paintings, known for their vibrant colours, were traditionally created in Puri as souvenirs for pilgrims visiting the Jagannath temple. Pattachitra's production is meticulous, with several detailed steps carried out by the artist's family. Every step is critical to the final product, and any errors can result in poor painting. These craftsmen follow their tradition religiously. It begins with preparing the canvas, or Patta, by layering old cloth with tamarind glue and smoothing it with stones. To make tamarind glue, tamarind seeds are soaked and ground before being coated with chalk. The coated cloth is dried, polished, and cut to the specified size. For larger canvases, multiple layers of cloth are used, and the glue mixture is adjusted according to the weather. Once prepared, the Patta is adhered to a plywood board with adhesive and dried before painting. The Pattas are painted in a range of earth, stone, and mineral colors. Pattachitra paintings typically have a floral border and use natural colors. This creates a distinct look and feel that is unique to Pattachitra (Rawat, 2017). Pattachitra artisans also travel to various locations to engage with audiences on a national and international scale, showcasing their artwork and conveying social and traditional messages.

The cultural significance of Pattachitra art in Odisha is profoundly intertwined with its economic implications, particularly following the granting of a Geographical Indication (GI) tag in 2008. This recognition serves not only to enhance the value of Pattachitra when exported but also emphasizes its unique connection to the region, thus safeguarding the authenticity of this traditional craft form[6]. The GI tag provides essential legal protections that restrict the sale of Pattachitra art solely to products originating from Odisha, ensuring that the traditional methods

[6] "Wholesale Pattachitra Paintings - Customization, Sustainability, And Profitability", read more at https://ruralhandmade.com/blog/wholesale-pattachitra-paintings-customization

and techniques used in its production are preserved. Registration prevents the unauthorized use of the Pattachitra and provides legal protection to the artisans of Odisha Pattachitra. Moreover, the implications of the GI tag for Pattachitra extend to significant economic benefits for local artisan communities, as it not only safeguards traditional knowledge but also bolsters market recognition and value, leading to increased income for artisans.

The village of Raghurajpur[7],known for its Gotipua dance troupes and Pattachitra painters, was chosen by INTACH (Indian National Trust for Art and Cultural Heritage) as the first village of cultural significance in Odisha, with support from the Government of India and the Government of Orissa.[8]The project aimed to provide tourists with homestay facilities, a restaurant, a Craft Centre, an Interpretation Centre, an amphitheater for Gotipua and Odissi dance performances, paving and steps along the village pond, a Gurukul, landscaping, and internal water-supply/sewer. The INTACH also launched an integrated project under the Babasaheb Ambedkar Hastashilpa Vikas Yojona of Government of India to help artisans form Self Help Groups (SHGs) and develop self-reliance, market awareness, and more integrated approach to development (Chandra & Mukherjee 2011, 144). After being designated as a "Heritage Village," Raghurajpur was included in the Rural Tourism Scheme, and the government and various non-governmental organizations took steps to improve the quality of life for the village's residents. Since then, the village has become a popular rural tourist destination, attracting visitors from India and abroad, particularly those visiting Puri. Various organizations have also trained villagers to lead visitors on heritage

[7] "Raghurajpur: The Odisha village of patachitra painters": https://www.telegraphindia.com/my-kolkata/places/visit-to-raghurajpur-a-patachitra-artisans-village-and-the-first-heritage-crafts-village-of-the-odisha-near-puri/cid/1861166

[8] Special Projects, INTACH: http://heritageici.intach.org/?page_id=539

walks (Chandra & Mukherjee, 2011; Mukherjee & Ghosh, 2019). The increased number of visitors to the village provided an opportunity for the Chitrakaras to showcase their painting skills.

The case of Pattachitra art exemplifies the interplay between cultural heritage and economic development, demonstrating how initiatives such as the GI tag can revitalize traditional crafts and sustain artisan livelihoods in Odisha. However, unlike Darjeeling Tea, Pattachitra art has not received substantial government-led promotion or protection. The artisans face significant challenges, including competition from mass-produced, machine-made alternatives that are cheaper but of inferior quality. This has forced many artisans to abandon their craft in search of more stable livelihoods. On the one hand, excessive commercialization and attempting to modernize an age-old traditional art form can deplete its originality; on the other hand, a lack of innovation may hinder its ability to capture global markets. Financial constraints further exacerbate these challenges, with limited capital and savings making it difficult for artisans to sustain their craft. Furthermore, there is no systematic database of traditional artisans and their crafts, making any target-based program for them even more challenging. A 2015 study of artisans in Raghurajpur, Puri, Pipili, Cuttack, Berhampur, and Sambalpur, Odisha, discovered that more than 65 percent of the artisan households in the selected locations earned less than Rs 5,000 per month (Dash 2015, 63). Another study conducted in 2019 found that among the artisans of Raghurajpur village, around 39% only save through their profession, while among them only 13% save less than Rs. 2000, and only 7% of respondents save Rs. 8000 or more (Kanungo et. al. 2020 119). Frequently, the unequal allocation of funds and priorities on a few significant crafts in Odisha limits the opportunities for pattachitra artisans, and the artisans fall victim to chit funds (Kanungo et. al. 2020, Kanungo et. al. 2021).

Thus, despite the numerous advantages of GI tags, the artisans of Odisha's Pattachitra face a number of challenges. One of the most pressing issues is a lack of adequate financial support and market access. Pattachitra artists frequently struggle to raise sufficient funds to invest in the materials, tools, and infrastructure required to expand their operations. While GI tags can provide economic opportunities for artisans, raising awareness of their benefits and educating them on how to obtain and manage GI certification is critical. Moreover, improving market access and infrastructure, such as better storage facilities, transportation, and marketing channels, can assist producers in reaching a larger audience. The effectiveness of GI tags can be improved with government assistance in the form of supportive policies that provide financial assistance, training, and capacity-building programs to artisans of Odisha.

6. Conclusion

Geographical Indication (GI) tags play a pivotal role in preserving traditional knowledge, promoting regional products, and fostering economic growth among Indian artisans and farmers. This paper, through the case studies of Darjeeling Tea and Pattachitra art, highlights how GI tags contribute to economic sustainability, market differentiation, and cultural preservation. By enhancing the market value of these products, GI status enables producers to access premium pricing and gain global recognition. However, several challenges persist, including limited awareness among producers, bureaucratic hurdles in obtaining certification, financial constraints, and the need for stronger enforcement mechanisms to prevent market misrepresentation.

Darjeeling Tea, the first Indian product to receive a GI tag, exemplifies how such recognition can elevate a commodity’s status in both domestic and international markets. The unique agro-climatic conditions of the Darjeeling region, combined with generational expertise in tea cultivation, contribute to the distinct flavor profile that sets it apart. The GI tag has facilitated premium pricing

and strengthened international branding, securing a niche market for this heritage product. However, challenges such as climate change, competition from lower-cost Nepalese teas, and widespread misrepresentation of non-authentic teas continue to threaten its sustainability. To address these concerns, it is imperative to implement stricter enforcement measures, enhance government support for small-scale tea growers, and develop innovative marketing strategies to reinforce Darjeeling Tea's authenticity on a global scale.

Similarly, the GI recognition of Pattachitra art from Odisha has played a vital role in preserving this centuries-old tradition of scroll painting while simultaneously creating economic opportunities for artisans. The GI status has expanded market access and attracted both domestic and international buyers. Raghurajpur village, a significant hub for Pattachitra artists, has benefited from cultural tourism and government-led initiatives. However, the sector faces considerable challenges, including the proliferation of machine-made replicas, lack of financial support, and unequal market access. Many artisans struggle with financial instability, which hinders the long-term sustainability of their craft. Addressing these issues requires a more structured approach, including financial assistance, improved market infrastructure, and investment in skill development programs to ensure the continued growth of this traditional art form.

The case studies underscore that while GI tags have the potential to strengthen regional economies and safeguard indigenous craftsmanship, their effectiveness depends on a well-executed implementation framework. Key interventions such as awareness campaigns, financial and technical support, and stringent regulatory mechanisms are essential to protect authentic GI-tagged products from counterfeiting and market dilution. Ultimately, ensuring the long-term success of GI tags requires a collaborative approach involving government bodies, local communities, and international trade organizations to maximize their economic and cultural impact.

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DOKRA, THE PRIDE OF BENGAL

Folk Culture in Neoliberal Society_

The changing dynamics.

How the authentic form of folk culture is getting modified in Neoliberal and Modern India and the status of artists and their artifacts.

A Case Study on Dokra Artisans of Dariyapur, Purba Bardhaman

Abstract

According to Hofstede (1997), "Culture is the cumulative deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects and possessions acquired by a group of people in the course of generations through individual and group striving." When we use the term 'culture,' it indicates a horizon as wide as a nation, state, or a particular society as a whole. But when 'folk culture' is taken into consideration, it refers to the identity of a 'folk group' - which can refer to any group of people who share at least one common factor be it a language, caste, or occupation. So, within the ambit of the broader notion of culture, there are a number of folk groups having their unique cultural characteristics. Therefore, the localized lifestyle of a culture is folk culture and is quite often imbued with a sense of place and is different from tribal culture in the sense that the latter represents the culture of the aboriginal populations of a country. Culture represents the different lifestyle, different livelihood and traditionality or history of evaluation of a society. The folk tales tell us about various unknown stories; thus, this folk culture is preserved or should be preserved for the evolutionary evidences of historical and anthropological sphere of societal spectrum. In a broader view, the authentic form of regional culture exhibits different form of social geographical aspects and the local geography of human being and society also create unique forms of culture. In fact, physical geographical issues like climatic phenomenon, geo-heritage sites, geomorphological features also create different forms of culture and traditionality.

A common perception about folk culture is that it is timeless, unchanged by time or circumstances. In the case of India, folk culture is often seen as "authentically Indian", and considered likely to be preserving the "genius of the Indian tradition and cultural heritage in its very pristine form." This argument about the unchanging nature of folk culture has been challenged by scholars. G.M. Foster, for instance, argues that "Folk cultures continually incorporate significant parts of the sophisticated, intellectual components of their own tradition, or of traditions that have been assimilated in the past, or which are part of a super (as contrasted to a national) culture area. Such a concept emphasizes the dynamic rather than the static qualities of culture." Nowadays the neoliberalism generates a social bobble in which the authenticity of folk traditions and handicrafts gets altered with several modernization and technological advancement. The capitalistic nature of the society generates more disparity by giving the opportunity to be exposed. The present study aims to understand the various prospects and problems related to preserve the distinct folk culture and artefacts in neoliberal era. This is based on the appraisal of traditional cultural practices. For this study, the Dokra art form and the lifestyle of the artisans, engaged in this cultural practice are considered as a case to understand embedded facts and realities.

Keywords

Culture, Heritage, Folklore, Neoliberalism, Commodification, Cultural Appropriation, Resilience, Adaptation, Revitalization, Reinterpretation, Marginalization, Digital Platforms and Preservation

Introduction _The literature Review

Social geography of folk culture is a multifaceted field that explores the intricate interplay between place, identity, cultural landscapes, territoriality, mobility, and social inequalities. It offers a powerful lens for understanding the dynamic relationship between humans and their environments, highlighting the social and cultural significance of traditional practices and the role of geography in shaping cultural identities and experiences. This literature review explores the diverse perspectives and key themes within the academic discourse on folk culture, examining its evolution, significance, and challenges in the face of globalization and modernization in Neoliberal era.

Defining Folk Culture:

Early Anthropologists and scholars like Franz Boas (1911) and Bronislaw Malinowski (1922) defined folk culture as distinct from "high culture" (elite, written traditions), emphasizing its oral nature and focus on practical knowledge. Alan Dundes (1965) proposed a broader definition encompassing the shared values, beliefs, and behaviours of a particular group, highlighting its dynamic nature and evolution within specific social contexts. Contemporary scholars continue to grapple with defining folk culture, acknowledging its fluidity and adaptability, often influenced by external forces, and evolving social structures.

The Significance of Folk Culture:

- Cultural Identity and Belonging: Folk culture plays a crucial role in fostering a sense of identity and belonging, connecting individuals to their community and heritage (Hobsbawm & Ranger, 1983).
- Social Cohesion and Collective Memory: Oral traditions, festivals, and rituals within folk culture strengthen social bonds, promote shared values, and preserve collective memory (Levi-Strauss, 1963).
- Economic and Practical Value: Folk culture is often associated with traditional crafts, agricultural practices, and medicinal knowledge, offering economic opportunities and practical skills for communities (Mauss, 1925).

Place and Identity:

• Space as a Construct of Identity: Geographers like Edward Relph (1976) and Yi-Fu Tuan (1977) argue that place is not simply a physical location but a complex construct infused with meaning, values, and cultural identities. Folk culture is intricately tied to specific places, embodying the collective memories, experiences, and narratives of a community.

• Place and Folk Culture: Scholars like Anne Buttimer (1980) and J.B. Jackson (1984) highlight the interconnectedness of place and folk culture, where specific landscapes, geographies, and natural resources shape traditional practices, beliefs, and artistic expressions. For example, the unique terrain and climate of a region might influence local agricultural techniques, folklore, and architectural styles.

• Identity and Landscape: David Harvey (1990) and Neil Smith (2001) explore the intersection of power relations and landscape, emphasizing how dominant narratives and social structures shape perceptions of place. Folk culture can be a powerful tool for resisting these dominant narratives, reaffirming local identities, and preserving alternative perspectives on landscape.

Cultural Landscapes and Territoriality:

• Cultural Landscapes: Carl Sauer (1925) conceptualized "cultural landscapes" as the visible manifestation of human activities and interactions with the environment, revealing a community's history, values, and beliefs. Folk culture plays a significant role in shaping and maintaining these landscapes, through traditional practices like land management, architecture, and agricultural techniques.

• Territoriality and Folk Culture: Robert Sack (1986) argues that territoriality is not solely a political construct, but also a social phenomenon rooted in the cultural values and spatial practices of a community. Folk culture often defines territorial boundaries and establishes spatial relationships through rituals, storytelling, and traditional knowledge systems that shape how people interact with their environment.

Mobility and Cultural Diffusion:

• Migration and Cultural Exchange: Denis Cosgrove (1994) and Nigel Thrift (2004) highlight how migration and mobility play a crucial role in the diffusion and transformation of folk culture. The movement of people and ideas across geographic spaces leads to the blending, adaptation, and reinvention of traditional practices, resulting in new cultural expressions.

• Globalization and Folk Culture: Arjun Appadurai (1990) argues that globalization fosters a "global cultural flow" where folk traditions are constantly interacting and reshaping each other, leading to both homogenization and hybridization. Social geographers explore the spatial dimensions of this cultural exchange, examining how local traditions are transformed in the face of global influences.

Folk Culture and Social Inequality:

• Social Inequalities in Place: Ruth Fincher (1989) and David Ley (1996) explore the spatial dimensions of social inequality, highlighting how marginalized communities are often confined to specific locations and experience unequal access to resources, opportunities, and power. Folk culture can reflect and resist these inequalities, providing a platform for expressing social grievances, asserting identity, and advocating for social justice.

•Environmental Justice and Folk Culture: Environmental justice scholars emphasize the intersection of environmental issues with social inequality. Folk culture can provide insights into traditional knowledge systems and practices that contribute to environmental sustainability and resilience. The study of folk culture in marginalized communities can highlight the importance of preserving and respecting these practices for the sake of both social and ecological justice.

Challenges to Folk Culture:

Globalization and Modernization: The homogenizing effects of globalization and the rise of mass media threaten the transmission and relevance of folk culture, leading to cultural erosion and the adoption of dominant, globalized norms (Appadurai, 1990).

Commodification and Exploitation: The commodification of folk art, music, and traditions for commercial purposes often leads to the exploitation of artists and communities, undermining their cultural integrity (Kabir, 2005).

Urbanization and Migration: The rapid growth of urban centers and mass migration can lead to the decline of rural communities and the subsequent loss of traditional knowledge and practices (Gupta, 2010).

Folk Culture in the 21st Century:

Resilience and Adaptation: Despite the challenges, folk culture demonstrates remarkable resilience, adapting to changing social contexts and integrating new elements into existing traditions (Das, 2007).

Activism and Revival: Communities and organizations actively engage in preserving and revitalizing folk culture through festivals, educational programs, and the documentation of oral traditions (Battalia, 2000).

Folk Culture in Contemporary Media: Contemporary artists and musicians increasingly incorporate folk elements into their work, showcasing the ongoing relevance and influence of traditional forms (Gilmartin, 2001).

Folk Culture in Neoliberal Indian Society:

Folk culture in India navigates a complex terrain under neoliberalism. While facing challenges of commodification, appropriation, and marginalization, it demonstrates resilience through adaptation, revitalization, and creative reinterpretation. Digital platforms offer new opportunities for cultural preservation and dissemination, but ethical considerations and community ownership are crucial for ensuring its sustainable future.

The commodification and cultural appropriation of folk culture, driven by neoliberal policies, turn traditional art into marketable products, often leading to a loss of authenticity and community ownership (Kabir 2005; Chatterjee 2004). While folk tourism offers economic opportunities, it also risks exploitation by external entities (Jain 2013). Despite these pressures, communities exhibit resilience by adapting and blending old practices with new forms, ensuring cultural continuity (Das 2007; Kakar 2000; Gilmartin 2001). Revitalization efforts, led by artists and social movements, reinterpret, and re-energize folk culture, making it relevant to contemporary issues (Butalia 2000; Singh 2015; Ramanujan 1991).

However, marginalized communities face cultural displacement due to economic and political pressures (Roy 2001; Ramaswamy 2005; Srinivas 1962). Digital platforms provide a means for preserving and sharing folk traditions but also risk further commodification, requiring community-led efforts to ensure ethical preservation.

The Dilemma of Authenticity in a Globalized World:

Contemporary scholarship grapples with the concept of authenticity in a globalized world. Some argue that the very idea of "authenticity" is a construct that cannot be fixed or static, given the inherent fluidity and adaptability of cultural forms. Others argue for a nuanced understanding of authenticity, acknowledging the inherent transformations and reinterpretations that occur within cultural traditions while still emphasizing the importance of preserving core values and historical context. The future of folk culture in India lies in navigating the complexities of globalization and reclaiming agency to shape its own future. Further research is needed to explore the evolving dynamics of folk culture in a rapidly changing globalized world.

The study of folk culture offers a valuable lens for understanding the complexities of social change, cultural identity, and the dynamics of tradition in a globalized world. While facing significant challenges, folk culture continues to evolve, adapt, and inspire, demonstrating its enduring relevance in shaping contemporary societies.

The study of folk culture in the neoliberal society of India offers a nuanced perspective on the complex interplay between tradition and modernity. While neoliberal policies have undoubtedly contributed to the commodification and transformation of folk expressions, they have also spurred cultural hybridity, resistance, and revitalization.

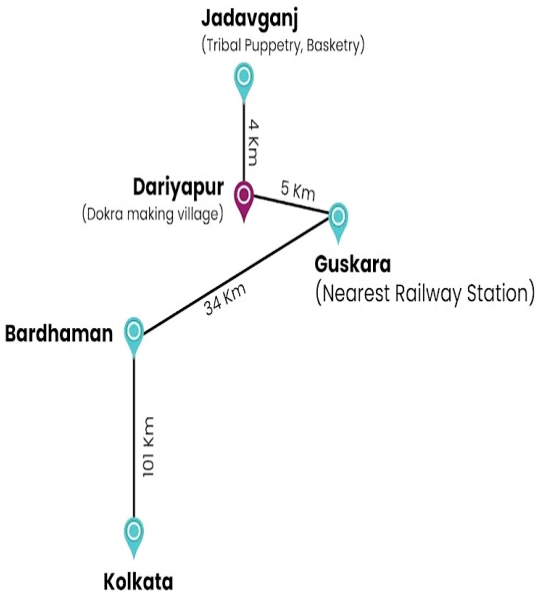
Further research is needed to understand the diverse experiences of different communities and the evolving dynamics of folk culture in a rapidly changing world.

Objectives

- To understand the changing contours of cultural authenticity in Neoliberal era.
- To understand how the lifestyle and livelihood of a social group, are getting modified with neoliberalism.
- Whether this modification of modern era has positive impact on the folk tradition.
- To deal with the problems and prospects related to cultural practices.
- How the authentic form of culture is being commercialized and how it creates social inequality and exclusion among the folk groups.

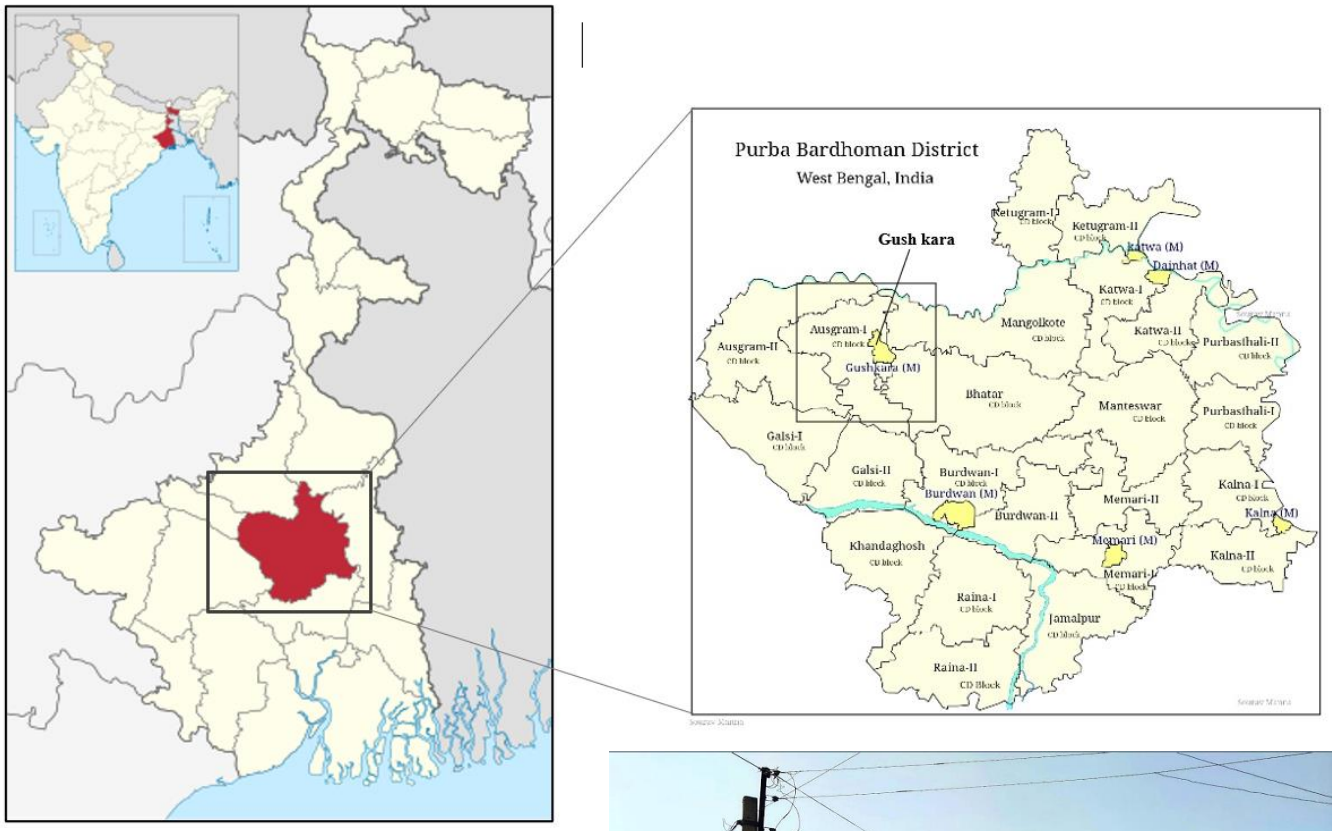
Methodology

The following paper is exploratory as well as experimental in nature and is based on a review of the literature, including various research papers, books and websites that carry Indian folk dance, music, arts, and festivals related information. On the other hand, it is based on the qualitative data, gathered from primary field survey. For this primary survey, a semi structured questionnaire survey, in-depth interviews and participant observation were done in the field. After collecting the raw data, livelihood analysis, SWOT analysis have been done for analysis and interpretation.



Study Area

The whole study is based on a case study, conducted at Dariyapur (also spelt Dariyapur) a remote village under Dignagar II gram panchayat of Ausgram I block in Bardhaman Sadar North subdivision of Purba Bardhaman district in the Indian state of West Bengal.



Geographical Extent: 87.699306 E and 23.466721 N

Analysis and Interpretation

The prehistoric archaeometallurgical Dokra or Dhokra art is based on copper-based alloys manufactured using a 'lost wax casting' technique called 'cire perdue' in French. Commonly made artifacts are household accessories like bowls, caskets, table lamps, figurines like Goddess Kali, Shiv, Durga, and animals like deer, tiger, and many more. During the Mohenjo Daro era, the legendary dancing girl indicates their craftsmanship and manufacturing brilliance. In order to preserve this heritage of India and to promote all over the world various research has been conducted which significantly indicates the socio-economical and metallurgical aspects of Dokra art.

Fig: Young Artisans showcasing their products

Fig: The exquisite beauty of Dokra sculpture

Fig: Soil mould of Dokra Horses

Dokra craft --- an ancestral craft practiced by the Chitraghasi and Ghasi tribes (Horne 1987). The Dokra Damar tribes are the traditional metal smiths of West Bengal and their technique of Lost-Wax casting is named after their tribes and hence the name dokra metal casting. Dokra artisans are considered to be groups of wanderers who

are still practicing the art of metal craft through their age-old process. These semi-nomadic people settled in different tribal zones of India like Chhattisgarh, Jharkhand, Orissa, West Bengal and parts of Andhra Pradesh. In West Bengal the dokra artisans are found in the tribal zones of Bankura and Burdwan. Prior to 1940s most of these people settled in small group outside the agricultural villages and often remain highly mobile to move from one place to another according to the market demand. They call themselves of the variants of the same name like Mal, Malar, Maral, Malhor or Mahuli; all of whom share a common area of origin in the tribal area of Chota Nagpur plateau (Horne 1987). In west Bengal, now they are traced mainly in two village--- one is the Dwariyapur Village of Purba Barddhaman district and another one is the Bikna village of Bankura diatrict. This study is based on the Dwariyapur region. One of the mid aged female artists said…

"*We came to know from our parents that previously our ancestors lived in the Chattrishgarh Bastar region and more than 60 years ago, they came in west Bengal and started living here. In Dariyapur, our 50 to 60 families use to live together, mostly we are belonging to Karmakar caste except one Turi family. We came here in a group, and from then we are staying in a group like a single family*." There are 210 registered artisans in this community.

Dokra is a traditional metalworking technique, uses the lost wax casting method to create intricate art pieces, primarily from brass. Lost wax casting has two main processes: **solid casting** and **hollow casting**. Solid casting, common in southern India, uses a solid wax piece without a clay core, while hollow casting, prevalent in Central and Eastern India, uses a clay core. In the study area, the artisans mainly follow

the hollow casting method. There are almost 6 to 7 steps have to follow before final touch up. According to Sanjoy Karmakar, one of the active and young artists, nowadays they are also using the solid casting method simultaneously with the hollow casting method. He described about various time taking steps, they have to follow…

"*Dhokra artifacts often include figurines, jewellery, animals, and utility items, known for their rustic charm and intricate details. The craft is an eco-friendly and sustainable art form. But, to preserve the uniqueness and authenticity, we have to follow the exact processes and steps. This handicraft are truly time taking in nature, so the number of production is less than the time consumed. We give more than 5 to 7 days for a medium sized model, 2 to 3 days for small showpiece and almost 8 to 10 or 12 days are necessary for a larger model (model of 5kg to 8kg). Steps…*

Fig:Formation of mud structure.

Making the Core: A rough core of the desired shape is made using clay mixed with rice husk or other natural binding agents. This core serves as the base structure of the design.

Wax Modelling: A layer of wax, made from a mixture of beeswax, resin, and nut oil, is applied to the clay core. The wax is shaped and carved into intricate patterns and details, forming the design of the final piece.

Clay Coating: Multiple layers of fine and coarse clay are applied over the wax model, forming a mould. The outer layer captures the intricate details of the wax design. Small ducts are added to the mould to allow the wax to drain during firing.

Wax Removal: The mould is baked in a kiln or over an open fire. This process melts the wax, leaving a hollow space between the clay core and the outer mould.

Metal Casting: Molten metal, typically brass, is poured into the hollow space left by the wax. The metal hardens as it cools, taking the shape of the wax model.

Breaking the Mould: After cooling, the clay mould is carefully broken to reveal the metal artifact.

Finishing Touches: The metal piece is polished, detailed, and sometimes oxidized to enhance its texture and colour…"

Just like any other folk practices, the distinctiveness and uniqueness of the products and the skill and obsession of the artisans towards this practice, are the main potential for preservation. The interest of bearing a traditional culture and practicing it with daily works may have mainly two aspects… one, if the community have nothing to do except this traditional works due to the crisis of capital or educational skill or due to severe poverty and lack of material assets, another one, if the community continues their traditional practices as secondary activity having another one or more livelihood options. But, in the present case the first case is happening…

"*We have nothing to do, we have not any amount of agricultural land, we don't have any other skills to do other economic activity. So we are totally dependent on this dokra silpa and the business based on this artifacts. This is our primary activity. Each and every person of our family engage in this making process from early morning to late night. It is our bread and butter. But when sufficient orders are not coming or at the time of monsoon, the male members of our family work as temporary construction labour at a cheaper wage.*"

Nowadays, national and state govt have taken various initiatives to preserve and promote such traditional art forms and think about the wellbeing of such indigenous community engaged in these folk practices. In Driyapur, the State govt of West Bengal established a handicraft museum, named "Dariyapur Dokra Artisan Co-operative Industrial Society Ltd."in 2019. And this museum became a hub of practicing such folk culture. In this museum, he whole local community and the investors or middlemen interact with each other. According to the local people, they got the free pacca rooms from govt…in their colony water supply, electricity is totally free and they get a ransom amount of ration subsidies at the cheapest rate. They are also availing various wellbeing schemes provided from state and national govt…like- Laxmi bhandar, Swasthyasathi, Bidhaba vata, Bekar vata, Lokoprasar Prakalpa, Banglasree, Bhabishyat Cradit Card and few more. But, it is very strange that no individual household or family have their own washroom or defecation system… they all are using one or two common wash rooms in this colony, infact, they are quite habituated in open defecation.

Fig: Dariyapur Dokra Artisan Co-operative Industrial Society Ltd.

"*We don't have our personal washrooms, so that, at the rush hour, we use to go for open defecation. Govt gives us rooms, free water and electricity, but personal defecation system is very much needed, it's a true crisis…Another problem is the drainage system. In rainy season, we are facing lot of problems. Our daily life gets affected with flooding, waterlogging, unsafe drinking water, increased waterborne diseases, poor sanitation. But the worst problem is the whole process of dokra crafts is totally disrupted due to the lack of sunlight and moist weather, we are unable to dry the moulds of crafts. Poverty has become our daily habit.*".

Fig: Common latrine

Their earnings are too less to save or secure anything for future after fulfilling their daily needs. They are wholly dependent on govt subsidies and on the 'middle men' for orders and capitals of their artefacts. We can have a clear vision on their annual turnover from the data published by the Directorate Of Micro, Small, Medium Enterprises under the department of MESE And Textiles of West Bengal Government.

Annual Turnover (in Rs.)	**Percentage of Artisans in Dokra village (%)**
<20,000	61
20,000-80,000	46
>80,000	7

Their situation is truly deplorable. Their miserable economic condition keeps them in a severe poverty, so that, they are unable to snatch their justice and rights from society. They are getting unnourished from various aspects. Just like education…78% of this population still don't have any basic education. Though, nowadays they started to send their youngers to primary schools and maximum to the high schools. They have only a single primary school and anganwari center in their locality, and they have to travel 3.8km to reach a high school (Dharapara Highschool), infact hospital is almost 6km away from the village (Gushkara Village Hospital). Gender disparity is also clearly visible there, their society have also the stereotype preference towards masculinity. In traditional Dokra craft, men primarily handle metal casting, mold-making, and intricate designing. Women, on the other hand, are typically assigned ancillary roles, such as collecting raw materials, polishing, and assisting in mold preparation, which are less recognized and remunerated. Despite women's significant contributions, men often control the financial transactions and decision-making in the craft business. Women's labor is undervalued, leading to lower economic empowerment. Women in these communities often have less access to skill development programs, formal training, or market linkages that could help them establish independent livelihoods, infact they don't send their daughters beyond primary school. One of the interviewees, named Rita explained their situation in the following way…

"*I wasn't allowed to go in the high school…I have completed my primary schooling from this local FP, my parents didn't send me and my younger sister to the high school while my two elder brothers passed Secondary and one of them appeared in Higher Secondary exam. That's why, no one in our village can avail the various govt schemes for empowering the women, like Knyasree, Sikhshasree, Ruposree etc. Even, in most of the cases, the daughters of this village are getting married at an very early age… I am the only oldest unmarried daughter in this village…I am now 21. Fortunately, parents don't want early marriage. From our childhood, we have to engage in our daily works-the dokra crafting.*" Deeply ingrained such patriarchal norms restrict women's mobility and entrepreneurial opportunities, limiting their ability to engage directly with markets or buyers. Efforts needed to bridge this disparity include NGO-led training programs, government initiatives, and market-focused workshops to ensure more inclusive participation and representation of women in the Dokra craft sector.

Fig: The collaborative Participation

Besides such internal aspects, external aspects like Marketing, branding, packaging, capital formation, investments, entrepreneurs, must be discussed in an inclusive way. As, the whole community face the acute poverty, thus for buying the raw materials they have to depend on the investors "The Middleman". They have snatched the role of being the negotiator between these artisans and the world outside. It's them who fetch orders from government and semi-government organizations like 'Bangasree', 'Manjusha', 'Amarkuthi', 'Basundhara', 'Bishwa Bangla' etc. They bear the burden of signing the written contract which the artisans are apathetic to.

The artists take the money for order purpose from the middle men and are bound to produce the artifacts according to their order specified demand. That's why, in most of the cases, the artisans loose their freedom of innovation and authenticity in works. Their dedication turns into others demand oriented products. Neoliberalism affects them in terms of capitalism…their over dependency towards the investors and the middle men, cause to get less opportunity, representation and recognition in worldwide handicraft market. Sometimes, due to their severe poverty, they use to sell their products in a very low cost. Infact, the investors, businessmen, the so called middle men buy these products at the lowest and sell those items 4 or 5 times higher rate in the market. The retailers are more profitable than the wholesalers. The artisans who are the real creator of such products, are on the lowest stair of the

profit hierarchy. They don't have any face-to-face interaction with the buyer on the topmost level of this hierarchy of market. Govt and some NGOs are trying to make the market reach to them, but corruption is everywhere to demine all the efforts.

Fig: Women artisans with their artifacts in an exhibition

"*We have no saved money to buy the costly raw materials, so that we take the money from the middle men and after finishing our works, we sell the products to them at their cost… we usually can't bargain with them after all they are the investors… if they stop to give us orders, we will die completely, we have not any other livelihood option. Now a days, two-three NGOs come and arrange open platforms 'mela' for us, where we use to buy our products to few retailors and final buyers. The dot com (arranged by Banglar Natok.com, a NGO) mela is very famous in our community, we are waiting for it eagerly in every year. Govt is also organizing some exhibitions for handicrafts, from our whole community 5 to 10 artists are going to Kolkata and other places to attend those exhibitions.*" Thus the impact of **neoliberalism** on Dokra artforms and the culture of its artisans can be analyzed from multiple dimensions: economic, cultural, and social. Neoliberal policies prioritize market liberalization, privatization, and global trade, often introducing both opportunities and challenges for traditional artforms like Dokra. On one hand, globalization and market liberalization have provided international exposure and expanded the demand for Dokra artifacts. E-commerce platforms and exhibitions have enabled artisans to reach wider audiences, enhancing their visibility. However, this market-driven focus often commodifies the art, prioritizing standardized and commercially appealing designs over traditional motifs, leading to a dilution of cultural and symbolic elements. Rising raw material costs and the dominance of middlemen have left many artisans earning meagre profits, despite their work gaining higher market value.

Additionally, younger generations are increasingly abandoning the craft due to its limited economic viability, threatening the continuity of this heritage. Neoliberalism often sidelines indigenous communities of Dokra artisans, pushing them to the fringes of a profit-driven market. Many Dokra artisans belong to marginalized communities and face systemic exclusion despite their cultural contributions. The pressures of neoliberalism also fragment traditional artisan communities, weakening their cooperatives and fostering individual competition. Traditional artisan collectives may weaken as artisans are compelled to compete individually in neoliberal market systems, leading to fragmentation and a loss of community support. These combined factors erode not only the artisans' economic stability but also their cultural identity, pushing many to migrate to urban areas in search of alternative livelihoods. Addressing these challenges requires fair-trade practices, direct-to-market opportunities, and policy interventions to preserve the integrity and sustainability of Dokra art and its artisan culture. Thus, by giving few liberty and

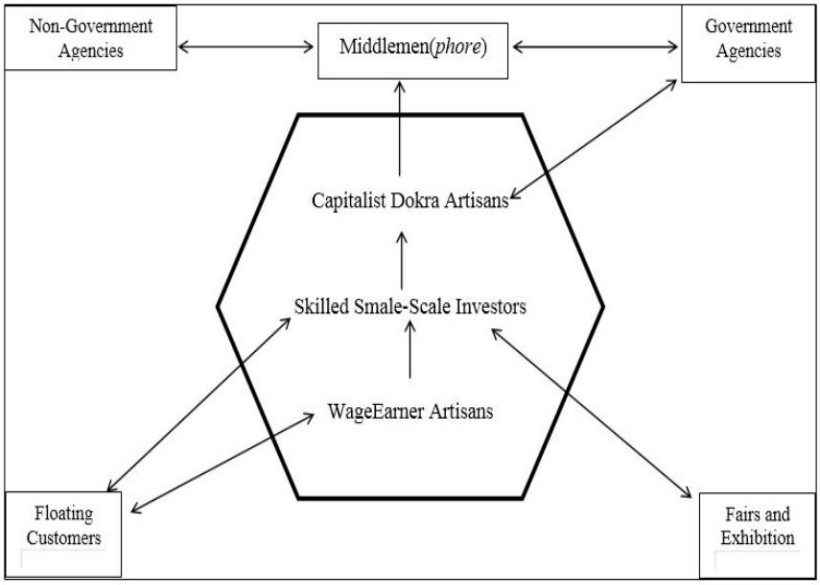


Fig: Forms of contract and network of distribution in Dariyapur

opportunity for market oriented economic activity to such traditional folk culture "Dokra", the neoliberal society tries to snatch the authenticity, distinctiveness, identity from the products and collaborativeness, culturalization and dedication from the artisan community, make them more vulnerable and exposed to the changing dynamics of capitalist market and neocolonized society where the hedonistic power relation dominates the society as well as livelihoods in terms of economic privatization. Neoliberalism initiates the infiltration of modern and standard forms that modifies the crafting system and the lifestyle of such primitive community. Management students, entrepreneurs, academicians, researchers are getting interested to understand the embedded aspects of such cultural activity with different types of notion. Rajat, one of the PG students of Govt. Art College, Kol said,"*We came in this village for doing our internships…out team includes 10 other students from our college. Staying here for few days we are learning the whole process of dokra crafting and we have to input our innovation in crafting…now I am processing a different type of dokra crafting incorporating both the traditional motifs and new innovative, non-structural designs. Such types of ancient artforms need modernization and standardization with the time's demand."* When he was asked about his future thought on this internship…he replied, "*After the completion of this internship, I can easily make such dokra artifacts with new innovative ideas and if I want, I may start business with this crafting only by myself*." Neoliberalism is giving to them the opportunity and incorporation with outer world , external wide society…on the other side of this coin is the exploitation, deprivation, disparity and exclusion caused by neoliberal societal system and norms. As an economic activity, this Dokra artform has also various strengths which should be preserved, weaknesses that must be decreased, opportunities which should be nourished and few upcoming threats that must be delt with maturity. Any stakeholder of any cultural symphony should nurture and cherish the possible opportunities and potentiality using the present strengths by reducing the weaknesses and resisting the upcoming threats. Here, some of the SWOTs are listed below based on the primary survey at the primitive Dokra village…

Strengths	**Weaknesses**
• **Unique Craftsmanship**: Renowned for intricate designs and elaborate detailing. • **Cultural Significance**: Deep-rooted history spanning over 4,000 years. • **Eco-Friendly**: Uses sustainable materials like clay, beeswax, and scrap metals. • **Versatility**: Wide range of products including figurines, jewellery, and home decor. • **Global Recognition**: Appreciated worldwide, with growing exports and exhibitions. • **Community Support**: Promotes rural livelihoods and preserves traditional skills • **Collaborativeness**	• **Labor-Intensive**: Time-consuming, limiting mass production. • **Inconsistent Quality**: Lack of mechanization affects marketability. • **Resource Scarcity**: Difficulty sourcing raw materials like beeswax and brass. • **Low Profits**: Artisans face low returns due to middlemen. • **Limited Marketing**: Poor branding and visibility in urban and global markets. • **Less educational and technological skills** • **Severe poverty and crisis in capital** • **Middleman factor** • **Seasonality in demands** • Huge dependency of the artisan community on this artifact based economic activity**.** • Single livelihood option
Opportunities	**Threats**
• **Rising Demand**: Growing preference for eco-friendly, handcrafted items. • **Government Support**: Initiatives like *Make in India* and cultural promotion schemes. • **Tourism Growth**: Expanding tourism boosts demand for souvenirs. • **E-Commerce**: Online platforms can widen market access. • **Design Innovations**: Collaborations with modern designers attract new audiences. • **Cultural Revival**: Interest in indigenous crafts fuels educational and tourism initiatives.	• **Imitations**: Cheaper fake products undermine authenticity. • **Declining Interest**: Younger generations opt for other career opportunities. • **Economic Instability**: Reduced spending on non-essential items during crises. • **Technology Gap**: Lack of modern tools limits productivity. • **Environmental Risks**: Resource shortages from climate change impact production.

Conclusion

This particular case of dokra artisans may apparently look like as mere juxtaposition between “going for modernity” or “keeping alive tradition “that members of many industries across the globe have witnessed in course of industrial development (Parry 2005; Mamidipudi 2019). Increasing inclination towards mechanized mass production has taken away the artistic liberty from the artisans producing indigenous crafts goods as they no longer remained free under the market regime (Goody 1982). But at the same time, the process of commercialization has put many of these indigenous craft objects on the global map more specifically within “global praxis” (Greenhalgh 1997: 21; Bhattacharya 2011). And owing to this increasing influence of the market or more specifically the global nature of industrial capitalism artisans have taken adaptive measures and adjusted accordingly (Liebl and Roy 2004; Roy 2010). There have been multiple instances where the change in taste and culture spearheading commercialization and modernisation of craft tradition in neoliberal society (Maskiell 2002; Sinha2020;). The study shows that the effect of commercialization within the community of dokra artisans living at Dariyapur village in West Bengal is multifaceted which requires a holistic understanding about various embedded aspects from the lens of neoliberalism. This spectrum shows that the artisans in Dariyapur went through both “spontaneous” and “sponsored” phases of commercialization. The initial phase of commercialization has been “spontaneous” as these artisans were trying to adapt according to different ecological nieces as they continuously migrated with the changing demand of their products. The phenomenon of “sponsored” commercialization came to fore as the government and other sponsoring agencies have taken up the role of becoming the link between these dokra artisans and customers in distant places. This shift from being an object produced for the need of people coming to the traditional market to becoming an object with global recognition which are produced according to the consumer demand for factory-made products has opened the avenue for the encroachment of capitalist system within the dokra artisan community. The competitive environment and motive of making more profit have led to polarization within their own community —where “capitalist dokra artisans” dominate, “skilled small-scale investors” act accordingly and the “wage earner artisans” languish at the bottom of the hierarchic system of production and marketing. The “skilled small-scale investors” and “wage earner artisans” are exploited by “capitalist dokra artisans” who play the role of intermediary between these two categories and the middlemen. And the more educated middlemen who don’t belong to the artisan community and enjoys relatively higher caste status exploit all these dokra craftsmen because of being the link between these artisans and their customers. Though the state and central govt. have taken lots of initiatives to preserve such pride and tradition of India, there is a huge difference between the initiation of initiatives and its proper execution. Thus, bottom-up planning is needed in such cases. Perhaps more sustained effort is required especially concerning “eradication of the middlemen,” “providing control of supply chain in hands of these artisans” apart from creating awareness regarding these craftsmen who are maintaining their meagre existence within the world of craft.

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Enriching Tastes of Tradition: Prospects of South Bengal's Rural Livelihood Potentials through Geographical Indications (GI)

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Abstract: West Bengal aptly bears the State tagline—'the sweetest part of India', reflecting the diverse culinary tradition. This work attempts to highlight three distinct sweet and savoury items of little known rural southern West Bengal, having capacities to achieve Geographical Indications (GI) and get recognized for their culinary distinctiveness in the food map of India. These include—*Moa* (a sweetball of popped rice and jaggery mix) of Jaynagar / Bahru of South 24 Parganas, which already has GI; *Rabri* (a milk cream payasam) of Ainya, Hugli and *Goyena Bori* (a crunchy dried lentil dumpling in ornamental design) of villages of Purba Medinipur—districts of West Bengal.

It is an empirical work through field visits, informal interviews and participant's observations. This work through SLOC (Strength, Limitations, Opportunities, Challenges) analysis tries to identify the spatial significance of these delicacies; it explores through visuals the conditions of preparations and marketing; finally addresses the implication of GI for enhancing livelihoods of communities associated with these culinary crafts.

The field visits reveal that Jaynagar *Moa* has a relatively organized market in comparison to the other two delicacies. However, livelihood of the backward-linkage associates such as the jaggery makers are still in poverty. There is intense dearth of authentic recognition, promotion and marketing of *Rabri* of Ainya village. Limitations of publicity and market outreach for *Goyena Bori* are major challenges. Moreover, despite proximal urban markets, regional development for promoting rural livelihood potentials through food market has not taken place adequately in all three places.

However, these delicacies have unparallel possibilities in terms of authenticity of taste, traditionally innovative recipes and the dedicated labour of food artisans. Yet, their cultural geographic contexts remain less appreciated. This study thus intervenes through the use of GI, promotion to unveil their full potential and boost rural livelihoods.

Keywords: *SLOC, culinary craft, GI, rural livelihood potential*

1. Introduction:

1.0. Foodscape of West Bengal and GI

Food sutures a unique mosaic of environment, materialities, people, spaces and cultures to make what David Harvey terms as geographical imaginations (Kneafsey, 2021) which is a conceptual tool used by individuals or communities to compare their personal life-worlds to larger social structures within their specific historical era (Gieseking, 2017). Scales of food may range from local to global. Local foods which become distinct to generate geographical imapcts as 'geographical indications' undoubtedly 'make places of food' or 'foodscapes'.

Such foodscapes associate regional environment from where ingredients are procured; communities who traditionally develop as well as continuously evolve the recipes to make their palattes geo-culturally exceptional and create a niche within the culinary social space of their time.

Geographical Indication (GI) is a hallmark on products corresponding to specific geographic origin which possess reputation because of originality of geographic region. In addition, the qualities and characteristics of the product are essentially due to the place of origin. Since the qualities depend on the geographical place of production, there is a clear link between the product and its original place of production (World Intellectual Property Organization). So, foods are products which are essentially linked to geographical originality, quality and uniqueness which qualify them to achieve GI tags for their places of making and imagiantions.

Through this work we have tried to bring out distinct flavours of some little known places of West Bengal and humbly try to make them geographically indicative.

To the world West Bengal is known as the '*sweetest part of India'* for her flavourful culinary practices, especially for sweet based desserts as well as savoury. Each district of West Bengal etches its own culinar trademark, which are intrinsically associated with the geography of the region and synthesizing with cultural heritage thereby making foodscapes.

The unique delicacies discussed through this work are—*moa* or round sweet balls made up of fried popped rice and jaggery; *rabri*- a milk cream based payasam and *goyena bori* or crunchies lentil and poppy seed mix in various ornamental shapes to be fried and eaten. Out of several unique dishes from the 'sweetest part of India', we select these three exclusively because of their seasonal availability, traditional heritage allied with their recipes and wide popularity of the dishes, yet much ignored experiences of these culinary crafts and life-worlds of the crafters involved with these foods. So, making these food crafts and their places geographically impactful through GI would preserve the culinary heritage, guarantee aunthecity of foodscapes; promote production and thereby ensure sustainable rural livelihoods (Sharma, 2024).

1.1.Study Area

As mentioned, the work is based on three lesser-known sites of southern West Bengal for their exclusive foodscape which may help them acquire unique geographical indications for their culinary practices. The spatial elaborations of the study area are as follows:

1.1.1. Moya hub of Baharu-A Sustained Culinary Heritage

A little-known census town Baharu stands as a testament to timeless craftmanship of *moa* making. Covering a rail-route of 45 km from Kolkata, the administrative center of West Bengal through rural landscape, Baharu will be reached in one and half hour time. It is

located in Jaynagar I-Community Development (CD) Block of South 24 Parganas district. With an area of 4.71 sq. km and 3500 households, as per last conducted 2011 census records, most of the population are associated with *moa* making—which is a food processing industry and this gives it a status of census town. *Moa* of West Bengal is associated and marketed with the spatial brand Jaynagar—which is a comparatively higher size town than Baharu as well as hosts the local Police Station (PS). This feature makes it spatially significant and Jaynagar pirates the spatial autocracy of *moa* making; yet when the hearth of *moa* making hails from adjoining area Baharu.

1.1.2. Ainya-The Rabri Gram

Located in Chanditala-I, Community Development Block of Hugli District, this village spanning over 2.58 sq.km. has more than 50 households preparing *rabri* at their homes. It is connected by roadway from Kolkata by NH 12 and NH 16 for 42 km and much distanced from buzz of urbanism. The census registered name of the village to the rest of the world is culturally instated by '*rabri gram*' because of the sweet dish that the villagers prepare and supply regularly to the city sweet shops. The convenient and only means of reaching Kolkata or neighboring urban centers is through the route taken by Bus No. 26 that travels from Jagatballavpur (near the village) to Bonhoogly, near Dumdum area of Kolkata, from there.

1.1.3. Basudebpur- Where lentil crunchies are ornamented

Located in Mahishadal Community Development Block of Purba Medinipur District, is simply a sample village which prepares *goyena-bori*. Many other such villages of Purba Medinipur specialize the craft of *goyena-bori* as a part of their regular or special platter. Located in the coastal part of the State, sunny weather is most suitable for its preparation. The utmost delicacy required for its preparation, keeps it limited from mass production and marketing.

As a disclaimer we state that the cartographic aspect is not given much significance as qualitative aspects of foodscapes have been on the focus. However, the locational aspects of these delicacies will give us a glimpse of the context of the food-culture-scape in the discussion following the objectives of the study.

1.0.Objectives:

Through this work the following objectives are tried to be fulfilled:

Firstly, to identify the spatial association of these sweets and savoury with their culinary cultures. The ingredients and communities associated with these food crafts make 'places' identifiable or distinctive with these foods.

Secondly, the work explores the process, situations of preparation, promotion and marketing of these foods which may create prospects of achieving GI. Through this objective

we also make an attempt to understand the pros and cons of getting a GI for the foods under probe.

Thirdly, through this work we will try to understand whether a GI recognition will help improve the rural livelihood of the associated crafters and bring about local development in terms of equity and boosting up their well-being.

So, the work is a humble attempt to explore the influences of local environment as well as culture in generation of unique foodscapes to make them geographically distinctive and how such geographic indications impact livelihood.

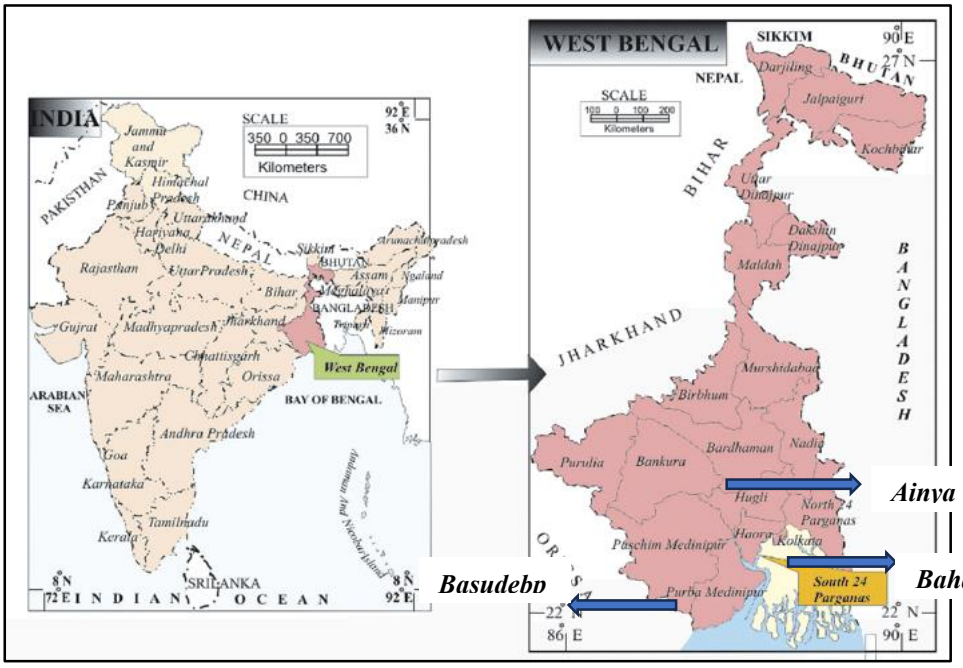

Figure 1: Study Area

2. Database & Methods

The current discourse on foodscape of southern Bengal is an empirical work carried out through visits and observations in the study area. Information have been collected through informal interviews and narratives of the food-crafters under study. Some secondary information was gathered through literature survey to corroborate with the narratives received from the study area.

As the work comes under the purview of Cultural Geography, qualitative approach seems to be appropriate method to carry out the study. Therefore, narratives, SLOC (Strength, Limitation, Opportunities and Challenges) analysis and visual representation are used as tools to understand the problems and prospects of rural livelihood influenced by foodscapes. The narratives and the visuals focus on the procurement of ingredients, recipes and preparation of

the delicacies; while SLOC analysis reveal the necessity and implications of GI on rural livelihood. The SLOC analysis for each of the delicacy in their respective study areas probes the local spatial potentials as well as hindrances. It also highlights the prospective ways in which how these food items may gain larger appreciations to achieve GI tag and the issues which may come up on the way of getting the same. The narratives and the visuals are corroborative supplementary to provide the readers a glimpse of indigenous culinary heritage of south Bengal.

3. Results and Discussion

3.1. From Farm to Platter: Journey through Baharu's Moa Making

3.1.1. Unique Availability of Ingredients

Moa –sweet ball made with fried popped rice called *khoi* and jaggery (*gur*) mix is a seasonal sweetmeat popular only during the winter in Bengal between December to February. This is primarily because of availability of its ingredient. The main ingredient that is the *khoi* is made from *kanakchura* (meaning golden tipped in Bengali) paddy. This is a slender grain with subtle aroma which is retained even after its frying **(Jagannath, 2013)**. *Kanakchura* paddy is a kharif crop harvested in post monsoon or autumn season and therefore is readily available for *moa* making during winter.

Photo Plate 2: Moya

Rather, its availability around winter time creates the ideal geographic and seasonal condition for *moa* making. Moreover, *Kanakchura* paddy is largely cultivated in less saline soils of Sundarbans region of coastal West Bengal. The *moa* hub Baharu is just located in this region, north of Sundarbans in South 24 Parganas district. The second most important is the date palm jaggery (*gur*) which makes the flavour of *moa* unparallel. A rigorous and time-consuming process go in the preparation of jaggery in its molasses form. The narratives from the Janab Laskar -a *siuli* or the date palm sap collector describes the process of jaggery making, translated in english:

> *"During mid-day, earthen pots are tied to the trunk of the date palm trees (khejur gachh). A small portion of the trunk of the tree is cut and a hay straw pipe is attached so that the date palm sap (khejur ras) trickles throughout the afternoon, night till sun rise. Before sun rises, around 2.30-4.00 am I climb the tree again, to bring down the pot filled with the sap. However, not all trees, at all times yield same amount of sap. On each tree 3-4 such pots of 300-500 grams are tied. These have to be brought down and boiled before sun rise because interaction with first light of dawn ferments the sap which cannot be used for making jaggery. The sap is then boiled on earthen hearths or chullahs for hours till 5-5.30 am to make light,*

smokey syrup called 'poira or nolen gur' which means jaggery made from the fresh sap. The sap which settles for sometimes in the earthen pot and then made to semi-solid gur is called 'jiren gur' and the one made from settling of sap for quite some time and is made to solid jaggery is called 'patali'. Although women of our house make all three varieties of gur, but only nolen gur is supplied to sweetshops of Baharu to make moa. The rest are supplied to market to consume as such."


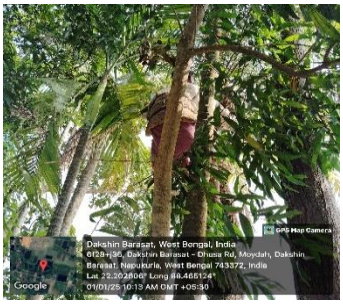

Photo Plate 3: Process of Date Palm Sap Collection

Photo Plate 4: Chullah for boiling date palm sap

Photo Plate 5: Nolen Gur in making

Photo Plate 6: Nolen Gur

Photo Story 1: From Farm to Market: Procurement of nolen gur as chief ingredient to Moa

Although date palm trees grow in this part of deltaic Bengal, but these are not common community property resources; neither the *siuli* or the collectors of date palm sap do not own the trees. Trees are taken on lease by them in lieu or either money or exchange of jaggery.

Thus, it may be commented that land and season play a major role in making the ingredients available for preparation of *moa.* Less saline soil in a selective part of active delta of Bengal and harvest of kharif agro-season at the onset of winter with moderate to low temperature support growth of the chief ingredients—*khoi* from *kanakchura* paddy and *gur* make this part of South 24 Parganas district—Baharu, Dakshin Barasat census towns and several other little-known villages, suppliers of ingredients. After the preparation of *gur* and *khoi* these

are supplied to the makers of *moa* at Baharu on daily basis during throughout the winter season from December to February.

3.1.2. Culinary heritage of Moa making and marketing

Most sweet shops located in Baharu census town are attached to houses of the shop owners. The locality is known by the name Baharu Bazar which is a hub of *moa* making. The kitchen where *moa* are made are also attached to the shop. The crafters of *moa* are food labours both men and women coming from neighbouring villages supervised by shop owners. There are almost 50-60 such small and big shops in Baharu Bazar specializing in *moa* only around winter time in Bengal. The fried popped rice or *kankchura khoi* is mixed with *kheer* (solids of condensed milk) and *nolen gur* with delicate hands. These are then garnished with powdered cardamom, cashew and pistachio to generate a subtle aromatic sweet ball. This has been a traditional recipe of *moa* without much modern innovations. The range of size of each *moa* diversely varies from 100 gm to 1 kg. On special occasions 1 kg size *moa* are prepared on orders.

Moa is primarily marketed in the urban centers of North and South 24 Parganas, Kolkata, Haora and Hugli. Among them, Kolkata, Haora, Chandanagar, Serampore, Dumdum, Barasat, Sonarpur-Rajpur are the major centers where authentic Baharu *moa* are marketed. The cost of 100 gm *moa* with 12 in a box costs INR 260/- if directly bought from Baharu shops; while same sold in cities costs nearly INR 400/- to INR 450/- and even more if bought from big branded sweet shops. The transportation and branding of shops bring variations in prices of the sweet.

According to Riju Das—the16-year, future proprietor of *Ramkrishna Mistanna Bhandar* describes their sell as translated:

> "*We take orders from several cities in and around Kolkata, Saltlake, Dumdum and Haora. We also take bulk orders for special occasions like marriage which take place during winter. Some big shops of Baharu's also have their orders from other cities of India like Delhi and Bengaluru around this time (winter) of the year. The biggest moa that we have made ever is of 1 kg costing INR 800/- each. Here also the prices of moa differs from shop to shop based on their popularity. Some big shops are popularized on social media and become locally branded and thereafter raise their prices; while those others which are not covered by the limelight of social media keep selling at a comparatively low price. But we are happy with the sell of our shop so far this year. It has been satisfactory."*

Photo Plate 7: Making of Moya

Photo Plate 8: Moa Market of Baharu Bazar

Photo Story 2: A heritage recipe with its authentic market

3.1.3. Implication of GI in rural livelihood

Moa prepared at Baharu marketed by the name *Jaynagar Moa* has already received the GI in 2015 vide application of *Jayanagar Moa Nirmankari Society* to The Geographical Indication of Goods(Registration and Protection Act), 1999 (access through https://www.origin-gi.com/wp-content/uploads/2017/01/195-joynagar-moa.pdf). But what, changes have been brought about with such a recognition? Undoubtedly, the authenticity of the sweetmeat has given distinctiveness to the region and brought up the small village to the pan-India recognition. The taste of tradition has been instrumental in place making of Jaynagar-Baharu-Dakshin Barasat as *moa* hub of India—a dessert delicacy nowhere so authentically prepared with utmost dedication of food crafters. However, there are challenges to making and marketing of *moa*. As collection of date palm sap is entirely based on natural endowments, if enough sap is not collected then, caramel is mixed with the less amount of jaggery to increase the amount to be supplied to the sweet shops but compromising on the taste and quality. Such jaggery costs less as well. According to Munira Laskar—a jaggery maker and supplier, as translated in English

> "*It is not sometimes but most of the times, enough khejur ras (date sap) do not get collected. But we have to supply a certain quantity of nolen gur for moa making…so, we have no other option but to mix caramel with the little amount of sap to increase the quantity. However, the price of pure date sap differs from*

the caramelized jaggery. We sell pure jaggery at INR 300/- per kg and the caramelized ones at 160/- per kg."

Apart from such unintentional adulteration, the *moa* makers also expressed their anguish that some unscrupulous sweet makers of the city prepare *moa* with caramel and add wholesome amount of *nolen gur* scent to mimic the flavour and sell it in the name of '*Jaynagar Moa*' at a high price. Consumers are not connoisseurs always to understand the duplicity and make a mistake in admiring the adulterated one in place of the authentic one even at a higher price.

Moreover, living condition of the *siuli* and jaggery makers is in a sorry state. Rural poverty predominates as observed from their *semi-pucca* houses with old tiled roofs, partly waffle and uncemented brick walls with barely two rooms and acute dearth of sanitation facility. There is no proper toilet with most of the houses. In general South 24 Parganas district is retarded in terms of human development among other districts of West Bengal. The fragile geo-environmental conditions in the active delta hinders development of basic infrastructures such as house, roads, railways and embankments of frequently flooding distributaries of Hugli-river and recurrent tropical cyclones each year. *Moa* making still remains as a household micro-enterprise with bare minimum wage of INR 100/- to INR 120/- to the labours that too takes place seasonally. The *siuli* take a lot of physical risk in climbing the thorny precipitous date palm tree at late night to bring down the sap. *Siuli* is gradually becoming a waning rural profession among the following generations because of the risk it involves. Moreover, the youth of the present generation with their basic school education are migrating out to other states where although they are working as labour, but at a comparatively higher wage. This imposes a threat to the entire art of *moa* making because the date sap and pure jaggery made out of, is the secret hallmark of the traditional flavour of *moa*. Jaggery making process is rigorous. Yet, the selling price is extremely low to keep the prices of *moa* reasonable to enhance the sell. But, at city markets, these are sold at fairly expensive rates.

So, even after achieving a GI tag, the livelihood of the backward linkage labours to this micro-enterprise has not improved much in terms of individuals, families as well as local area development.

3.1.4. SLOC Analysis for Baharu Moa

The analysis of Strength-Limitations-Opportunities-Challenges for Baharu *moa* will provide an insight for enhancing the prospects and minimizing the issues.

Table 1: SLOC Analysis for Baharu Moa

Strengths	***Limitations***
• Proximal availability of ingredients • Traditional recipes transferred through generations • Authentic and pure ingredients • Dedicated food-crafters • Same place of preparation and marketing • Access to larger urban centers within 40 km connected by rail/road routes • Possession of trade license and *fssai* license	• Seasonal market because of seasonal availability of ingredients • Difficulty in preservation because of perishable nature of the sweet and marketing to far off places • Lesser financial support received by the linkage labours or food crafters • *Siuli* is a dying profession among the present youth because of the risk it involves—therefore date sap collection may become a challenge for preparation of jaggery
Opportunities	***Challenges***
• Achieving a GI tag makes the food makers eligible for better investments in the entire process • Markets can be expanded through various fairs that take place during winter in the neighbouring cities • Branding & hallmarking is a necessary option for monopolizing the authentic tradition of taste	• Many unscrupulous sweet manufacturers away from southern Bengal duplicate *moa* with artificial flavours and sell by the name '*Jaynagar moa*'. • The actual sweet manufacturing hub—Baharu must get some recognition. Place branding goes for Jaynagar being the local administrative center; which in some-way belittles the dedicated efforts of food crafters and labours associated with *moa* making in various ways.

3.2. From Rural Kitchens to City Dessert Bowls: The Unsung Tales of Ainya's *Rabri*

3.2.1. Kitchen Heritage of Rabri making

For over 35 years, as many as 50 households of Ainya village of Hugli district of West Bengal engage themselves in *rabri* making. Similar to *moa* of Baharu/Jaynagar, *rabri*, too is a household industry which probably started as a very small initiative and later expanded however, not to great extent. *Rabri* is a milk-based dessert made from cream of condensed milk by continuous boiling and stirring it.

Photo Plate 9: Rabri

As the cream develops on the boiling milk surface, it is segregated and layers of such milk cream are put together to make *rabri*. The process of *rabri* making is continuous in the home kitchens of household of

Ainya village like a regular household chore. Rabri is cooked along with daily meals of the households. Mostly women of the household are engaged in making of *rabri* and other milk by-products like *ghee* or clarified butter; while, menfolk engage themselves in transportation of the *rabri* to the city markets. Some affluent *rabri* makers also engage three to five labours for production at a large scale.

Unlike *moa*, *rabri* is not a seasonal dessert, but is prepared throughout the year. The chief ingredient milk is readily available from surrounding villages of Shyamsundarpur and Charghara. Some affluent households also possess their own cows for milk. However, special variety of *nolen gur rabri* is available only during winter because of availability of the jaggery around the season. Otherwise, there are three different taste varieties of *rabri*— the traditional sweet *rabri*, mild sweet rabri and sugar free *rabri.*

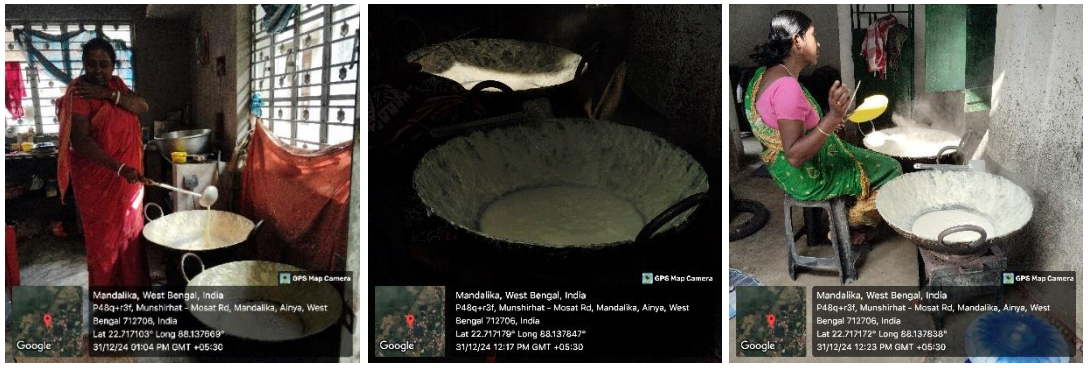

Photo Plate 10: Preparation of Rabri in Home

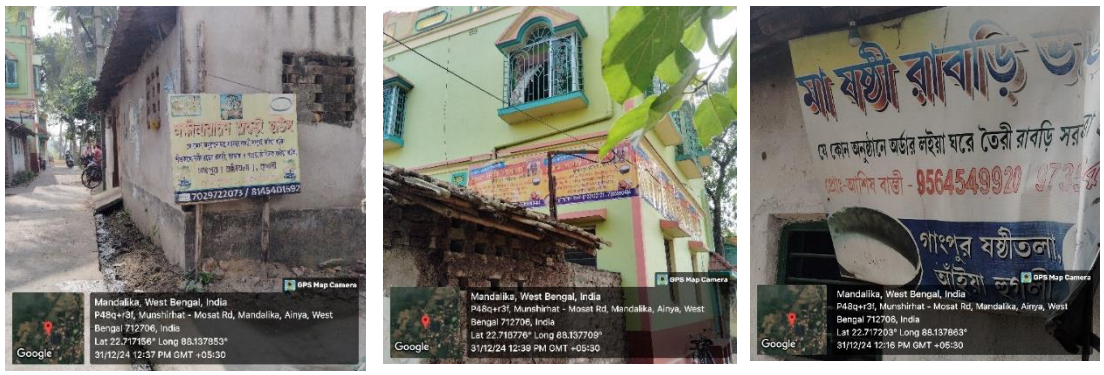

Photo Plate 11: Preparation of Rabri in Home

Photo Story 3: Dessert preparation at home based micro-

3.2.2. Economy, Livelihood based on Rabri making and need for GI

Photo Story 3, particularly Photo Plate 10 is suggestive of disparity in the economic class of households engaged in the *rabri* making business. This is primarily because of the scale of production and expanse of sell. It is very surprising to know that the *rabri* sold at the big sweet shops of various parts of Kolkata, Saltlake, Haora are not prepared at their workshops but are supplied from household made *rabri* at Ainya. So, disparity arises from the number of shops a household supply to. But, most of the households are of limited means of livelihood with two room house and a kitchen area to prepare *rabri.* The cost of *rabri*, however, remains the same to prevent monopolization over the lower price—a rare instance of perfect competition market. Prices of special *rabri* is INR 400/-; sugar free *rabri* is INR 500/- and traditional and mild sweet *rabri* is INR 300/-. The prices vary largely from the city shops by double rates and also by location of the shops in affluent or middle-class areas of the city. In Kolkata and Hoara traditional *rabri* costs about INR 800/- to INR 1000/-.

According to Suma Balti—a traditional *rabri* maker, translated in English:

> *"As I am letting you know of the information about our rabri supply to Kolkata shops, please do not divulge the source of these information….I will loose my business in those shops then. Customers know that the rabri which they buy at such high prices in the Kolkata-Haora shops are prepared by them only. Our hard work goes unrecognized."*

When told about the huge disparity of city shop prices and their prices, she replied as translated in english

> "*I personally do not know at what price rabri made by me is sold at city. But I am satisfied with what I earn. With this I can secure for myself and my daughter's education after my demise of my spouse. There are many households who have much higher earning, but this is my way of life."*

Apart from the price disparity, another challenge the *rabri* makers of Ainya face is daily commutation to cities covering a distance of nearly 50 km by only bus route no. 26 which starts from Jagatballavpur to Bonhoogly in northern fringe of Kolkata. From Bonhoogly again, they move to various other destination sweet shops of Kolkata and Haora for supplying *rabri*. Rekha Balti narrates as translated in English—

> "*After my only son left for Mumbai for a better paying job than our home based rabri business, my spouse goes to the city for the supply work. He starts at 5 in the morning and returns around 7 in the evening. There is great difficulty in transporting the rabri. There is only one bus and railway station is far off. He supplies to seven odd shops in Kolkata and Haora alone….we cannot afford labour for supplying. At home, I am the only one preparing rabri for supply and running other household chores. Difficult for me and my spouse as we are aging and no such help is available."*

Proprietors of Tara Maa and Satyanarayan Rabri—Ramesh Balti and Bidyut Balti are comparatively better off and biggest seller-supplier of Ainya village. They narrated as translated in english

> "*Yes, we do not get recognition but fruits of our hard work are appreciated by rabri lovers of the city. So, we have applied for GI in 2023 to get some recognition."*

As much as 600 kg of *rabri* is supplied from Ainya to Kolkata sweet shops only, on daily basis by several small and big suppliers (Dsouza, 2023). Today, for rest of the world who know about food history of *rabri*, the name of village Ainya is aptly replaced as '*Rabrigram*'—the *rabri* village. So, this village rightfully deserves Geographical Indication (GI) for the authentic dessert the villagers prepare. In May 2023, under the name '*Aniya Rabri Gram Reh Industrial Co-Operative Society Limited'* made an application to the Geographical Indications Registry (access through https://search.ipindia.gov.in/GIRPublic/Application/Details/1084). The application is now at a Pre-Examination stage (Geographical Indications, 2023).

It is expected that achieeving a GI for Ainya will not only recognize the sole supplier of *rabri* in south Bengal for its spatial authetication but will also help expansion of business and thereby improve the livelihood of people. Presently, in the pan Indian context, *rabri* is a popular dessert in Varanasi and cities of Rajasthan—Jaipur and Jodhpur because of the rich creamy milk available there. Ainya is a much smaller village in comparison to big sweetmeat business of these cities. Ainya in terms of commercial power, financial resources, network and communication is not adequately empowered. However, the mild and delicate taste of Bengal *rabri* and the tireless keenness with which it is prepared by household womenfolk makes it stand apart from the *rabri* of other parts of India. Surely, achieving a GI for the Rabrigram would create a special place in the foodscape of India. *Rabri* has definitely played its role in place making by transforming the name of the village to *Rabrigram*.

3.2.3. SLOC Analysis for Ainya Rabri

The analysis of Strength-Limitations-Opportunities-Challenges for Ainya *rabri* will provide an insight for enhancing the prospects and minimizing the issues.

Table 2: SLOC Analysis for Ainya Rabri

Strengths	***Limitations***
• Proximal availability of milk • Traditional recipes transferred through three generations over 35-40 years • Authentic and pure ingredients	• Difficulty in transportation for its perishability • Inadequate transport route • Far distance from city nearly 50 km

- Women involved in preparation empower them
- Possession of trade license and fssai license
- Rudimentary home kitchen sometimes are unhygienic, especially during rainy season
- Suppliers to Kolkata are intimidated of their identity as real makers and suppliers of rabri
- Little known village of Hugli district
- Non-participation in food fairs

Opportunities	***Challenges***
• Huge amount of preparation and supply indicate potential for business expansion if GI tag is received	• Rabri is a popular dessert of north India who may serve as stiff competitors for GI of less known village of West Bengal
• Reasonable price can enhance demand	• The city sweet shops may not acknowledge and support the efforts of *rabri* suppliers of Ainya as this may threat their authenticity to the city customers.
• Women can form Self-Help Groups (SHGs) solely based on food craft. This would help them to participate in food fairs and cultural fairs to expand business.	

3.3. A Unique Blend of Art and Food: The Saga of Purba Medinipur's Goyena Bori

3.3.1. Lentil crunchies that adorn Platter

> *"Alankar botika!—rannaye eto bahar ek matro Bangladeshey e sombhob"*

'Ornamental crunchies! Such diversity in cooking is possible only in Bengal'—was the response of Manmohan Mitra after being served *goyena bori* for lunch, who returns to his homeland in Kolkata after 35 years in different countries of the world, played by the great actor Sri Utpal Dutt in the film *Agantuk* (1991) directed by Sri Satyajit Ray. This monologue truly justifies the tale of *goyena bori* of Purba Medinipur. In a way, *goyena bori* is a winter staple for lunch in most of the households of Purba Medinipur. For our convenience and easy of communication, Basudebpur village has been chosen for the present work.

Photo Plate 12: Goyena Bori

The labourious, yet exciting process of preparation of *goyena bori* begins with grinding the tenderised black grams or *urad daal* that have been soaked overnight. To do this, a flat mortar and stone pestle is used called *shilnora* in Bengali. The batter is then whisked by hand until it becomes smooth and fluffy. Thereafter, it is gently piped over the

ultra-thin layer of poppy seeds with myriad patterns and motifs of free-flowing fine batter to make *goyena bori*. Each of these motifs are further basked in the warm and mellow winter sun to retain the crispiness for two to three days (Mukherjee, 2023).

Photo Story 4: Goyena Bori in Making

These are then fried very delicately in mustard oil only to serve on platter. Traditionally, *goyana bori* was a part of bridal gift to the groom's family in elite households of Medinipur. To resemble the bride's ornaments, the crunchies were designed such. But overtime, these became a part of household staple indicating a decentralization and commonization of food culture from the platters of erstwhile elites to commoners of contemporary times. It is intriguing to find diverse ornamental designs which a BBC reporter terms *Bengal's edible ornaments.*

Goyena bori is again geographically significant. It is popularly made only during the winter. The coastal proximity of Purba Medinipur and the associated humidity does not allow preparation and drying of *goyena bori* during other seasons of the year. But lesser relative humidity and mild sunlight facilitate quick drying. So, like *moa,* this one too is a

winter delicacy. Similarly to preparation of *rabri*, women are mostly engaged in making these.

3.3.2. Economics of Goyena bori making and need for GI

Preparation of *goyena bori* since traditional times, never have been meant for commercial purpose. The intricate design is a testament to its smaller production only for gift and presentation purposes on special occasion, just as we adorn ourselves with ornaments only on special events. Hence, commercial marketing never happened as such. Tourism and modern-day restaurants of tourist destinations of coastal Purba Medinipur perhaps played a role in bringing *goyena bori* to limelight of all other connoisseurs of Bengali food. Even, at the present time, scale of production of *goyena bori* for commercial purpose is extremely small. One reason for this, is, the delicate craftship that goes behind it and secondly, because of short lived winter season of Purba Medinipur near the coastal Bengal—less humid condition which is an absolute necessity for production. The little commercialization which has taken place involves sell of *goyena bori* to local markets, in cultural fairs and sell through some socially serving NGOs. Such production has brought about some changes in the making process—such as instead of flat mortar and stone pestle, electrical mixer-grinder is used for saving time and ease of making; as prices of poppy seeds are extremely expensive, alternative substitutes like soyabean dust or semolina dusts are used to retain the crispiness. Some of the households which make *goyena bori* for commercial purpose sell these at extremely nominal rate of INR 4/- per piece. However, prices of the same in restaurants specializing in authentic Bengali cuisine range from INR 50/- to INR 80//- in cities and coastal tourist spots. When questioned on such disparity of prices, Jaya Maiti responded as translated in English—

> *"Is it..? However, we are not aware about such price variations because we do not make goyena bori at such commercial scale…restaurant food prices are always high but is the quality the same as we make? Sometimes we sell in local fairs otherwise it is mostly for home consumption. All of our family members participate in making goyena bori in winter and we enjoy that."*

But *goyena bori* definitely deserves a GI because of its most unique design and delicate crispiness, something probably in no other part of the world perhaps made ever—*the edible ornament*. The unique appearance itself makes it eligible for a GI. Although, such a GI does not have direct influence on rural livelihood, because making *goyena bori* is not a professional practice. Communities are involved in several occupations for their livelihood. But, if Purba Medinipur achieves a GI for *goyena bori,* its commercial production would increase manifolds and would definitely add another economically boosting dimension to the food processing industry of Bengal at large and Purba Medinipur in particular. As these are sun dried food, its perishability is much better than *moya* and *rabri,* so could be traded in pan India and rest of the worlds as a very unique product from the heart of Bengal.

3.3.3. SLOC Analysis for Purba Medinipur Goyena Bori

The analysis of Strength-Limitations-Opportunities-Challenges for Purba Medinipur *goyena bori* will provide an insight for enhancing the prospects and minimizing the issues.

Table 3: SLOC Analysis for Purba Medinipur Goyena Bori

Strengths	***Limitations***
• Traditional recipes transferred through generations several years • Authentic and pure ingredients • Women involved in preparation empower them • Innovations in design and appearance	• Seasonal making • Limited production • No fssai or trade license for most • No commercialization • Limited exposure to fairs and market
Opportunities	***Challenges***
• Reasonable price can enhance demand • Women can form Self-Help Groups (SHGs) solely based on food craft. This would help them to participate in food fairs and cultural fairs to expand business.	• No clear idea about the market condition • No knowledge of business • No exposure to invite investment in food processing industry

4. Major Findings

The study so far reveals the following inferences:

- All the three delicacies under review have rural identities and following traditional recipes without much improvisions in terms of ingredients and techniques of preparation. It indicates immensely strong adherence to culture rooted to traditional heritage and history of the social space.

- Local geography plays an important role in these foods. *Firstly*, except *rabri* the other two delicacies—*moa* and *goyena bori* are intrinsically seasonal in nature. Winter is the most conducive time for their making with the favourable geo-environmental conditions and availability of the ingredients.

- All these three unique delicacies from three different districts of West Bengal, have one common aspect—these are essentially feminized food items. Seemingly ordinary home-maker women are the crafters of these exceptional food. Rounding of *moa*, delicate taste of *rabri* and creative ornamentation of *goyena bori* attain culinary marvels in the hands of women. But, gender politics do play its role in such situations as well. Supplying, marketing and applications for GI are all led by men of the household who claim their share of effort in these procedural matters. The dedicated

efforts of women somehow are shadowed by powerful formalizing initiatives taken by menfolk. However, it is undeniable that the combined effort of both men, women and entire rural community of the respective villages have their share in creating the distinct foodscapes.

- These are mostly home-based food processing units, mostly at micro-enterprise level and have enough potential for getting investments allotted for MSMEs, which are being promoted by the Indian industrial policies. With a strong financial support these micro units may get an opportunity for enhancing their scale of production and get better profit generated.
- All the three food crafting units run as informal sector. Although cooperative is there for *moa* and *rabri*, but their effective functioning is less observed as the makers are not much aware about the market regarding appropriate prices and popularizing their original places—Baharu and Ainya through advertising. Their participation in food and cultural fairs and fests are also limited to very few places of south Bengal where they could promote their products and places; thereby invite investors.
- The role of women-led Self-Help-Groups were also not effectively observed. As all the three foods are primarily prepared by women, such SHGs can be operative in expanding the sell and ensuring financial security for the makers.
- Baharu/Jaynagar *moa* achieving GI, has indeed boosted their business. It could be expected that if GI is also achieved for *rabri* of Ainya and *goyena bori* of Purba Medinipur, would also enhance the business. At the same time, it has been noted that even after expansion of business for *moa* following achieving GI, the livelihoods of the linkage communities have not improved much and local area development has not taken place adequately. This is probably because of less or no organizational initiative to bring in all linkages and stakeholders under a single cooperative system and formalizing the food processing sector holistically. Such organizations are however formed before applying for GI as observed in case of *moa* and *rabri*; but once the GI is achieved such organizations seem not to work appropriately for development of the labour and improvement of the local area. So, poverty continues to persist in these areas of food heritage.
- The work exemplifies a quintessential cultural landscape brought to life through culinary art. A cultural landscape represents a spatial unit where natural features are overlaid with human ingenuity. Here, the geo-environment plays a pivotal role by providing unique ingredients essential for crafting distinctive food, which, in turn, forge a strong identity tied to their places of origin. These culinary creations shape exclusive foodscapes, deserving geographic recognition and protection through Geographical Indication (GI).

5. A Way Forward

The study reveals intricate ties between geography, culture, food and social dynamics. To ensure the sustainability and growth of these culinary traditions, a multipronged approach is necessary.

The cultural heritage tied to these delicacies—*moa*, *rabri* and *goyena bori* may be preserved and promoted through culinary workshops, participation in national and international food fests and digital storytelling to ensure spatial expansion of knowledge about these. These could be the stepping stones for branding of these products which can elevate these delicacies as symbols of Bengal's rich cultural identity. Partnerships with tourism boards can promote these foods as unique attractions tied to their places of origin, further boosting local economies.

Financial interventions, such as loans for upgrading micro-enterprises will surely enhance production and expand market outreach. Integrating these units into government programs for MSMEs or women-led Self-Help Groups (SHGs) may create institutional infrastructures for growth, capacity-building for the women involved in these crafts to empower them with skills of business management, marketing, and quality control. Acquiring GI status for *rabri* and *goyena bori*, similar to *moa*, is an imperative. The GI tag will not only protect the authenticity of these products but also enhance their marketability. However, lessons from the *moa* experience highlight the need for continuous organizational efforts post-GI recognition. Establishing robust cooperatives which must work actively after the GI is achieved is vital for ensuring equitable profit-sharing and sustainable local development.

A sustainable strategy will safeguard these cultural landscapes while ensuring benefits of development growth are equitably shared among all stakeholders. It will lay the foundation for sustainable livelihood across the remote rural regions of West Bengal.

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An Introspection into Dhaniakhali Saree as a GI Product – Current Issues and Challenges

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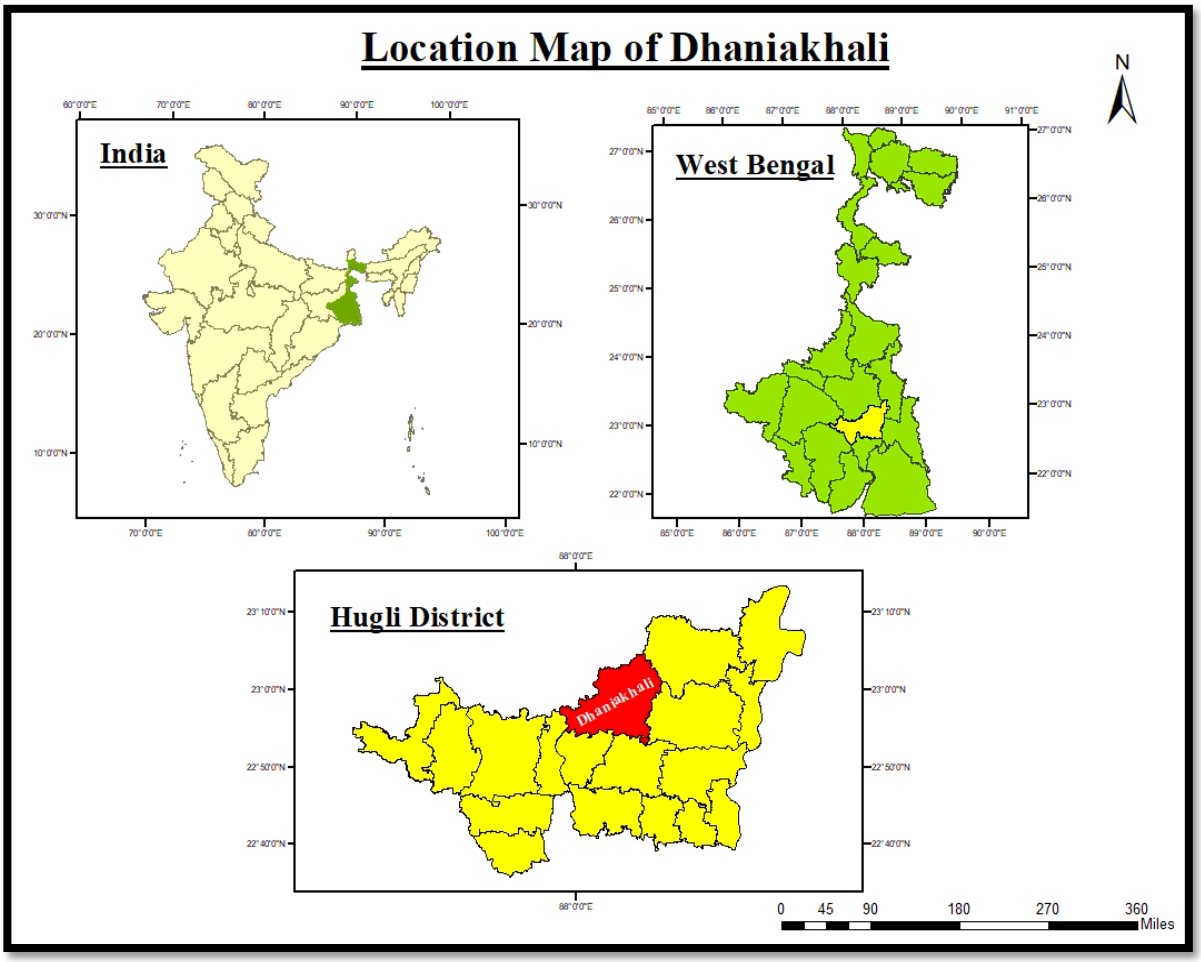
Abstract: This study explores the socio-economic, cultural, and marketing dynamics of the Dhaniakhali saree, a traditional handloom textile from Hugli District, West Bengal that received Geographical Indication (GI) recognition in 2012. Despite its rich legacy and cultural value, the benefits of GI tagging have not fully percolated to the grassroots level. Based on primary field surveys and secondary literature, this research investigates the actual impact of the GI status on artisans' livelihoods, especially among women and youth. Findings reveal that while GI recognition has enhanced product authenticity and awareness among select consumers, issues such as low wages, lack of digital literacy, seasonal demand, and continued dependence on middlemen persist. A significant number of weavers remain unaware of the GI tag's legal and economic implications. Women, despite contributing significantly to pre-loom and post-loom activities, are often unpaid and under-recognized. Similarly, younger generations are reluctant to pursue weaving due to low profitability and absence of innovation or training opportunities. Marketing gaps, including poor branding, lack of online visibility, and inadequate storytelling, hinder the broader reach and economic potential of Dhaniakhali sarees. The study suggests that strategic interventions such as fair wage policies, cooperative strengthening, branding with storytelling, digital training, and promotion through craft tourism and e-commerce can rejuvenate this heritage craft. Enhancing consumer awareness and implementing policies that directly support artisans are essential for the sustainable development of the Dhaniakhali handloom industry. This research contributes to the broader discourse on traditional crafts, technological development, and the informal economy by addressing research gaps related to marketing, youth engagement, and gender dynamics.

Keywords: Dhaniakhali Saree, Geographical Indication (GI), Handloom Industry, Marketing Challenges, Consumer Awareness

Introduction

Dhaniakhali, located in the Hugli district of West Bengal, holds significant geographical importance, particularly in relation to its traditional handloom industry. Geographically positioned around 22.92°N latitude and 88.03°E longitude, Dhaniakhali is situated on the fertile plains of the Gangetic Delta. This region is enriched with alluvial soil, which supports the cultivation of key crops like cotton and jute—important raw materials for the weaving industry. The presence of nearby rivers, especially the Damodar and the Hooghly, has historically influenced settlement patterns, agriculture, and industry in the region. These rivers not only provide water for irrigation but also have historically served as routes for the transportation of goods.



The climate of Dhaniakhali, which is typically tropical with moderate to high rainfall, further aids in agricultural productivity. Such environmental conditions have helped establish a strong base for a cottage-based weaving economy, which has flourished over generations and national and international recognition due to the unique identity of the Dhaniakhali Saree. Dhaniakhali Tant saree is a traditional handloom product from West Bengal, known for its tight weave, durability, and distinctive striped or checkered patterns. It holds immense cultural significance and has been an integral part of Bengal's textile heritage for over two centuries. In 2012, the saree received Geographical Indication (GI) status, recognizing its unique characteristics, historical importance, and association with the Dhaniakhali region in Hooghly district. The GI tag ensures legal protection, preventing unauthorized production while promoting the identity of traditional artisans. The GI (Geographical Indication) status granted to the Dhaniakhali Saree has played a vital role in enhancing its market value and brand identity. This recognition not only protects the product from imitation but also highlights the deep connection between the craft and its place of origin.

The handloom industry in Bengal has a rich legacy, dating back to the 18th century, when artisans began weaving lightweight, breathable cotton sarees suited for the region's humid

climate. Over time, Dhaniakhali sarees gained popularity due to their fine texture, durability, and suitability for everyday wear. The craft continues to thrive, with local cooperative societies and weaver communities actively engaged in production. Local cooperatives, government handloom boards, and NGOs have contributed significantly to the promotion and marketing of the sarees, both domestically and internationally. Periodic exhibitions, handloom fairs, and collaborations with fashion designers have also helped bring Dhaniakhali sarees into the limelight. However, despite its heritage and GI recognition, Dhaniakhali sarees face numerous challenges, including competition from machine-made textiles, declining weaver interest, and market accessibility issues.

Transport and communication have played a crucial role in shaping Dhaniakhali's economic development and cultural identity. Dhaniakhali, located in the Hooghly district of West Bengal, is a historically rich and culturally significant village. It has evolved from an ancient settlement into a prominent administrative block known as the Dhaniakhali Block or Panchayet Samiti, under the Hooghly Sadar subdivision. According to Gazetteer of India: West Bengal – Hooghly District (1972) in earlier times, it was the headquarters of one of the largest thanas in the region. In the mid-18th century, Dhaniakhali gained prominence due to the establishment of a weaving factory by the East India Company, which referred to the area as "Dooneacolly." A major road from Hooghly to Silinabad (present-day Salimabad) passed through the village, making it a key location for commerce and travel. Dhaniakhali had a railway station under the Bengal Provincial Railway, constructed in 1301 Bengali year (1894 AD), located about a mile from the village. Though the railway line and station no longer exist, remnants such as the District Board bungalow remain part of its colonial legacy. It was once a bustling hub with a weekly market on Mondays and Fridays, where farmers and traders from surrounding areas gathered. A special animal market was also organized weekly. The village also had a flourishing business centre and 'ganja' trade hub, which existed even before British rule. The presence of canals, 'gars' (fortified places), and 'dahas' (wetlands) indicates its historic role in transportation and commerce. Due to large-scale trade activities, the area was referred to as a place of "dhanasamagam" (wealth exchange), possibly inspiring the name Dhaniakhali — derived from "dhana," meaning wealth.

Now day Dhaniakhali is well-connected to major urban centers like Kolkata, Howrah, and Bardhaman through a network of roads and railway lines. The nearest railway station, Dhaniakhali Railway Station, connects the town with other key parts of West Bengal, facilitating the easy movement of raw materials and finished products. State highways and local roads link Dhaniakhali to adjacent rural areas and towns, ensuring a smooth flow of goods and services. The proximity to Kolkata, a major metropolitan hub, has been particularly advantageous for the marketing and distribution of Dhaniakhali Sarees. There is main two bus stoppages like Madan Mohan Tala Bus stop and Cinematala Bus stop which connects Dhanekhali with Chinsurah -Tarakeswar - Haripal. It also connects with National Highway No. 2 (NH -2) at Maheswarpur, 8 km towards Chinsurah. Efficient transport

infrastructure has enabled weavers and traders to access urban markets, attend trade fairs, and reach customers beyond the local region. In recent years, improved digital connectivity has also contributed to the marketing and sale of these sarees, as online platforms and social media are increasingly used by cooperatives and entrepreneurs to showcase their products to a wider audience. Dhaniakhali's geographical setting, enhanced by a robust transport network and evolving marketing practices, has played a critical role in the survival and growth of its traditional weaving industry.

Literature Survey

The study of Dhaniakhali Saree as a GI Product builds upon existing research on handloom industries, Geographical Indications (GI), and textile heritage. The references mentioned in the document provide insights into the historical significance, economic impact, and challenges faced by the traditional weaving sector. The literature review provides an in-depth examination of the traditional textile industries in West Bengal, exploring the dynamic interplay between globalization, technological change, and cultural preservation. The studies reviewed span from contemporary analyses of the handloom sector's decline and potential revitalization to historical assessments of Bengal's cotton textile industry during colonial times. Together, these works paint a comprehensive picture of how traditional industries have struggled under modern economic pressures while also highlighting strategies to preserve and enhance their cultural and economic significance.

The Bengal District Gazetteers: Hooghly (1912) by L.S.S. O'Malley and Monmohan Chakravarti presents a snapshot of the early 20th-century economy of Hooghly, revealing that weaving was a prominent household industry in many rural areas, including Dhaniakhali. Although the Dhaniakhali saree is not mentioned by name in this document, it is evident that the craft of weaving was integral to the community's livelihood. The gazetteer describes a rural economy supported by artisan groups, where weavers used simple looms to produce durable cotton cloth, catering to local and regional needs. These early practices laid the foundation for the Dhaniakhali saree's distinct character—marked by its coarse texture, striped body, and vibrant borders.Further details emerge in the Gazetteer of India: West Bengal – Hooghly (1972), which offers a broader post-independence perspective on the district's socio-economic landscape. It notes that areas like Dhaniakhali had transitioned from producing superfine dhotis to weaving cotton sarees, a change driven by market demands. This shift reflects the adaptability of local weavers, who responded to declining demand for traditional men's attire by innovating new designs suited for women. This period also saw the rise of cooperative societies, which helped streamline the distribution of raw materials and stabilized income for artisans. These cooperatives remain central to Dhaniakhali's handloom economy today.

The article "National Handloom Day 2024: The Elegant Dhaniakhali Sari of Bengal." from Outlook Traveller situates the tradition in a cultural and humanistic narrative. It traces the

origins of the saree industry in Dhaniakhali to 1938, crediting its growth to the formation of cooperative societies in the 1950s and 60s. The article captures the story of resilience among artisans who, despite economic hardships, continue to keep this traditional art form alive. It also notes the saree's iconic status in West Bengal, with prominent figures—like former Chief Minister Mamata Banerjee—frequently seen wearing Dhaniakhali sarees, boosting their visibility and demand.

In a historical context, Bhadra (2015) shifts the focus to the evolution of the cotton textile industry in the Birbhum, Burdwan, and Hooghly districts during the period of 1757–1857. His doctoral thesis offers a critical overview of how European merchant capital, particularly that of the East India Company, transformed Bengal's traditional textile practices. Bhadra's research is rooted in archival materials—including British Parliamentary Papers, Board of Trade records, and District Gazetteers—as well as existing scholarly literature. The study chronicles the growth of the industry during the pre-British era when local cottage industries primarily produced muslins and calicoes. However, with the advent of European influence, there was a significant expansion in production aimed at meeting the demands of European markets. This period saw an increase in employment and output, largely driven by the availability of high-quality raw cotton and skilled labour. Yet, the seeds of decline were sown when the Industrial Revolution introduced power-driven machinery in England, which drastically lowered production costs and improved quality. This technological leap, combined with hostile trade policies—such as high tariffs on Indian cotton goods and subsidies for British exports—eventually rendered Bengal's traditional methods obsolete. The East India Company's control over production and pricing further marginalized local weavers, leading to widespread economic disruption and a decline in employment. Bhadra's analysis highlights the long-term repercussions of colonial economic policies on local industries, providing a critical backdrop for understanding the contemporary challenges faced by West Bengal's traditional textile sectors.

In parallel, Chakraborty and Sen (2015) explore the role of Geographical Indications (GI) in preserving Bengal's handloom sari heritage. Their research delves into how GI certification not only protects the unique cultural identity of products such as Baluchari, Dhaniakhali, and Santipuri saris but also enhances their market reputation on a global scale. The study uses both primary field surveys and secondary data to analyse how the GI tag contributes to safeguarding indigenous knowledge and ensuring fair recognition for traditional craftsmanship. According to their findings, the GI tag plays a pivotal role in reinforcing the authenticity of these products, thereby protecting them from imitations produced by modern power looms. The certification, however, is not without challenges. Sen and Chakraborty note that while the GI tag boosts market value and encourages cultural preservation, it is also associated with issues such as technological obsolescence, middleman exploitation, and difficulties in fully capturing the economic benefits for the weavers. Despite these challenges, the study underscores that GI certification remains a critical tool for maintaining

the distinctiveness of Bengal's handloom products and offers a potential pathway for their sustained economic viability and cultural significance.

Das (2015) explores the socio-economic fabric of this handloom industry, underlining its geographical significance, transportation networks, and marketing dynamics. The research draws on both primary field data and secondary institutional sources to paint a comprehensive picture of the state of the industry. Geographically, Dhaniakhali benefits from a favorable physical setting. It lies in the fertile alluvial plains of the lower Gangetic basin and is enriched with agro-ecological advantages that have historically supported cotton and jute cultivation—vital for weaving. This geographical advantage has enabled Dhaniakhali to develop a unique weaving identity, with distinct methods like the Dobby and Jacquard techniques shaping the textile's texture and design. The presence of rivers and flat terrain has not only promoted agriculture but also fostered the growth of cottage industries like handloom weaving. The article emphasizes that transport and accessibility have played a pivotal role in the sustenance of the handloom economy. Dhaniakhali is well connected by rail and road to urban hubs like Kolkata and Chinsurah, facilitating the movement of both raw materials and finished products. This access has supported the marketing of sarees during peak seasons like Durga Puja and Bengali New Year when demand spikes.On the marketing front, the research identifies multiple challenges. While the Dhaniakhali saree is popular for its comfort, coarse texture, and vibrant borders, the industry faces intense competition from machine-made textiles and imitation products falsely labeled as Dhaniakhali originals. This misuse of branding undermines the authenticity of the product and negatively affects consumer trust. Though the cooperative societies have worked to establish a formal marketing structure—including participation in exhibitions and building local sale counters—there is a gap in innovation and design development, leading to stagnation in product appeal. Additionally, poor advertisement and limited digital presence further restrict market expansion. The literature also draws attention to the role of cooperative societies like the Dhanekhali Union Tant Silpi Samobaya Samity, which provide infrastructural, financial, and organizational support to weavers. These cooperatives supply raw materials, offer financial schemes, and organize local sales and exhibitions. Despite their efforts, the weavers continue to struggle with low wages, high input costs, and irregular income. Marketing strategies remain underdeveloped, and many weavers shift to alternative employment such as MGNREGA due to better wage prospects.

Mukhopadhyay and Sarkar (2019) focus on the impact of globalization on the handloom industry in the Hugli district. Their study reveals that the influx of modern production techniques, particularly the proliferation of power looms, has had a profoundly negative effect on traditional handloom weavers. The research, conducted through a combination of primary data collection—via questionnaires, interviews, and observations among 120 weavers—and secondary sources from government and cooperative records, documents a sharp decline in active weavers over a decade. Specifically, the findings indicate a 13.43%

decline in weavers in Chinsurah and an even steeper 29.81% decline in Tarakeswar between 2007 and 2017. The study further outlines the socio-economic challenges faced by the community, such as low wages (approximately Rs. 80–130 per day per saree), high production costs due to rising yarn prices, and a notable reluctance among younger generations to enter the trade because of low profitability and uncertainty. Additionally, the study points to a decline in the number of effective Primary Weavers' Cooperative Societies, which have traditionally provided a support network and marketing assistance to the weavers. To counter these issues, Sarkar and Mukhopadhyay recommend strategic measures such as training programs for design innovation, modernization of production equipment, and better integration of the handloom sector into global markets. These recommendations aim to bridge the gap between traditional practices and modern market demands, ensuring that the handloom industry can regain its competitiveness.

Complementing these perspectives, Haldar (2020) provides a broader analysis of the significance of GI tags across traditional handicrafts in West Bengal. His study is exploratory in nature and draws heavily on secondary data sources such as journals, government records, and newspaper articles. Haldar's work highlights that out of the 22 GI-registered products in West Bengal, more than half pertain to handicrafts. Through detailed examples—including the Dhaniakhali, Baluchari, and Santipur saris, as well as other products like the Madur Kathi floor mat—the study emphasizes that GI tags offer economic advantages by allowing products to command premium prices in both domestic and international markets. Furthermore, Haldar discusses the role of GI tags in fostering rural development. The enhanced market reputation resulting from GI certification can boost employment opportunities in rural areas and attract investment in infrastructure and skill development. Nevertheless, his analysis also points to significant hurdles: the handicraft industry in West Bengal is characterized by unorganized sectors, lack of sophisticated branding, and rampant issues with counterfeit products. These challenges are compounded by insufficient awareness among artisans about the benefits of GI certification and the limited policy support available to them. Haldar suggests that targeted awareness campaigns, infrastructure development, and robust policy interventions are essential for overcoming these obstacles and ensuring that GI-certified products continue to thrive.

The informal sector in India has been widely discussed as a large reservoir of surplus labour, often excluded from the formal economy (Sanyal, 2007; ILO, 1972). Traditional literature viewed the informal and formal sectors as complementary, with modernization benefiting both. However, more recent studies suggest a deep dualism within the informal sector itself. Scholars like Chakrabarti (2013) and Bhattacharya et al. (2013) differentiate between a dynamic, modern informal segment connected to formal supply chains and a stagnating, traditional informal segment reliant on indigenous resources. Dutta et al. (2019) extend this discussion by introducing a structuralist macroeconomic model that highlights a crucial, often overlooked demand-side conflict within the informal sector. Their findings reveal that

modernization disproportionately benefits the modern informal sector through access to cheaper inputs and formal linkages, enabling it to produce competitively priced goods. This, in turn, squeezes the market share of the traditional informal sector, leading to its gradual decline. Case studies from handloom clusters like Dhaniakhali and Samudragarh show how traditional weavers are pushed into exploitative subcontracting systems, unable to compete with machine-made goods. Thus, modernization without inclusive mechanisms exacerbates inequalities within the informal economy, leaving a vast workforce marginalized and reinforcing a cycle of economic vulnerability and dispossession.

In the paper "Craft Tourism Potentials and Practices: An Empirical Study on Craft Tourism Destinations in South Bengal", Supriya Sikari (2023) explores the intersection of traditional crafts and tourism, emphasizing the role of handloom weaving in promoting sustainable and cultural tourism. Among the highlighted destinations, Dhaniakhali in Hooghly district stands out for its rich legacy in producing handloom cotton sarees, particularly the famed Dhaniakhali saree. Woven traditionally by the Tantubay community, these sarees reflect regional identity, aesthetic heritage, and artisanal skill. Sikari notes that the cooperative model and participation of local communities have helped preserve the craft, while at the same time drawing interest from tourists and researchers. However, the paper also points to challenges such as inadequate marketing, lack of modern infrastructure, and limited tourist engagement strategies that hinder the full realization of Dhaniakhali's tourism potential. Integrating craft production with tourism—through craft villages, live demonstrations, and storytelling—can generate employment, preserve cultural heritage, and attract both domestic and international tourists. Thus, Dhaniakhali sarees are not only a textile product but a cultural narrative that can be positioned strategically in the growing domain of craft tourism in India.

The handloom sector in rural Bengal plays a vital role in employment generation, particularly for the youth, in the face of declining agricultural opportunities and increasing migration. Ray (2022) emphasizes the significance of handloom weaving as a traditional livelihood option, offering flexible work hours, low capital investment, and familial participation, making it especially suitable for rural households. Despite the rich legacy of handloom sarees like Dhaniakhali, Baluchari, and Santipur, weavers struggle with market access, poor remuneration, and dependence on middlemen. The study conducted in Udaynarayanpur reveals that although handloom weaving is a primary source of income for many, especially women, the majority remain unregistered and lack institutional support. Middlemen continue to dominate the market chain, while many weavers remain unaware of cooperative and government schemes. Factors such as educational deficits, limited skill training, and seasonal fluctuations in agriculture push rural youth toward the handloom sector, yet their socio-economic upliftment remains minimal. Scholars cited in the study, including Saxena, Kumar, and Annamalai, argue for stronger support from institutions like KVIC and the incorporation of modern technology, training, and marketing strategies.

Therefore, strengthening the handloom sector could offer sustainable employment and reduce rural-urban migration among youth in Bengal.

In the paper "A Detailed Analysis of Cotton Textile Industry at Bardhaman Cluster of West Bengal," Sharmistha Sarkar (2017) highlights the historical and economic significance of the Bardhaman handloom cluster. Renowned for Tangail and Jamdani sarees, this cluster has a legacy rooted in traditional craftsmanship, bolstered by a large number of weavers, designers, and cooperative societies. Sarkar details how the Integrated Handloom Cluster Development Scheme (IHCDS), introduced in 2005–06, aimed to modernize and globalize the handloom sector by enhancing production, infrastructure, and marketing strategies. The study identifies key strengths such as weaving excellence, product diversity, and institutional support from bodies like "Tantuja" and "Tantusree." However, weaknesses include inconsistent raw material supply, lack of quality dyeing facilities, and poor direct market access for weavers. The paper also notes that despite high craftsmanship, many weavers earn low wages and face health challenges due to prolonged manual work. Additionally, powerloom products and shifting fashion preferences pose significant threats to the survival of this traditional industry. Sarkar emphasizes the need for innovative marketing, better infrastructural support, and diversification of products to revitalize the cluster and sustain rural livelihoods tied to the handloom sector.

Chakraborty (2017) provides an insightful historical and contemporary overview of the cotton industry in West Bengal, highlighting its socio-economic significance and persistent challenges. Tracing the origins from the Harappan civilization to the colonial disruption and post-partition revival, the study emphasizes the cultural and economic role of handloom weaving in districts like Nadia, Hooghly, and Burdwan. Despite its rich legacy and global appeal, the sector faces declining weaver participation, low wages, obsolete techniques, and lack of market integration. Chakraborty underscores the need for modernization, skill development, and government intervention to revitalize the industry. The paper advocates for branding, online retail, design innovation, and cooperative empowerment to ensure sustainability. It concludes on a hopeful note, acknowledging governmental schemes and the intrinsic value of handloom products in preserving heritage while meeting contemporary market demands.

Mukhopadhyay & Mukhopadhyay (2021) explore the critical role of competition law in protecting and empowering Small and Medium Enterprises (SMEs) within India's dynamic economic environment. The study outlines how SMEs, despite contributing significantly to GDP, employment, and rural development, often face systemic disadvantages due to anti-competitive practices by larger firms. The authors examine the Competition Act of 2002, which aims to curb practices like cartelization, predatory pricing, and exclusive agreements that disproportionately harm SMEs. Although the Act does not provide special provisions for SMEs, it ensures equal legal protection and accountability for all enterprises. The paper highlights the dual nature of the law—shielding SMEs from exploitation while also holding

them liable for anti-competitive behavior. Government initiatives like "Make in India," "Start-up India," and the "ZED rating" system are also noted for creating a supportive ecosystem. The authors advocate for stronger implementation of policies and continued state support to maintain fair competition and enhance the long-term sustainability of SMEs in Indi

De et al. (2024) examine the impact of institutional environments on the performance and resilience of weaving micro-enterprises in West Bengal during the COVID-19 pandemic. The study compares two weaving clusters—Dhaniakhali, dominated by cooperatives, and Phulia, dominated by private traders. The findings highlight that while weavers in Phulia exhibit higher design innovation and market responsiveness, those associated with cooperatives in Dhaniakhali demonstrate stronger entrepreneurial ability, bargaining power, and resilience during crises. Regression analysis indicates that enterprises supported by cooperatives had steadier work patterns and less vulnerability during the pandemic. Furthermore, the use of unpaid female household labor contributed to enterprise resilience. The study underscores the importance of institutional support, especially in times of external shocks, and calls for policy attention toward enhancing cooperative frameworks. Overall, it contributes to the literature on necessity-driven entrepreneurship by showcasing how institutional environments shape micro-enterprises' capacity to innovate, adapt, and survive.

The literature review provides a comprehensive overview of the contemporary challenges and historical evolution of West Bengal's textile and handicraft industries. It underscores the dual impact of globalization—where modern production techniques and market dynamics have both undermined traditional practices and provided new opportunities for innovation and cultural preservation. Through a detailed examination of empirical data, archival records, and case studies, the reviewed works collectively argue for a nuanced approach that safeguards cultural heritage while embracing the benefits of technological and economic modernization. The existing literature establishes a strong foundation for understanding the heritage, challenges, and potential of Bengal's handloom sector. However, the need for further interdisciplinary studies focusing on GI impact, policy effectiveness, and modern marketing strategies remains evident. This study aims to fill these research gaps by exploring the economic, social, and market dynamics of Dhaniakhali sarees post-GI recognition.

Research gap:

Despite substantial studies on the economic and historical aspects of handloom industries, there is limited research specifically assessing:

- While several studies discuss the GI tag's potential benefits, there is a lack of focused research assessing the actual impact of GI recognition on Dhaniakhali saree weavers.
- Studies often mention that younger generations are not joining the weaving profession but fail to explore potential solutions like design innovation, digital skills, or

entrepreneurship. And here is also insufficient gender-based analysis of how women, especially unpaid female labourers, contribute to the weaving economy, and how cooperative frameworks either empower or marginalize them.

- The literature highlights poor marketing, low digital presence, and counterfeit threats, but lacks in-depth exploration of how branding, e-commerce, or storytelling could enhance the saree's reach and value.

- Most literature emphasizes the production side, but there is limited understanding of consumer awareness, preferences, and perceptions related to Dhaniakhali sarees post-GI tagging.

Objectives

1. To assess the impact of GI tag on Dhaniakhali Saree.
2. To explore youth and women's role and challenges in the weaving sector.
3. To study marketing gaps and scope for branding and online selling.
4. To analyse consumer awareness and preferences.

Database and Methodology

The present study adopts a qualitative and exploratory research design, supported by selective quantitative insights, to examine the socio-economic, cultural, and marketing dynamics of the Dhaniakhali saree industry, especially in the post-Geographical Indication (GI) recognition phase. The research is based on field-level understanding and review of existing literature. Primary data for this study was collected through a field survey conducted in Dhaniakhali Block, located in the Hugli district of West Bengal. A total of 32 respondents were selected, comprising 16 weavers and 16 consumers. The weavers included both cooperative members and independent artisans, offering a diverse perspective on production conditions, economic returns, market access, and their awareness of the GI status. In-depth interviews and questionnaire survey were used to capture their views on challenges. Additionally, focus was placed on understanding their livelihood patterns, dependence on cooperative societies, and the perceived benefits the GI tag. The consumer group consisted of local and regional saree buyers who provided insights into purchasing preferences, awareness of GI tags, and brand perception of Dhaniakhali sarees. These interviews aimed to explore consumer demand trends, brand loyalty, and factors influencing their buying behaviour in addition to field surveys, the study draws extensively from secondary sources including government reports, the Gazetteer of India: West Bengal – Hooghly (1972), the Bengal District Gazetteers: Hooghly (1912), and scholarly literature. A mixed-method approach was adopted to ensure a comprehensive analysis of market dynamics, economic benefits, and sustainability challenges associated with Dhaniakhali Saree as a GI product.

Results and Discussion

The Geographical Indication (GI) status has played a role in increasing awareness about Dhaniakhali Sarees among consumers. However, this has not significantly improved demand on a larger scale due to the lack of an effective marketing strategy. Many weavers have shifted to other occupations because of low wages, reduced profitability. The younger generation shows less interest in traditional weaving, primarily due to low daily wages.

The Impact of GI Status on Dhaniakhali Sarees:

Over the past few years, there has been a renewed interest in handloom products, particularly among environmentally conscious and heritage-loving consumers. Dhaniakhali Sarees, with their fine cotton texture, comfort, and elegant patterns, are well-positioned to benefit from this trend. Unlike machine-made synthetic sarees, handwoven Dhaniakhali Sarees use natural fibers and traditional handloom techniques, making them sustainable and environmentally friendly. The Geographical Indication (GI) status, granted to Dhaniakhali Sarees, plays a crucial role in preserving their originality and protecting the rights of traditional weavers. The Geographical Indication (GI) tag granted to Dhaniakhali saree in 2012 was also expected to boost the socio-economic condition of traditional weavers by providing legal protection, enhancing market value, and ensuring authenticity. However, real-time impacts on income and livelihood remain mixed, as observed through both field studies and literature survey.

In Dhaniakhali, there are mainly two cooperative society who handle the whole process, one is Dhaniakhali Union Tantshilpi Somobay Samiti Ltd. and another is Samaspur Union Cooperative Weavers Society Ltd. The cooperative society provides financial aid and subsidies on yarn to help weavers manage their production costs. Events such as Biswa Bangla Handloom Expo, Kolkata Hasta shilpo Mela, Sobola Mela help artisans showcase their sarees to a larger audience. A small portion of weavers, mainly those associated with these cooperative societies, have witnessed modest income growth post-GI registration. Before GI registration the artisans earned around ₹8000 to ₹10000, but now their monthly income is ₹5000 to ₹8000 per month. During festivals like Durga Puja and Bengali New Year, demand surges, leading to increased orders., this benefit is not evenly distributed, and weavers outside the cooperative system, working individually or under private traders, often report no significant financial gains. Despite GI recognition, demand for Dhaniakhali sarees remains highly seasonal. For most of the year, sales are slow, and livelihood remains unstable. Many weavers engage in alternative wage work under MGNREGA or agricultural labour during the off-season. This reflects the fact that the GI tag has not translated into year-round employment or income security for a majority of artisans.

One of the critical expectations of GI tagging was the creation of direct marketing channels for artisans. However, studies (e.g., Mukhopadhyay & Sarkar, 2019) indicate that middlemen continue to dominate the trade. These intermediaries manage logistics, pricing, and sales, often leaving the weavers with only 20–30% of the final selling price. This drastically limits their earnings and undermines the purpose of GI protection. Although the GI status is meant to protect and promote Dhaniakhali Sarees, many weavers are unaware of its benefits. A significant number of weavers are unaware of the meaning and benefits of GI recognition. Field surveys (e.g., De et al., 2024) show that over 60% of weavers interviewed in Dhaniakhali had never heard of the GI tag, and among those who had, very few understood its commercial or legal implications.

Out of the 150 weavers of Samaspur Union Cooperative Weavers Society Ltd. involved in making these sarees, only 14 have obtained the GI certificate. This indicates that the advantages of GI recognition are not reaching the grassroots level. A lack of training and awareness programs prevents weavers from utilizing the full potential of GI protection. If more weavers could obtain the GI certificate, they would be able to demand better prices for their products and gain direct access to larger markets. This knowledge gap prevents them from leveraging the GI status for higher bargaining power or accessing government support. The GI tag has not significantly improved the overall livelihood security of most weavers. Many artisans report lack of health benefits, social security, or pension schemes, making them vulnerable to economic shocks. Moreover, the younger generation is reluctant to enter the profession due to poor income prospects, leading to a decline in skilled labour.

Role of Youth and Women in Weaving Sectors:

Youth have the potential to bring new design ideas, modern colour combinations, and contemporary patterns to make sarees more appealing to younger consumers. With proper training, they can help blend tradition with trend. Youth are generally more tech-savvy and can contribute by promoting products through social media, e-commerce platforms, and digital storytelling. This can help overcome the current challenges of poor marketing and low visibility. But the critical challenge is the lack of interest among the younger generation in traditional weaving. Field studies such as those by Mukhopadhyay & Sarkar (2019) show a decline of over 25–30% in young weavers over the last decade in areas like Tarakeswar and Chinsurah. Youth view weaving as low-paying, physically demanding, and lacking social recognition. The younger members of weaver families prefer to take up alternative jobs that offer better financial stability. Weaving requires long hours of work (12 to 14 hours daily) for minimal wages, making it an unattractive career option. Young people prefer jobs under MGNREGA, private security, delivery services, or small shops for better pay and stability. There is very limited exposure to design innovation or entrepreneurship training in weaving clusters, making the profession less appealing to the younger generation. If this trend continues, the number of skilled weavers will continue to decline, putting the future of Dhaniakhali Sarees at risk.

Women play a crucial role in the pre-loom processes of Dhaniakhali saree production, even though their contributions often go unrecognized. These steps begin with thread dyeing, where yarns are soaked and treated with colour—requiring careful handling to ensure uniformity and vibrancy. After dyeing, women are responsible for drying the yarn, traditionally done by spreading the threads under the sun. However, during the monsoon season, this method becomes challenging due to frequent rain and humidity. To cope with this, women dry the yarn near traditional mud-clay ovens (ununs) used for cooking, which provide a source of gentle heat. Unfortunately, this method carries risks—if the yarn is placed too close or left unattended, it can burn or become brittle, leading to material loss and wastage. Once dried, the yarn is wound onto bobbins in a process called bobbin winding, followed by starching, which strengthens the thread for weaving. Finally, women often assist in finishing tasks, including trimming loose threads and folding the sarees. These steps are physically demanding and time-consuming, yet essential for the quality and durability of the final product. Despite their significance, women involved in these activities are rarely paid or formally acknowledged, highlighting the gendered labour dynamics in the weaving sector. According to Das (2015), over 60% of women involved in weaving activities are unpaid or underpaid. Despite contributing significantly to productivity, women have limited access to cooperative memberships, decision-making roles, or leadership positions in trade associations. Societal norms and family responsibilities further restrict their mobility and exposure to training or external markets.

Challenges:

While the GI status has created awareness, multiple challenges continue to limit the growth of Dhaniakhali Sarees.

One of the biggest problems faced by Dhaniakhali weavers is low wages. According to the circular of the labour commissioner, West Bengal (12/12/2023) the minimum wage benchmarks for skilled artisans is ₹312 per day. Weaving a single saree takes two and a half days, and a weaver earns only ₹150 to ₹250 per saree (average ₹100 per day), depending on the design. Considering that a weaver can make a maximum of four sarees per week, their earnings remain very low compared to the effort and time invested. Due to rising raw material costs, especially the cost of yarn, weavers struggle to make a sustainable income. Many artisans are unable to recover their investments, forcing them to shift to other occupations.

The rise of power loom and synthetic sarees has affected the demand for Dhaniakhali handloom sarees. Machine-made sarees are cheaper than authentic Dhaniakhali saree, the minimum price of power-loom sarees is starting from ₹400 to ₹500 in local market, but the authentic pure cotton handloom Dhaniakhali Saree's price is starting from ₹1100 to ₹1500 and the machine-made sarees are often come in modern designs that appeal to younger buyers. In contrast, Dhaniakhali Sarees, being handmade, have higher production costs and

longer manufacturing time, making them less competitive in the market. Additionally, duplicate sarees imitating Dhaniakhali designs are widely available at lower prices. Many consumers, unaware of the authenticity of GI-tagged sarees, opt for these cheaper alternatives, further reducing the demand for genuine handwoven products. Even though digital platforms have provided an opportunity for weavers to sell their products online, many artisans lack direct access to e-commerce platforms. This restricts their market reach, as they rely primarily on local traders and middlemen, who often offer lower prices for their sarees. Moreover, Dhaniakhali Sarees have not gained much recognition in international markets. The absence of global promotion and lack of export channels limit the potential for expansion beyond regional markets.

Another significant factor affecting demand is the lack of design innovation in Dhaniakhali Sarees. While the sarees have a distinct traditional appeal, younger buyers often prefer modern and trendy designs. Unlike brands that adapt to changing fashion trends, the Dhaniakhali weaving industry has largely remained traditional, making it difficult to attract a broader customer base. Introducing contemporary designs, fusion sarees, or lighter fabric variations could help bridge this gap and appeal to the younger generation.

Marketing gaps and scope for branding and online selling

Despite receiving the GI tag, marketing practices remain mostly traditional—sales are done through local haats, cooperative stalls, and exhibitions. This field survey shows that no major shift in marketing strategies has occurred even years after GI recognition. Branding and online selling are nearly absent, with weavers unaware of how to use GI status for promotion. Dhaniakhali sarees are primarily marketed through local exhibitions, cooperative sale counters, and government emporiums. But the marketing is largely seasonal—especially around Durga Puja, Eid, Bengali New Year, and wedding seasons. Weavers and even cooperatives often do not use the GI tag logo or mention it on labels, missing an opportunity to build authenticity and value. Dhaniakhali sarees have very limited representation on major e-commerce platforms like Amazon, Flipkart, or dedicated handloom sites. According to field observations and interviews only 1 seller out of the sample size in Dhaniakhali use social media (like Facebook, Instagram) or digital platforms to promote their products. Most weavers and cooperative members lack digital literacy, making it difficult to access or manage online selling independently.

As per the field data, 1–2 training sessions were organized by the government, focusing on branding and marketing. However, experienced artisans did not participate, either due to lack of interest, awareness, or scheduling conflicts. Those who did attend were mostly unemployed youth or non-weavers, and they did not own a ‘tant’ machine, making the training impractical for real implementation. This highlights a disconnect between training programs and actual artisan needs. Most weavers, especially older ones, lack digital literacy—they are not familiar with e-commerce, social media marketing, or even using

smartphones for business. These findings confirm earlier studies (e.g., Das, 2015), where less than 10% of weavers engage with any form of digital marketing. As a result, they remain heavily dependent on middlemen, who control pricing and profit margins. There is no consistent logo, tag, or packaging that identifies a saree as a genuine "Dhaniakhali GI product."

Middlemen handle a large portion of sales and marketing, especially for bulk orders in cities like Kolkata, Mumbai and Odisha. These intermediaries also control product flow, making it hard for artisans to connect directly with customers. Imitation sarees labelled as "Dhaniakhali" but produced on power looms or outside the region are common in urban markets. The lack of legal enforcement or awareness campaigns about GI authenticity contributes to this issue. Buyers cannot differentiate between authentic handloom sarees and power loom imitations, which are often cheaper and more widely available. This lack of branding not only affects sales but also undermines consumer trust. Dhaniakhali-name sarees produced outside the region or on machines are flooding markets, especially in urban areas like Kolkata. These fake products are sold at lower prices, which hurts the sales of authentic weavers.

Dhaniakhali sarees have a rich heritage—associated with the Tantubay community and even worn by figures like Mamata Banerjee. However, this narrative is not used effectively in marketing. There is no strong cultural campaign linking the saree with identity, sustainability, or Bengal's tradition. There is high potential for Dhaniakhali sarees to grow through-Niche online stores, GI-certified product tagging, social media campaigns, Craft tourism packages. Younger consumers are increasingly interested in sustainable, handcrafted, and culturally rich products, offering a ready market if branding is done right. Establishing direct selling platforms where weavers can connect with buyers without middlemen would also help increase their earnings. Additionally, financial aid, skill development programs, and pension schemes could encourage more artisans to continue weaving. To appeal to younger buyers, Dhaniakhali Sarees should experiment with new designs, colours, and patterns. Blending traditional techniques with modern fashion trends, such as lightweight fabrics, fusion wear, or sarees with contemporary motifs, could expand their customer base. Collaborations with fashion designers could introduce limited-edition collections, making the sarees more attractive to modern consumers. Government initiatives should focus on training artisans in digital marketing and providing financial support for setting up online stores.

Awareness among consumers:

Despite the GI tag, consumer awareness about Dhaniakhali sarees being a GI product remains low, particularly outside West Bengal. Field interviews and survey responses suggest that while consumers recognize the saree as a traditional and comfortable attire, only about 2 to 3 consumers are aware of the GI status, and even fewer understand what it

signifies. The GI tag is not prominently displayed on packaging or marketing materials in most retail outlets, both online and offline. This lack of visibility undermines the authenticity message the GI tag is meant to communicate.In terms of product preference, consumers consistently appreciate Dhaniakhali sarees for their lightweight texture, breathability, and comfort, making them suitable for everyday wear, especially in hot and humid climates. Websites like Banbithi.com, which list pure cotton Dhaniakhali sarees, reflect these preferences, highlighting features such as "pure cotton," "handwoven," and "ideal for daily use." However, such sites rarely mention the GI status in product descriptions, nor do they include customer reviews—a key tool for building trust and informing consumer choices in the digital age. On platforms like Biswa Bangla, which showcases Bengal's traditional crafts, Dhaniakhali sarees are presented with a stronger emphasis on cultural heritage. Here, consumers are exposed to the regional identity and traditional appeal of the saree, contributing to its prestige. However, the storytelling is still limited, with minimal user engagement or interactive content that would educate consumers about the product's origin, the meaning of GI, or the lives of the weavers who produce them.

From a digital marketing perspective, the saree lacks a strong online presence and branding strategy. There is no unified campaign or e-commerce initiative that promotes Dhaniakhali sarees as a GI-certified, handcrafted product. This gap results in lost opportunities to attract younger, socially conscious consumers who are increasingly inclined toward sustainable and artisanal products. In fact, many sarees labelled as "Dhaniakhali" are available on popular marketplaces but are produced on power looms, often at lower prices confusing buyers and damaging the reputation of the authentic product. In contrast, well-branded GI products like Kanchipuram or Banarasi sarees have a strong online presence, clear labelling, and consistent use of storytelling that connects consumers to the craft. Dhaniakhali sarees have yet to reach this level of brand identity, which is crucial in today's competitive textile market.

Additionally, this field survey highlights that government efforts to promote the saree through training and branding programs have had limited success. Although one or two training sessions were held post-GI recognition, participation was low primarily attended by individuals not directly involved in weaving or without access to looms. Experienced artisans, who are key to quality production and brand representation, were absent from these sessions, leaving a gap in the execution of consumer-oriented strategies.

While Dhaniakhali sarees enjoy a regional customer base due to their comfort and cultural symbolism, consumer awareness about the GI tag remains weak, and branding efforts are minimal. There is significant potential to improve visibility and preferences through targeted educational campaigns, consistent GI labelling, storytelling marketing, and e-commerce integration. Building consumer trust and connection with the product's history and maker community can turn Dhaniakhali sarees into a stronger, globally recognized brand benefiting both consumers and artisans alike. Awareness campaigns through social media, fashion shows, exhibitions, and workshops can help educate consumers about the importance of

purchasing GI-certified sarees. Schools, colleges, and government institutions can also play a role in promoting awareness about authentic handloom products. The demand for authentic Dhaniakhali sarees can be further strengthened through stronger market linkages and improved accessibility. E-commerce platforms like Amazon, Flipkart, and Government e-Marketplace (GeM) can provide a direct channel for consumers to purchase original GI-tagged sarees. Additionally, the government and private organizations should work together to establish exclusive Dhaniakhali saree outlets, ensuring that buyers have access to genuine products. Initiatives like handloom fairs, trade exhibitions, and collaborations with fashion designers can also help increase the visibility and demand for this heritage product on a national and international scale. Furthermore, strict legal action against counterfeit sellers and mandatory GI-tagging for every authentic Dhaniakhali saree are necessary steps to protect weavers from financial exploitation. Ensuring fair pricing for artisans and providing them with financial and technological support will also contribute to the sustainability of this craft. By empowering both consumers and weavers.

Suggestion:

- Implement fair wage structures and strengthen government schemes for financial and social security.
- Conduct regular training and campaigns to educate both producers and buyers about the benefits of GI tagging.
- Empower cooperatives to ensure direct market access and reduce middlemen exploitation.
- Encourage youth participation and introduce design training to modernize and diversify Dhaniakhali sarees.
- Provide looms, training, and leadership opportunities to increase women's visibility and contribution.
- Build a unified brand identity with storytelling, attractive packaging, and product tagging.
- Train artisans in online sales, create digital catalogues, and support presence on platforms like Amazon and Flipkart.
- Use platforms like Instagram and YouTube to reach younger audiences with visual content and endorsements.
- Establish weaving tourism hubs and promote Dhaniakhali as a craft destination through experiential marketing.

- Increase exposure and sales opportunities through exhibitions, trade fairs, and cultural fashion shows.

Conclusions

The study highlights that while Dhaniakhali sarees hold cultural and economic value, the benefits of GI recognition have not fully reached the weavers. Issues like low wages, weak marketing, lack of innovation, and poor consumer awareness persist. Empowering weavers—especially women and youth—through design training, cooperative support, digital marketing, and strong branding can bridge these gaps. With better policy implementation and awareness campaigns, Dhaniakhali sarees can gain wider recognition and provide sustainable livelihoods to the artisan community. For future research, a wider and more interdisciplinary approach is necessary to assess the long-term impact of GI status on the Dhaniakhali Saree industry. More in-depth studies can explore sustainable business models, technological interventions, and policies that can enhance the global competitiveness of this handloom sector.

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Creativity-Crisis Paradox: An examination of the craftsmen of South Asia

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Abstract: Economic activities of creative craftsmen are the perfect manifestation of the emblematic spatial locations in a cultural landscape. The artisans of South Asia represent such vibrant feathers of divinity defining and redefining a cultural region over the course of human history. The artisans of Kumartuli, Kolkata, India, prepare the idols, decoration artefacts, and sculptures that customers demand transcending geographic boundaries. This enriching history of the cultural landscape, a significant manifestation of the urbanism of Kolkata, is pronouncedly marked by the idol makers who prepare idols for the various festive occasions of the country of India. This is very important, especially because the Durga Puja has already been enlisted in UNESCO's Representative List of Intangible Cultural Heritage of Humanity in 2021. The current research delves deeper into the insights into the stages and processes involved in idol making, including a comprehension of the economic structure of these artisans. For this purpose, questionnaire surveys, in-depth interviews, participant observation, and focus group discussions were employed.

It is worth noting that these craftsmen have suffered severely since the onset of COVID-19 pandemic in 2020. The onerous ramifications of the pandemic have mostly been observed among idol makers and decoration artisans, with marked reductions in profits, annual turnovers and increases in raw material prices. Many artisans resorted to occupational transformations to supplement their family incomes significantly apart from their heritage occupations like vegetable, cosmetics, and fish selling, to name a few. The present research observes that the sculpturists have yet to reestablish their annual turnovers, which are equivalent to the pre-COVID phases. Therefore, the present research suggests the grant of GI tag for these artisans and comprehensive planning and policies to preserve the rich heritage of a composite culture in future.

Keywords: cultural landscape, artisans, heritage, COVID-19, occupational transformation, GI-Tag.

Introduction

The creative economic activities of the artisans or craftsmen of South Asia are not just enigmatic footprints defining the culture and traditions of a particular area but also defining the precinct phases of human evolution with history. The generation-defining creative pristine artifacts by these artisans not only just define a historical time frame but also reflect the ubiquitous changes in the taste and preference pattern of society over time. The scintillating artifacts produced by the Kumartuli artisans of Kolkata, India, are such perfect manifestations of society's preference and choice. They are aptly related to the historical development of Kolkata with time, where the Kumartuli area illustrates a perfect blend of cultural heritage and tradition, unfurling itself with vibrant colors of creativity by the divine hands of the artisans. As per Rhodes (1961), creativity may be illustrated as a mechanism of communicating a new idea, product, or concept. The ability to think and act differently is an

important trait of creativity (Brown, 1989). The creativity that defines human beings has four main traits: the process of creativity, the products that are creative in nature, the person who is creative by nature, and the situation that is creative (Mooney, 1963; MacKinnon, 1970). All these feathers of creativity are omnipresent among the craftsmen of Kumartuli. The present study has applied an ethnographic approach to examine the life and livelihood mechanisms of these magnificent artisans.

Ethnographic research are crucial for elucidating the fundamental traits of human creativity and its connection to prevailing culture and customs. “Ethnography, as a methodological approach, generally denotes fieldwork (or participant-observation) undertaken by an individual researcher who immerses themselves in the lives of the subjects for an extended duration, typically a year or more” (John Van Maanen, 1996). The term ethnography signifies depiction of population. This is qualitative representation and characterization of a certain culture, including its conventions, beliefs, and behaviors, derived from field observation and research (Harris and Johnson, 2000). This describes the culture and lifestyle of individuals in relation to a specific historical and geographical context (Mohanty et al., 2009). The ethnographic research undertaken by this study elucidates the life and livelihood strategies of the statue makers in Ghurni.

Kumartuli began in the seventeenth century when potters from Ghurni, Krishnanagar moved to Gobindapore, a bustling settlement on the Bhagirathi (now the Hooghly River) to make pots, clay toys, and domestic cooking equipment. After British East India Company needed Gobindopore building Fort William, the people moved upstream to Sutanuti. Kumartuli was the potters' new location and large territory. Karigars, committed artisans, work in their studios to make clay idols. These workshops have workspace, idol storage, raw material storage, and dining, cooking, and sleeping quarters for craftspeople. Here, artists and laborers live and work. The built landscape is mostly workshops lined up along narrow roads, together with idol accessory shops and artist homes (Banerjee, 2017). Kumartuli has three types of artisans: idol makers, who make idols of various deities, gods, and goddesses like Durga, Kali, Lakshmi, Ganesh, Saraswati, and others; decoration artisans, who make decoration artifacts like “Tin Kolkar Mukut”, “Topor”, and “Totto” for pujas, festivals, and ceremonies; and sculpturists, who make beautiful statues.

Furthermore, it is to be noted that these artisan categories belong to the unorganized sectors. The National Commission for Enterprises reports that the unorganized or the informal sector constitutes 93% of India's entire labour, amounting to around 290 million individuals out of a total working population of 317 million. According to their reports, workers in these areas lack job security, employment stability, and social protection. Despite the substantial proportion of the unorganized sector in India's economy, it remains a generally overlooked area in scholarly discourse and public policy support (Kabra, 2003). The National Commission for Enterprises in the Unorganized Sector (2007) defines the unorganized sector as comprising all unincorporated private enterprises owned by individuals or households that

engage in the sale and production of goods and services, and employing fewer than ten total workers. Informalization often presents a dual challenge, as workers are deprived of legal rights to equitable salaries while also facing a lack of employment stability (RoyChowdhury, 2005).

Literature on the livelihood mechanisms of this unorganized sector, characterized by a distinctive system of sustenance and production, is limited and has been significantly impacted by the COVID-19 pandemic. A substantial body of literature and study exists on several facets of the unorganized sector. Banerjee (2017) examined the conditions of artisans engaged in idol-making in Kumartuli; Barua (2016) investigated the activities of pandal makers in West Bengal; Das (2018) and Jana (2015) analyzed various aspects of the clay doll and terracotta industries in Ghurni, Krishnanagar, along with the challenges they encounter; Saha (1922) explored the declining trend of pottery entrepreneurship in Krishnanagar and Birbhum, West Bengal; Hazra (2017) studied the prospects and characteristics of traditional clay doll making in Krishnanagar and so on. In order to address these potential research gaps, the present investigation aims to study livelihood mechanisms of the artisans of Kumartuli. The present research also delves deeper into the techniques involved in the idol making by these artisans and also how the Corona pandemic has affected production and business of these artisans. A case study analysis has also been made to illustrate pains and struggles of poverty and challenges faced by craftsmen. It has been found that the annual turnovers have decremented significantly for all the categories of the artisans during the pandemic phase compared to the pre-pandemic phase. Presently, many artisans have not yet recovered from the shocks of the pandemic. During the pandemic times, these artisans have faced severe shortages in demand for the finished products, an increase in price of raw materials, the cost price of production, labour prices, transportation costs, difficulties in long-distance transportation, fall in demand for finished products from abroad and so on. Therefore under these onerous situations of the pandemic, many artisans resorted to occupational transformations. That is to infer that these artisans took different occupations like mask making, vegetable selling, fish selling, groceries, sweets selling, flowers selling, construction workers, hospital workers, and so on, which are markedly different from their heritage or parental occupations like idol production or making, decoration artefacts making and sculpture creations. It is to be noted that some artisans have never returned to their heritage occupations. However, the majority of the artisans have taken back their heritage economic activities. Moreover, the above-mentioned problems persisted even before the pandemic. However, these problems have become much more accentuated after the occurrence of the COVID-19 pandemic. Therefore, sustainable planning for the welfare of these artisans is the need of the hour to ensure all-around inclusive growth in the long run. Moreover, the youth should be encouraged to carry forward the heritage occupations.

“My faith is in the younger generation, the modern generation. They will work out the whole problem like lions”

~ Swami Vivekananda

"Youth power is both the agent of change and also the beneficiaries of change"

~ Prime Minister Shri Narendra Modi

The rationale of the Study

It can be inferred that occupational transformations were survival mechanisms meant only for short-term solutions, not long-term permanent ones. In order to provide long-term benefits and solutions, the art and creativity of these artisans must be recognized nationally and internationally by granting GI (Geographical Indication) Tags for the picturesque artifacts produced by these craftsmen, defining the feathers of creativity under the creative divine landscape of Kumartuli. Otherwise, these artisans would remain unnoticed and neglected, and the crisis, both economic and social, will ghastly affect them and ultimately create the creativity-crisis paradox in the long run. This recognition of GI Tag will ultimately enable the nation of India to achieve its goals under Vision Viksit Bharat 2047 and Vocal for Local, which will help these unorganized sectors to sustain the uncertain shocks of the pandemic in the near future with a better vision and planning. Furthermore, adequate steps and inclusive planning is the need of the hour to protect these artisans. The raw material prices must be reduced and checked; the transportation costs must be checked. Moreover, these artisans should be given financial assistance whenever there is a crisis or urgent requirement. Direct Debt Transfer and Differential Rates of Interest loans should be provided to the poor artisans. In other words, the protection of these heritage economic activities should be in line with the sustainable urbanization processes fulfilling the Fundamental Duties of the Indian constitution, i.e., to preserve the rich heritage and tradition of our composite culture, including promises made by the Sustainable Development Goals 2030 in future. The findings of the present investigations will be vital for planners, policymakers, and administrators to make sustainable, inclusive planning operational in the long run to ensure development and growth with both equity and justice.

Figure 1: The occupations relating to the festive economy in India

Aims and objectives

The objectives of the present investigation are as follows:

- To study the creativity and economic structure of the craftsmen of Kumartuli.
- To comprehend the stages of idol-making.
- To analyze the onerous effect of the COVID-19 or Corona pandemic on the life and livelihood mechanisms of the artisans.

Study Area

This study covers Kumartuli, Ward 9 of Kolkata Municipal Corporation (KMC). Historical records show that King Krishnachandra of Krishnagar collected artists from Natore of the then East Bengal, now Bangladesh, who settled at Ghurni of Krishnanagar city in Nadia district and began making clay dolls and other artefacts (Hazra, 1991). These artisans then moved to Kolkata to find better work and founded the Kumartuli potter's colony in the 19th and early 20th centuries. As mentioned, Kumartuli has idol makers, decorating workers, and sculptors. The KMC office reports 500 artisans, largely in Kumartuli but also in Bagbazar and Kalighat. The present study examines how the COVID-19 pandemic affected Kumartuli craftspeople's livelihoods. From an estimated 500 craftspeople, the current study selected 171 idol manufacturers, 97 decorating artisans, and 45 sculptors. The Kumartuli region, where these artisans sell their goods, is strategically positioned in North Kolkata.

Figure 2: Kumartuli, Kolkata

Materials and Methodology

The ground information regarding livelihood mechanisms of the artisans and the titanic effect of the COVID-19 pandemic have been obtained by several methods like: questionnaire surveys, focus group discussions, participant observations, indepth-interviews and so on. The present research mainly uses primary data for the ensuing investigation. To comprehend the geographic potentials of Kumartuli, a SWOT (Strength, Weakness, Opportunity, Threat) analysis has been made. Furthermore, simple line graphs and paired sample t-tests have been performed to comprehend the onerous effects of the Corona or COVID-19 pandemic on the lives of the artisans. Further, a case study analysis and word cloud analysis have also been made to delve deeper into the effects of the pandemic on the lives of the craftsmen.

Result

The SWOT Analysis

A SWOT analysis has been conducted to understand the geographic potentials and locational qualities of the Kumartuli area, as illustrated in Table 1. This analysis is crucial as the demand and supply chain mechanisms, and consequently the overall livelihood systems of the Kumartuli craftspeople, are significantly reliant on it.

SWOT Analysis for Kumartuli and its artisans

Strength	The Kumartuli area in Kolkata is strategically located in the city center. Kolkata airport is nearby. Kolkata is connected to Sealdah and Howrah railways, two key divisions. Kumartuli is also well-connected by Kolkata Metro and nearest Ganga. Kumartuli is near Burrabazar.

	This is where decorative makers buy bulk artifacts for the market. In addition, Kumartuli is a market for idols, decorations, and sculptures. Since Kolkata is West Bengal's capital, it draws travellers from far and wide. Foreign travellers can also reach Kolkata airport easily.
Weakness	Kumartuli is congested and lacks storage for idol makers, decorative workers, and sculptors. During pujas and festivals, idols and statues fill almost all Kumartuli's small alleyways. Very little walking space remains. Additionally, artists operate in dim settings. Working, sleeping, and eating in their studios is unhealthy.
Opportunity	Kumartuli distributes idols, decorations, and sculptures. Kolkata, the capital of West Bengal, draws travellers from far and wide. Idol makers employ mud, straws, and bamboo from Uluberia villages transported by vehicles and vans. Decoration artisans use Nadia's Krishnanagar raw materials. It comes from Surat, New Delhi, Mumbai's Kalyan, etc. Kolkata's Burra Bazar sells these materials.
Threat	Over time, congestion, short circuits, and mishaps caused fires that devastated artisans. Overcrowded stores are destroyed. Due of congestion, many shops catch fire easily. Rain and floods severely impact idol producers, especially decorative artists who lack storage facilities. Poor artisans have suffered greatly from the COVID-19 pandemic.

Table 1: SWOT analysis for the cultural landscape of Kumartuli and its craftsmen

Stages of Idol Making

Durga idols are made in numerous stages, according to Kumartuli idol builders.

1. The initial step in creating Durga idols is building the Kathamo, or frame. Idol manufacturers first buy bamboo and timber logs from Krishnanagar, Uluberia, etc.

2. Step two involves preparing mud for the Durga idol. Bele mati, sandy soil, and Etel mati, clayey soil, are the main varieties of mud used. Mud is bought from Uluberia village landowners. Mud is taken from the neighboring Hooghly river. Mud carriers, called as "Mute," transport mud to idol manufacturers in tiny and medium-sized vehicles.

3. Third, mix rice peels (Tush) with mud and Bele mati to make Pocha Mati. Finally, mud is put on the dry grass structure and dried for 4–5 days. The “Ekmete” layer of Durga idol manufacturing begins here. Next, a straw-blended mud called “Khor” mati is mixed with Etel mati and put to the construction. The second layer is the “Domete” layer. It dries for 5-6 days. A jute mud called “Pat mati” is then made.

4. The final phase is creating the Durga Idol finger. The Etel mati idol manufacturers make finger molds. The fingers are quickly connected to the idols without drying. Jute is used with Etel mati to tighten idols' hands and fingers.

5: Begin coloring the idol by spraying “Khori mati” (a mud-water paste). Dry color is then applied to the body, eyelids, and lips. Specialized artists then draw the eyeballs. After eye coloring, it's dried and coated with barnish to make it shiny.

6. Afterward, specialists embellish the idols with cloth and affix ornaments to their bodies.

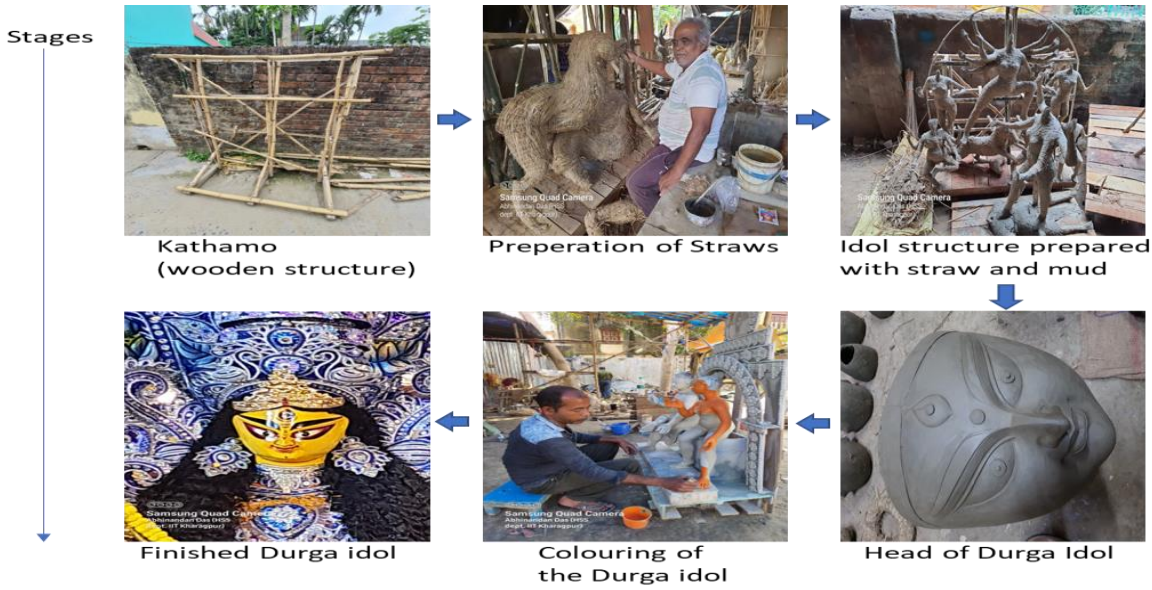


Figure 3: Processes involved in the creation of Durga Pratima

Statistical analysis performed by the line graphs and paired-sample t-test

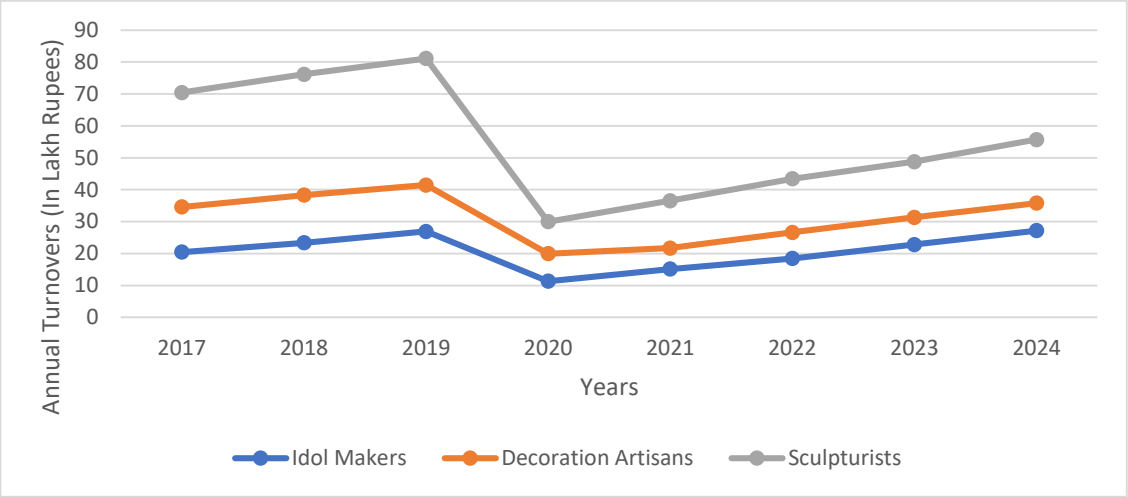


Figure 4: Average annual turnovers (in lakh rupees) of craftsmen of Kumartuli

The hypothesis for the paired sample t-test of Table 2 is as follows:

H0: There is an insignificant or no difference between the average annual turnovers of the pre-COVID-19 period (2019) and post-COVID-19 period (2020).

H1: There is a significant difference between the average annual turnovers of the pre-Corona period (2019) and post-COVID-19 period (2020).

Categories	Paired Differences (Post Corona average annual turnover 2020 and Pre Corona average annual turnover 2019)						t	df	Sig. (2-tailed)	Decision
	Sample Size	Mean	Standard Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
					Lower	Upper				
Idol Makers	171	-15.555556	8.028707	0.613971	-16.767544	-14.343567	-25.335997	170	1.307E-59	The Null hypothe-sis is rejected
Decoration Artisans	97	-21.494845	14.344804	1.456494	-24.385964	-18.603727	-14.757934	96	1.9813E-26	The Null hypothe-sis is rejected
Sculpturists	45	-51.111111	17.799671	2.653418	-56.458724	-45.763498	-19.262365	44	4.5601E-23	The Null hypothe-sis is rejected

Table 2: Results of Paired Sample T-Test to examine the pre-Corona average annual turnover (2019) and post-Corona average annual turnover (2020).

In all three categories of artisans, the null hypothesis is rejected, indicating significant difference and decline in average annual turnover in 2020 compared to 2019.

The hypothesis for the paired sample t-test of Table 3 are as follows:

H0: There is an insignificant or no difference between the average annual turnovers of the pre-COVID-19 period (2019) and post-COVID-19 period (2024).

H1: There is a significant difference between the average annual turnovers of the pre-COVID-19 period (2019) and post-COVID-19 period (2024).

Categories	**Paired Differences (Post Corona average annual turnover 2024 and Pre Corona average annual turnover 2019)**						**t**	**df**	**Sig. (2-tailed)**	**Decision**
	Sample Size	**Mean**	**Standard Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**					
					Lower	**Upper**				
Idol Makers	171	0.245614	10.389385	0.794496	-1.322735	1.813963	0.309144	170	0.757590	The Null hypothesis is accepted
Decoration Artisans	97	-5.670103	18.756511	1.904435	-9.450377	-1.889829	-2.977315	96	0.003681	The Null hypothesis is accepted
Sculptu-rists	45	-25.400000	11.556973	1.722812	-28.872099	-21.927901	-14.743339	44	1.237E-18	The Null hypothesis is rejected

Table 3: Results of Paired Sample T-Test to examine the pre-Corona average annual turnover (2019) and post-Corona average annual turnover (2024).

From Table 3, it can be inferred that the null hypothesis is accepted for the idol makers and decoration artisans, while it is rejected for the sculpturists. This indicates that the sculpturists are yet to match the average annual turnovers in 2019 (pre-COVID condition) even in 2024.

Scenario of Occupational Transformations of the artisans amidst the COVID-19 pandemic

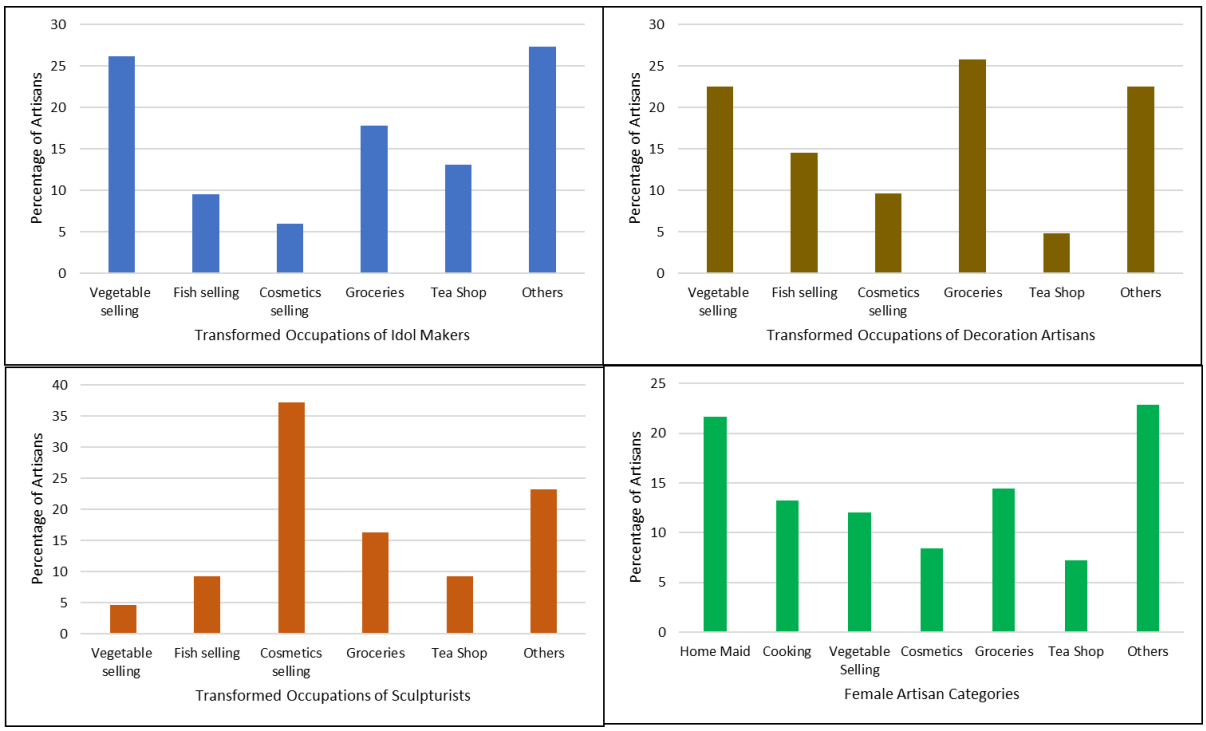
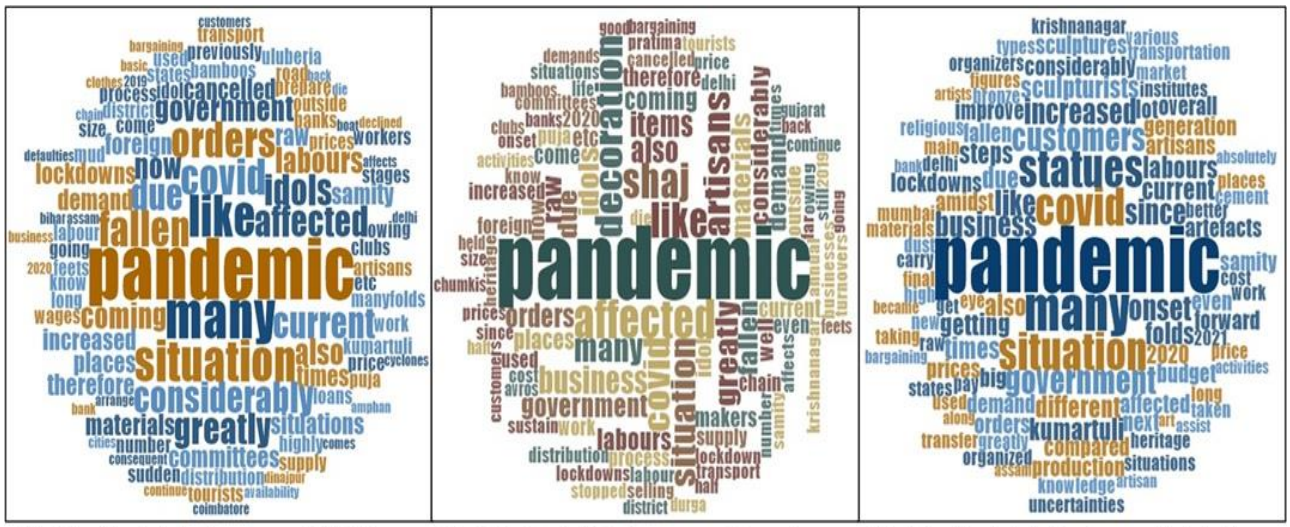


Figure 5: Occupational Transformations of the Artisans

Word Cloud Analysis



Word Cloud Analysis for the category of Idol Makers

Word Cloud Analysis for the category of Decoration Artisans

Word Cloud Analysis for the category of Sculpturists

Figure 6: Word Cloud Analysis of the Artisans of Kumartuli

Case Study of Mr. Subir Pal, a world famous statue maker of Ghurni and Kumartuli

Mr. Subir Pal aged 56, is a prominent craftsman who showcases Kumartuli's art and innovation and helps reshape the city's art scene. Art sometimes defines a place, sometimes the place art. Mr. Pal's creations add to Kumartuli's centuries-old workmanship that transcends history and generations. Ghurni's famed clay artist, sculptor, idol creator, and statue maker is Mr. Pal. The works of Mr. Pal redefine art and creativity with a blend of religiosity, legacy, art, and sculpting that speaks to Kumartuli, the heart of creativity. He made Hindu clay models of Gods and goddesses, Muslim clay models, Christian clay models of Jesus Christ and Mother Mary, and modern architectural artifacts like rail engines, chariots, artistic vehicles like cars and bicycles, and figures of modern personalities like actor Soumitra Chatterjee, honorable Chief Minister of West Bengal, Mamata Banerjee, Mrs. Indira Gandhi, Babasaheb Bhimrao Ambedkar, Mahatma Gandhi, Netaji Subhash Chandra, and others He sculpts clay, bronze, fiber, cement, stone, etc. Besides being a mritshipli, he is a famous sculptor.

Figure 7: Mr. Subir Pal, the renowned sculptor of Ghurni and Kumartuli

His production of idols and statues have greatly been affected by the COVID-19 pandemic. The onerous situation of the devastating pandemic has reduced the demand for his majestic artefacts, increased the price of raw materials, and so on. He lived a life of destitute and distress during the pandemic times in 2020 and 2021. However, his business is slowly recovering from 2022 onwards.

Discussion

The wail of creativity and artisan's crisis

As already observed earlier, average or mean annual turnovers of all the categories of artisans (idol makers, decoration artisans and sculptors) have suffered severe dent since the onset of the COVID-19 pandemic in India in 2020. The line graphs portray this fact in Figure 4. These characteristics have been successfully validated statistically by the paired sample t-test, where it is observed that there has been a significant decrease in average annual turnover in 2020 for all above-mentioned artisan categories compared to 2019 (table 2). From the line graphs in Figure 4 and paired sample t-test in Table 3, it can be inferred that although the decoration artisans and the idol-makers have reached the levels of 2019 average annual turnovers, the sculpturists are struggling to recover and get back to their 2019 annual turnovers.

Pangs and vexations of poverty and Occupational Transformation

The increase in the cost price of raw materials, labour costs, transportation costs adds to the misery of the artisans. This has been intensified by the pandemic situation as it has already been reflected by the most frequently used words in the Word Cloud Analysis (figure 6) and the Case Study Analysis. The words "pandemic", "situations", "affected" and so on were the most emphasized and highlighted words as revealed from the ground interview. Under these onerous situations, many artisans took different other occupations during the lock down periods of the pandemic mainly to counter poverty and supplement their family incomes. These occupations includes, vegetable selling, fish selling, cosmetics selling, etc. female artisans resorted to services like home maid, cooking and so on.

Importance of GI Tag for the preservation of heritage activity of Kumartuli

The creative landscape of Kumartuli is often characterized by creativity by divine hands yet struggles for existence mainly due to low returns and higher costs of production. Many artisans are leaving the heritage activities. The younger generation is least interested to adopt traditional heritage or traditional activities. The already meagre female participation rate is gradually falling over the years. Under this dim situation, there is an urgent necessity for the grant of GI Tags for these magnificent artisans, which can promote both the creativity and business of these artisans, fulfilling the motto of Vikshit Bharat 2047 and Vocal for Local in the long run.

Challenges or Limitations

More samples of each artisan categories are required to be investigated. Moreover, it is very important to study the effect of the COVID-19 pandemic on other unorganized sectors as well. An ethnographic and longitudinal study over a considerably long time period are

essential to observe the market dynamics, cultural transformations and supply chain and prediction of their patterns in future.

Recommendations

In order to address these challenging problems certain recommendations and suggestions are made based on the current investigation. They are:

- Provision of Artisan Identity Cards to identify the artisans
- Granting of direct financial assistances to the artisans, especially during pandemic times and in the times of emergency requirements.
- Promotion of Kumartuli products produced by the artisans in the form of a business hub for easy access for supply and distribution.
- Grant of GI tag to recognize the geographical importance of these artisans and its products which would promote their business in lines with the basic objectives of Vikshit Bharat 2047.
- The workshops or the infrastructure needs to be developed and the streets connecting Kumartuli needs to be widened.
- The workshops of the artisans needs to be provided with fire control measures and their final products needs to be protected from occational fire accidents, rain, floods and other natural calamities.
- The artisans needs to be provided with insurance facilities to protect their products financially.
- The artisans should be provided with easy access loans like Differential Rates of Interest to facilitate risk-taking and innovative production decision-making by the artisans.
- Adequate steps should be taken to encourage the foreign trade of the products of these artisans.

Conclusion

At last, it can be concluded that the creative qualities of the Kumartuli artisans must be recognized by the grant of GI Tags to fulfil the basic aims and objectives of Vikshit Bharat 2047 and ensure Vocal for Local. This creative landscape must be protected by the joint efforts of both the state and central governments. The government must take proactive steps to reduce the production cost of the artisans and promote their business by giving subsidies. Such joint efforts will enable the creative business to be more lucrative in future, which would ultimately encourage the younger generations to take

their heritage occupations. More sustainable and inclusive planning needs to be undertaken by the planners, policymakers and administrators to protect the artisans from future shocks and pandemics, fulfilling the basic objectives of the Fundamental Duties of the Indian Constitution and the SDGs (2030) in future.

"I and you, we should all encourage people for a Vikshit Bharat. We should motivate especially young minds to realize this dream"

~ Prime Minister Shri Narendra Modi

Conflict of Interest Statement

The author declares no conflict of interest with anybody.

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Sustainable Livelihood Avenues for Urban Fringe Resilience: A Study of Kolkata

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Abstract: The Brundtland Commission on Environment and Development pioneered the concept of sustainable livelihoods. The 1992 United Nations Conference on Environment and Development expanded on it, advocating for the role of sustainable livelihoods in poverty eradication. Sustainable livelihoods help improve the economic status, ensure social inclusion, empower people, support local economic development, and strengthen community resilience. Planning for sustainable livelihood is particularly important in urban fringe areas for countries like India experiencing rapid urbanization. The emergence of the peri-urban interface is characterized by interdependent entities connected through spatial and sectoral flows of people, money, and commodities. The fringe areas are also crucial for ecological sustainability. The East Kolkata Wetlands are a perfect example of this peri-urban interface managed by local communities and supported by indigenous knowledge systems for sustainable livelihood. Livelihood options for the local communities include ecologically sustainable wastewater fisheries, effluence-irrigated paddy cultivation, and vegetable farming on garbage substrates. The study focuses on this urban fringe of the city of Kolkata.

The objectives of the study include understanding the context of local environmental opportunities, livelihood responses and flow patterns. Sustainable livelihood opportunities empower the vulnerable and marginalized communities, ensure gender equality and inclusiveness while addressing issues of environmental sustainability. The study is based on both secondary data and primary survey. The methodology involves descriptive quantitative research. While it is evident that there is a strong linkage between local environment, livelihood and institutions, there exist areas of concern as well. The challenge lies in channelizing the urban-rural linkages from the perspectives of increased resilience in the local environment as well as in the livelihood patterns

Keywords: sustainable, urban fringe, resilience, traditional knowledge

Introduction

The Brundtland Commission on Environment and Development pioneered the concept of sustainable livelihoods. Sustainability in livelihood is achieved by connecting the socio-economic needs with local resources and ecological considerations. The 1992 United Nations Conference on Environment and Development expanded the concept further, advocating for the role of sustainable livelihoods in poverty eradication. Sustainable livelihoods are expected to be capable of coping with and recover from uncertainties and stresses through adaptations that are economically viable and ecologically sound. Community resilience is thus inherent. Such livelihoods also do not irreversibly degrade the natural resources within a given ecosystem.

Sustainable Livelihood is based on access to locally available resources, use of traditional knowledge and development of skills for resource utilization. Planning for sustainable livelihood is particularly important in urban fringe areas for countries like India which is

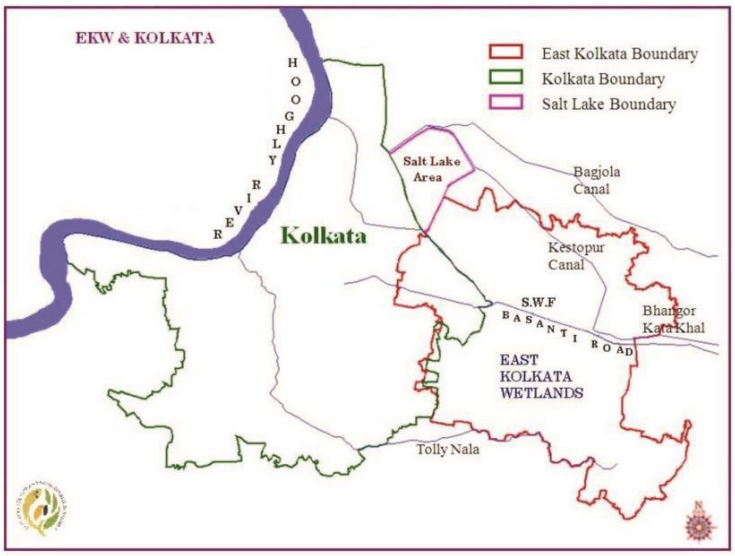
experiencing rapid urbanization. The urban fringe areas are home to the most vulnerable and marginalized communities and these areas develop through the utilization of local resources. There is also a continuous flow of resources, information, technology, money, and commodities between urban and peri-urban or fringe areas. The fringe areas are also crucial for ecological sustainability.

The East Kolkata Wetlands provides a unique example of a peri-urban interface managed by local communities. Supported by indigenous knowledge systems and the utilization of local resources, the wetland communities have been able to etch out sustainable and resilient livelihood systems for themselves. The Wetlands provide facilities for treating the city's waste water and sewage while utilizing the treated water for pisciculture and agriculture. The recovery of nutrients is done in a natural process with the ponds acting as solar reactors. The Wetland communities, with their traditional knowledge and low-impact livelihoods, play a pivotal role in maintaining these wetlands while ensuring livelihood generation for themselves.

Though pressures of rapid urbanization are disturbing the ecological balance in the wetlands in present times, yet effluent based paddy cultivation and garbage based vegetable farming are practiced and integrated with pisciculture in ways that make them truly complimentary. The use of indigenous knowledge and low impact resource utilization practices ensure sustainability and resilience.

Rationale of the study: Geographical Indication of the East Kolkata Wetlands

The East Kolkata wetlands are situated along the eastern fringe of the city of Kolkata and are a designated Ramsar site since 2002. Located between 22°25' N to 22°40'N latitude and 88°20’E to 88°35' E longitude, the wetlands are spread across 37 mouzas. The 1,085 water bodies that are included as part of the East Kolkata Wetlands cover about 12,500 hectares and is the largest of its kind in the world (Ghosh, 1999).



Source: East Kolkata Wetland Management Authority

Figure 1: The East Kolkata Wetlands

The wetlands primarily serve as a flood control plain, recipient and absorber of the sewage water and excess runoff from the city of Kolkata. It also functions as waste recycling plant. Together with the landfill site at Dhapa, the wetlands absorb approximately 750 million litre of waste water and 2,500 metric tonnes of waste generated daily by the city (Mukherjee & Chakraborty, 2016). The traditional resource recovery system adopted and practiced by the local communities in the fish ponds that act as solar reactors, has saved Kolkata the cost of constructing and maintaining waste water treatment plants.

The close interaction of the local communities with the East Kolkata Wetlands and the use of traditional knowledge has resulted in the development of socially and economically viable livelihoods including wastewater fisheries, effluence-irrigated paddy cultivation, and growing of vegetables on garbage substrates. The wetlands provide employment and livelihood to nearly a million people living in the core and periphery of the city of Kolkata and supports the livelihood of approximately 1.5 lakh people directly (Saha, 2008).

The East Kolkata Wetlands is unique in that they provide the only example in the world where environmental protection and management practices has been mastered by the local communities through complex ecological processes. All such practices are aimed at efficient and effective resource recovery. Hence the East Kolkata Wetlands have been selected as the study area.

Objectives of the study

The objectives of studying sustainable livelihoods with respect to the East Kolkata Wetlands are -

- to understand the context of local environmental opportunities for the generation of sustainable livelihoods in the East Kolkata Wetlands
- to appreciate the livelihood responses and flow patterns in the system from the perspectives of increased resilience.
- to explore GI tagging possibilities

Methodology and methods

The study is based on secondary data collected from various sources and primary data collected through questionnaire survey of local communities residing in and around the wetlands. Only those households who were directly engaged in sewage fed fish farming and organic vegetable farming or paddy cultivation were selected for the survey. The methodology involves descriptive quantitative research.

Local environmental opportunities and sustainable livelihoods

Sustainable livelihood opportunities empower the vulnerable and marginalized communities, ensure gender equality and inclusiveness while addressing issues of environmental sustainability. It focuses on long-term viability and resilience. The emergence of traditional skill-based livelihood practices and the application of traditional knowledge has resulted in the development of sustainable pond effluent based paddy cultivation, garbage-based vegetable farming and sewage based pisciculture in the wetland site under study. The produce finds their way to markets in Kolkata thereby creating forward and backward linkages between Kolkata and the East Kolkata Wetlands considered as the urban fringe of the city.

The history of mutual interdependence and sustainable flows between Kolkata and the peri-urban wetlands on the east evolved as part of the colonial project of urbanization (Mukherjee, 2015). The uniqueness of the study area lies in Kolkata's natural ecology, with the Hooghly River on the west and the saltwater marshes on the east. The area is also intercepted by numerous tributaries and distributaries of the Ganga River. O'Malley (1941) in his work mentions about the south wind blowing over salt marshes and steaming rice lands on its way to the city. He also mentions the uniform dead level, the depressions lying below the level of the water during high tide making it difficult to drain them. According to him, the soil in this area is unfit for human habitation (O'Malley, 1914).

Developments during the British rule had transformed the character of the region which was once traversed by the river Ganga and numerous creeks and channels. The Eastern Canal System commissioned by the British along with some additional excavations helped to drain the city's sewage into the existing saltwater marshes (Chattopadhyay 1990, Mukherjee, 2009). The underground drainage system of storm water flow (SWF) and dry weather flow (DWF) canals, built in 1884, carried sewage into the saltwater marshes (Mukherjee &

Chakraborty, 2016). These marshes were finally connected to the Bay of Bengal through the Bidyadhari River. The canals thus provided opportunities for the quick disposal of sewage and storm water. The silting-up of the Bidyadhari River carrying saltwater from the Bay of Bengal and the Kulti Outfall Scheme commissioned in 1943, led to a gradual transformation of the aquatic environment from saline to non-saline, from saltwater marshes to sewage-fed freshwater wetlands (Mukherjee & Chakraborty, 2016).

With the silting of the Bidyadhari river, sewage and storm water were diverted into the saltwater lakes through canals. When implementing the Kulti Outfall Scheme, the water-head was raised for supplying sewage to most of these fresh water lakes by gravity, which resulted in the extension of wastewater fishponds further east and south-east for about 8,000 hectares (Mukherjee & Chakraborty, 2016). The area gradually evolved as an area for informal, 'untamed' practices by marginal peri-urban fishing and farming communities (Mukherjee, 2015)

Since late 1920s, attempts were also made to cultivate fresh-water fishes like Carps in these lakes with the sewage waste as fish food. It was found that a restricted volume of sewage discharged into the lakes was favourable for fresh-water fish culture (Dey and Banerjee, 2013). In 1929, a land-owner discovered that the output of Carp cultivation increased manifold with small doses of sewage into these ponds (Chattopadhyay, 1990). Also, the time required for rearing an egg into a carp of 1–1.5kilogram size takes eight to nine months in these ponds (Dey and Banerjee, 2013). In order to produce a comparable yield in any conventional pond it would take more than one and a half year with the sequences being carried out vertically instead of a horizontal sequence possible in these ponds. In a horizontal sequence the sewage fed ponds act as solar reactors and tap the solar energy in the dense plankton population and convert sewage into fish food. The fishes in turn act as ecological manipulators by keeping the population of planktons under control (Dey and Banerjee, 2013)

During the mixing of sewage water into the pre-existing pisciculture ponds, the excess water that needs to be drained from the fish ponds is used to irrigate the adjacent agricultural fields. On the other hand, the waste water discharged from the ponds at the time of pond preparation for the next breeding season, are used as fertilizers for vegetable farming.

To meet the needs of expansion of the city of Kolkata, major conversions were initiated in the post-independence period including the Salt Lake Township in the 1950s and 1960s, the East Kolkata Township and Baishnabghata-Patuli Township in 1970s and 1980s. Further development of townships, amusement parks, hospitals, hotels, and clubs along the Eastern Metropolitan Bypass continues is an attempt to commercially utilize the enormous potential in the vast stretch of the seemingly undeveloped land on the city's eastern margin. (Bose, 2015).

The need to protect the East Kolkata Wetlands from private real-estate speculation and to safeguard the interests of the marginal peri-urban communities soon became a cause of

concern. The cause was taken up by various Non-governmental Organizations and environmental groups involving poor farmers, fishermen and bureaucrats (Mukherjee & Chakraborty, 2016). It resulted in a High Court Order against any further reclamation of the salt marshes that would result in irreparable loss to this unique ecosystem. 37 mouzas were identified by the Land Reforms Department and the Department of Environment, Government of West Bengal, as part of the waste recycling region of Kolkata. Finally, on 19 August 2002, the East Kolkata Wetlands were declared as a Ramsar site. A statutory authority, called the East Kolkata Wetlands Management Authority (EKWMA), was formed under the East Kolkata Wetlands (Conservation and Management) Act in 2006 (Mukherjee, 2015). This Authority was made responsible for the judicious use and management of the area.

Livelihood responses and core-periphery flow patterns

The wetland complex under study constitutes around 260 sewage-fed fishponds, salt marshes and settling ponds. Annually, 4,700 hectares of paddy lands are irrigated with treated nutrient rich wastewater from the East Kolkata Wetlands (East Kolkata Wetlands Management Authority, 2024). The Wetlands cumulatively yields a sustained annual production of over 50,000 Metric Ton of vegetables, more than 20,000 Metric Ton of fish, mainly Carp and Tilapia thereby contributing to food security (East Kolkata Wetlands Management Authority, 2021). Around 1.5lakh residents are dependent on these wetlands for local resource-based livelihoods including pisciculture, paddy farming and vegetable cultivation. 910 million litre of sewage is naturally treated daily (65% of total daily sewage produced by Kolkata) at little to no cost. (East Kolkata Wetlands Management Authority, 2024) It saves approximately 460 crore rupees annually on artificial sewage treatment plants (East Kolkata Wetlands Management Authority, 2024). 15.5 million residents in the metropolitan region benefit from the positive environmental impacts of the wetlands, in the form of air quality regulation, groundwater recharge, food and water security, flood control, moderation of heatwaves. The planktons play an important role in carbon reduction by sequestering over 60% of the carbon in the wetlands. Being a natural depression, the East Kolkata Wetlands have enormous water holding capacity thereby preventing floods. With the increase in population over time, the urban landfills have increased. East Kolkata Wetlands, once used as a dumping ground of urban waste, is seen to now support organic farming. The East Kolkata Management Authority plays a major role in developing institutions and mechanisms to strengthen local governance and enhance sustainable livelihood opportunities via crop diversification, pond desiltation and establishment of new hatcheries to promote fish culture.

With waste water fisheries, effluent irrigated paddy cultivation, vegetable farming on garbage substrate, four major land use categories can be identified in these wetlands. The prominent land use categories include water bodies (primarily sewage fed fisheries) covering 5852.14 hectares or 46.82% of the area under the East Kolkata Wetlands (Saha, 2008). Out of this, fish farming roughly constitute 3,898.70 hectares or 31.19% of the total area. Private

owners own 93.14% of the fish culture ponds. The share of co-operative farming is 0.86% and the State Government owns another 6% (Saha, 2008). While the private owners are able to attract investors to finance their production, community based pisciculture ponds are mostly managed by the members of the cooperative.

Agricultural area covers 4718.56 hectares constituting 37.75% of the total area, garbage farming is carried on in 602.78 hectares or 4.82% of the total area, rural settlements make up 1234.99 hectares or 9.88% and urban settlements occupy 91.53 hectares or 0.73% of the total area (Saha, 2008).

Forward and backward linkages are also observed between Kolkata and the East Kolkata Wetlands making the production system not only ecologically sustainable but also economically viable. Different species of table fish are produced in the sewage fed fisheries. Major portion of the total produce is dumped in the primary wholesale markets at Bantala, Bamanghata, Choubaga and Chingrighata in the eastern periphery of the wetland region. From these primary markets the fish gets distributed to the different retail markets, scattered across the city of Kolkata. The shopkeepers and small distributors act as the auctioneers in the fish markets. The auction starts early in the morning at 4 a.m. and continues till 8 a.m. Most of the purchasers operate their business in other markets within the city of Kolkata later during the day. Daily fish production in the wetlands vary between 250 to 300 kg of fish per shop in the primary wholesale markets during the peak season and between 100 to 120 Kg of fish per shop in the lean season.

Agricultural produce also has different outlets. Interaction with the local communities revealed that the vegetables produced from Dhapa garbage site goes directly to Choubagha and Bantala markets while the agricultural produce from Bhangor area in the East Kolkata Wetlands are transported to Kolkata, mainly Sealdaha Market, Gariahat Market and Lake Market. Middlemen are also found to buy the produce directly from the farmer's fields and transport the same to Kolkata retail markets.

A questionnaire survey was conducted with 120 households from Choubhaga, Bantala, Bhangor and Sukantanagar. It was found that 59.17% of the households are engaged in fisheries performing various tasks that include catching the fish, carrying the same to the markets for selling, guarding the fish ponds or bheries at night, boat manufacturing, preparation of fishing nets, the maintenance workers, and those engaged in other related activities. 13.33% of the surveyed households are engaged in the production of vegetables and another 15.0% are involved in paddy cultivation. 7.33% of the households were engaged in the collection of wild edibles like grass, snails, crabs, small fish, water hyacinth, grass seeds, and flowers that are sold at local markets. The remaining 5.17% comprise of households in which workers were engaged as casual labour and daily wage earners in the dumping site (Table 1). The female workforce participation rate is high. In fact, women make up 37% of the workforce engaged in various activities in the wetland region.

Table 1: Predominant Occupation in East Kolkata Wetland area

Primary Occupation	Number of Households	Percentage of households
Pisciculture and allied activities	71	59.17
Paddy Cultivation	18	15.0
Vegetable farming	16	13.33
Collection of edibles	10	7.33
Other workers	5	5.17

Source: Primary Survey, 2024

The produce from the East Kolkata Wetlands reach markets across Kolkata. However, 74.17% of the households engaged in sewage fed pisciculture sell their produce in the nearby wholesale markets at Choubhaga, Bantala, Bhangor, Bamanghata and Chingrighata. Another 13.33% sell their produce to middlemen who come to the wetlands to buy their produce. 7.5% sell directly at Kolkata markets. The remaining 5.0% use the produce for local or home consumption. Similar pattern is observed for the vegetable producing households with majority selling their produce at nearby wholesale markets at Choubhaga, Bantala, Bhangor, Bamanghata and Chingrighata. This category of farmers belongs to 64.17% of the surveyed households engaged in vegetable production. 24.16% carry their produce directly to markets in Kolkata. Nearly 6.67% of the households are forced to sell to middlemen who visit the wetlands regularly. The remaining 5.0% use it for own consumption. For paddy cultivating households 69.17% take the produce to the wholesale markets, 17.5% sell directly in Kolkata markets, 10.00% sell to middlemen while the remaining 3.33% use for consumption (Table 2).

Table 2: Flow Pattern of the Produce from the peri-urban East Kolkata Wetlands

Commodity	% of households selling different commodities at			
	Nearby Wholesale Markets	Kolkata Markets	Middlemen	Local Market
Sewage fed Fish	74.17	7.5	13.33	5.0
Paddy Cultivation	69.17	17.5	10.00	3.33
Vegetables	64.17	24.16	6.67	5.0

Source: Primary Survey, 2024

Income earned by majority of the surveyed households varied between Rs2000 to Rs3000 per month, indicating that the poor marginalized population earn their living from this

wetland area. The percentage of households in this income category was found to be 69.17%. For another 17.5% the average monthly income varied between Rs 3000 to Rs 4000. The average monthly income ranges between Rs 4000 to Rs 5000 for 9.17% of surveyed households while the remaining 5% have the average monthly income at Rs 5000 and above (Table 3).

Table 3: Income Level of communities using resources of East Kolkata Wetlands for livelihood

Income Level in Rupees	Number of Households	Percentage of households
2000 to 3000	83	69.17
3000 to 4000	21	17.5
4000 to 5000	11	9.17
5000 and above	5	5.0

Source: Primary Survey, 2024

A perception study was also undertaken in the concerned households. Majority of the respondents showed their appreciation for the positive role played by the East Kolkata Wetlands. 64.17% of the respondents identified livelihood security as the positive role played by the wetlands under study. 15.83% identified the role of the wetlands in water purification and effluent treatment, 10.0% identified the rich ecological diversity preserved in the wetlands and their role in maintaining ecological balance while another 10.0% identified micro climate regulation as a major contribution of the East Kolkata Wetlands (Table 4).

Table 4: Local Perception about the positive impact of the East Kolkata Wetlands

Type of positive impact	Number of Households	Percentage of households
livelihood security	77	64.17
water purification and effluent treatment	19	15.83
rich ecological diversity	12	10.0
micro climate regulation	12	10.0

Source: Primary Survey, 2024

The role of rural-urban food systems for sustainable livelihood is appreciated by 86% of the respondents. While 11% respondents were unable to respond showing lack of awareness. The remaining 3% were more concerned to meet their own subsistence needs.

Apprehension of the local communities about loss of livelihood and increasing environmental threats due to the shrinking of the wetland area was also recorded. 53.33% of the households engaged in agricultural production expressed their concern about loss of livelihood as more land is getting converted to non- agricultural use under rapid urban expansion. Other threats according to the perception of the local communities include illegal land encroachment identified by 14.17% of the respondents, loss of man power due to other employment opportunities identified by 6.67% and irregular maintenance as was identified by another 5.0% (Table 5). Lack of interest of the younger generation to continue traditional practices are causing alarm. 20.83% of the respondents expressed their anxiety stating that discontinuation of these age-old practices may have alarming adverse impact on the wetlands and the environment. Such lack of interest would also affect urban and peri-urban flow and linkages with disastrous socio-economic and ecological implications in the near future.

Table 5: Local Perception about major threats for the East Kolkata Wetlands

Major threats identified	**Number of Households**	**Percentage of households**
rapid urban expansion	64	53.33
illegal land encroachment	17	14.17
alternate employment opportunities	8	6.67
irregular maintenance	6	5.0
discontinuation of traditional practices	25	20.83

Source: Primary Survey, 2024

GI tagging possibilities

The Wetlands under study are unique in that they command specific geographical location and have unique qualities specific to this region. They are the only wetlands in the world where environmental protection and management practices has been mastered by the local communities through complex ecological processes. The wetlands also provide sustainable livelihood opportunities in the form of sewage fed pisciculture, effluent based paddy cultivation and vegetable grown on garbage. Agriculture and fish culture in the East Kolkata Wetlands thus come under organic farming. Attempts are being made to revive the indigenous variety of fresh water fish like katla, mrigal, rohu.

GI tagging would ensure that the farmers benefit from collective branding and premium pricing. Such efforts would also revive indigenous fish varieties and make them popular in the global market.

To enable effective GI tagging there is an ardent need to involve all stakeholders like the local government, local communities, self-help groups, non-government organizations, civil society, co-operatives as well as research institutions for building resilience within the system

There is also the need to go digital to attract the younger generation.

Challenges and limitations

The East Kolkata Wetlands continue to be threatened by rapid urban expansion. Large part of the wetlands has been converted to built-up areas by land developers. Rajarhat and New Town areas that are being developed on the easternmost periphery are examples of such conversions of agrarian lands inside and outside the wetlands (Dey et al. 2013). These conversions have threatened livelihoods in this region. Though change of land use pattern within the core area has been legally banned, land use in the buffer zone outside the Ramsar site has experienced drastic changes over time, making it difficult for the core area to retain its unique characteristics.

The socio-economic vulnerability of local communities practicing traditional farming and sewage based pisciculture is worsened by climate change induced risks and poverty.

Reduced supply of waste water during the monsoon season is also a major cause of concern for the fishermen. During the monsoon months when there is significant water logging in the city of Kolkata, the entire storm water is flushed through the Storm Water Flow channel to River Kulti, leading to a drastic decline in sewage flows by 60–80 per cent (East Kolkata Wetlands Management Authority, 2010). It has been suggested that the flow of sewage into the fish farms or bheries may also have been deliberately reduced in an attempt to support the real estate developers (Niyogi 2015).

The urban to peri-urban linkage continues to remain weak and under developed causing major hindrances for the local communities in reaching local and Kolkata market

The detachment of the young adults from traditional forms of livelihoods indicates the probable breakdown of this community managed resource recovery system.

Suggested Interventions

It needs to be recognized that the wetland communities are dependent on the resources of the wetlands for their livelihoods. Conserving the wetlands through stakeholder participation and involving the youth is crucial for building resilience within the resource recovery system for sustainable livelihood.

It is essential that the linkage between Kolkata and the peri-urban wetlands be strengthened in order to ensure sustainable economic upliftment of wetland communities. Fish and farm produce must be made economically viable to sustain this community-managed resource utilization model.

The nodal agency or the East Kolkata Wetland Management Authority has a crucial role to play in tackling the challenges from real estate encroachment, reduced sewage inflow, siltation of canals and ponds. They need to formulate a comprehensive development plan aimed at improving resilience of the local communities and the resource recovery system.

It is also important to undertake more research to enable GI tagging that would benefit the local farmers from collective branding and increased price.

Digital marketing may also be developed to expand the reach

Eco-tourism facilities can also be initiated as a source of revenue generation that would help increase the income opportunities of the residents.

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Exploring the Changes and Challenges in the Livelihoods of Mukha Artisans in Kushmandi Block, Dakshin Dinajpur District, West Bengal

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Abstract: The wooden mask, or MUKHA, is famous for a rich cultural tradition in the Dakshin Dinajpur district, in the Kushmandi block, West Bengal. This art began in the 1970s. Today, MUKHA is known both in India and around the world. The masks are made mainly from light Gamar wood and decorated with bright natural and artificial colours. They show the local artists' creativity and their way of earning a living. Even though the craft has a Geographical Indication (GI) tag, it still faces many problems like poor infrastructure, lack of government support, marketing challenges, and financial and production issues. The present study adopts a field-based, empirical approach using unstructured interviews, direct observations, and purposive sampling conducted between January and February 2025. The study collected primary data from villages with a high concentration of artisans. According to the study, GI tagging has raised awareness of MUKHA and its market potential, but the artisans continue to face challenges because of growing production costs, limited access to high-quality raw materials, a lack of institutional training, insufficient government backing, and restricted use of digital platforms. Although there is growing demand in domestic and international markets, artisans report stagnant selling prices and low financial returns. Most artisans lack modern tools and digital marketing knowledge, further limiting their growth. Nonetheless, the GI badge has increased cultural awareness of the art and decreased counterfeiting. In conclusion, the preservation and promotion of MUKHA as a traditional craft are essential not just for safeguarding West Bengal's cultural heritage but also for empowering rural artisans in a globalized economy.

Keyword(s): Mukha, Wooden Mask, Handicrafts, Geographical Indication, Cultural Heritage.

Introduction:

Craftsmen either handcraft or use tools to produce their products (UNESCO). MUKHA is created from gamer wood, and it is a famous handcrafted product in Kushmandi. Wooden masks are famous for their uniqueness; it is also called the term "MUKHA" or "Kushmandi Mask". At first Mukha was made by 'Sankar Sarkar' in 1970, who was influenced by the chhau mask. 'Sankar Sarkar' is called a father of MUKHA. Mukha is indicating a cultural heritage of Dakshin Dinajpur. The demand for the Mukha product is also high in the national and international markets (like France, USA, etc.).

Indian handicrafts help people earn money and support their lifestyle while also showing the country's culture. Indian handicrafts are known for their unique beauty. The handicraft industry in India makes many items like jewellery, shawls, silk, silver products, sweets, wood carvings, brocade fabrics, and shiny ceramics." According to World Bank reports, there are about 9–10 million craft workers in India, including those who work part-time and

full-time. handcrafts people make up 15–25% of the country's manufacturing workforce and contribute 8% to the manufacturing GDP.

"West Bengal's handicrafts show its rich art, creativity, and culture. Bengal's art and craft are famous all over the world. These handmade items are very important for the rural economy of the district. West Bengal has many skilled artists who make terracotta items, paintings, sculptures, and textiles. The handicraft industry provides affordable, eco-friendly livelihood opportunities to over 5.5 lakhs men and women. Artisans like the wooden mask makers of Kushmandi Block now have more opportunities due to the growing demand for eco-friendly products in the retail market and the potential of e-commerce in today's globalized world. This study looks into the detailed background of the wooden mask (Mukha) craft from Kushmandi in the Dakshin Dinajpur district.

Objectives:

1. To find out the raw materials, essential tools, and production process in wooden mask craftsmanship.
2. To examine the challenges of Mukha Artisan in the Kushmandi C D Block.
3. To find out the impact of GI on the livelihood of Mukha artisans.
4. To recommend suitable strategies for the better development of the Craft & Craftsman.

Study area:

Wooden masks are famous for their uniqueness; it is also called the term "MUKHA" or "Kushmandi Mask". These is found in the Kushmandi block in Dakshin Dinajpur, West Bengal. The wooden mask artisans are found in Deul and Akcha G.P. of Kushmandi in Dakshin Dinajpur District.

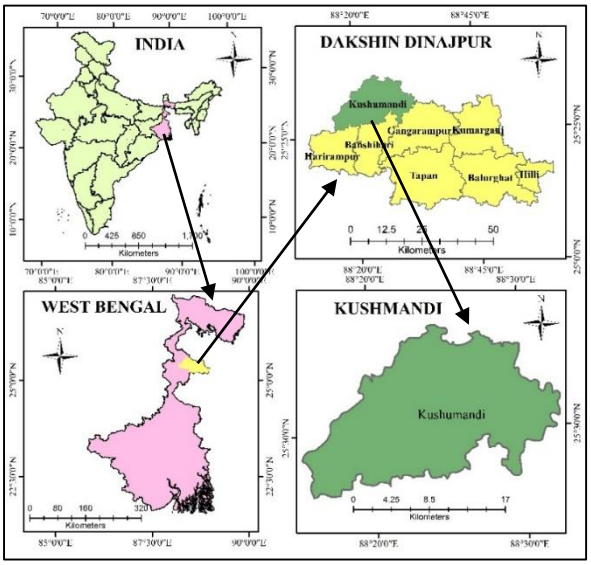


***Fig 1*:** Study Area.

The latitude and longitude of Kushmandi Block are 88°85′26′′ E and 25°52′23′′ N. Mahisbatan, Mongopur, Paschim Para, Borokinapur, Ushaharan, Beldanga, Rupian,

Raunagar, Sabdalpur, and Dehaband are the main villages of Mukha Producer. The sample villages ranged from 10 to 15 km from the block headquarters Kushmandi or State Highway-10 (Buniadpur-Raiganj highway).

Database and methodology:

The study is depending on primary data. The primary data have been collected through field surveys with an unstructured, suitable schedule, observation, and interview. The Multistage purposive sampling technique is suitable for the present study. The field survey was conducted in the study area between January and February 2025. To analyse the objectives of the study, various statistical tools have been applied. Upon data collection, the results were presented using different software. MS Excel (v2019), MS Word (v2021), Stata (version 16.0), and ArcGIS (v10.3), tools have been used to create diagrams and tables, bar charts, and pie diagrams, maps to present the findings comprehensively.

Discussion:

Raw Materials:

1.Wood:

In Hindu mythology, the Mukha wooden masks are made from neem wood. In recent times, the Gamar wood has been famous for being used to make the MUKHA wooden mask. The Gamar wood is soft and lightweight; these are reasons the craftsman used this wood. This wood is easily available and cheaper. The wood is collected from the nearby wood mill, or the wood supplier businessman supplies the wood easily to the craftsman.

2. Colour:

In recent times the MUKHA mask is used to show a piece product; people are decorating homes, offices, and restaurants with the Mukha mask. So, the colour of Mukha is more important than the craftsman used multi-digital colour. But historically they did not use multi-colour. The craftsman used natural dyes: red dyes (made from Segun), green (from Seem), violet (from jamun), and black (from the jia tree).

Essential tools:

The tools are the most important for Mukha making. The craftsmen carved out the wooden mask from wood using some instruments and tools. Hammer, hand drill, knives, scissors, sickle, chisel, bent gauges, etc tools are used for carving the mask from wood.

Fig 2: Tools

Production process:

Step 1 (Wood collection): Firstly, the wood is collected from the nearby wood mill, or the wood supplier businessman supplies the wood easily to the craftsman.

Step 2 (Cutting the Wood in Proper Size): Secondly, the wood is cut by the craftsmen in the proper size, which is required for mask making. Nearly 10 to 20 feet of pieces of wood are required for mask making.

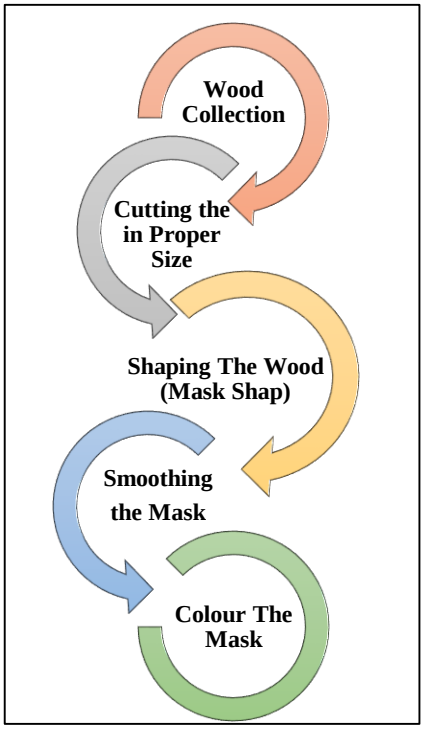
Step 3 (Shaping the Wood Mask Shape): In the third stage, the craftsmen draw a mask /shape of the cutting wood and shape the wood with a hammer, chisel, and some other tools. The craftsman has done the mask-making process by his hand.

Step 4 (Smoothing the Mask): Fourthly, this is the very vital part of the mask-making because at this stage the craftsmen are smoothing the mask with sandpaper of various grades.

Fig 3: Production Process

Step 5 (Colour the Mask): Finally, the craftsman colours the mask to the natural varnished and digital multi-colour based on customer demand.

Flow Chart of the Production Process:



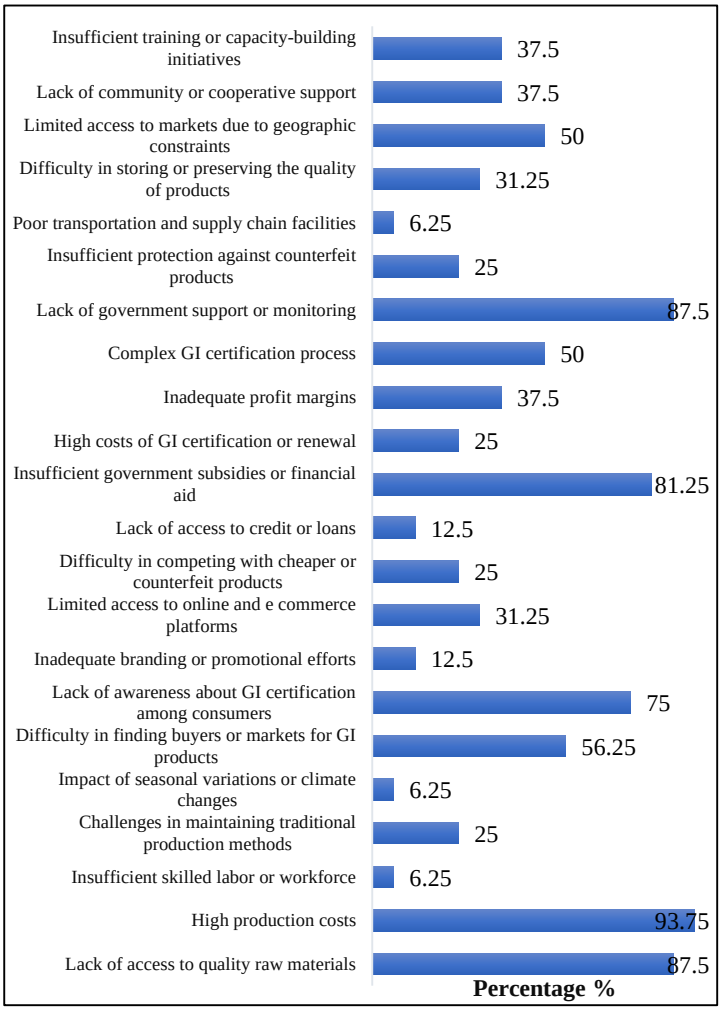


Fig 4: Challenges of Mukha craftsmen.

Challenges:

1.**Production-related Issues**

According to the diagram, the most important challenge is lack of access to quality raw material. Nearly 88 percent of craftsmen face the problem of the lack of quality Gamar wood. The production cost of the Mukha product is also high, so the craftsmen also face this problem (93.75%). Traditional skills are important for Mukha production because no institution can provide these skills. This skill can only be imparted by skilled craftsmen. Nearly 7 percent of craftsmen face this problem. 25 percent of craftsmen face the problem of maintaining traditional production.

2. Marketing Challenges:

Awareness of GI certification is a major challenge for the consumer; in recent times, many consumers do not know about the GI. 75 percent of craftsmen face the problem of not being aware of GI certification among consumers. In very recent times, this period is called an online or e-commerce period. Nearly 32 percent of craftsmen are not aware of e-commerce or online platforms because their education is very low. Finding a good buyer or market is very stressful. Half of the craftsmen (56%) face this problem.

3.Financial Issues:

Profit is more important from a craftsman's view because their lives depend on it. The price of raw materials is also high, but the product price is low compared to their hard work. According to data, 37% of craftsmen face the level of profit margins problem. According to craftsmen, the government does not support any subsidies and financial aid. Almost all (81%) craftsmen have said that it would have been better if the government had helped them with something. The craftsmen try to get a loan from the bank, but the bank does not provide a loan. Nearly 12 percent of craftsmen face the loan problem.

4.Policy and Regulatory Challenges:

A GI certificate is a sign of the product's geographical origin in a particular region where this product is only found in this region. The process of GI certification has been long and hard. This problem faces many craftsmen (50%) because of the lack of government support. Almost all (88%) craftsmen have said the government does not support in a proper way, not monitoring the government aids and programs.

5.Logistics and Infrastructure:

Transport is one of the most important problems faced by craftsmen. Almost all craftsmen have said that the transport is not good for market reach, and due to product supply difficulties, customers face many problems. One of the backward blocks of South Dinajpur is the Kushmandi Block, and connectivity is very bad because the nearest railway station is located more than 30 km away. Nearly 32 percent of craftsmen face problems like storing and preserving the quality of the product.

IMPACTS:

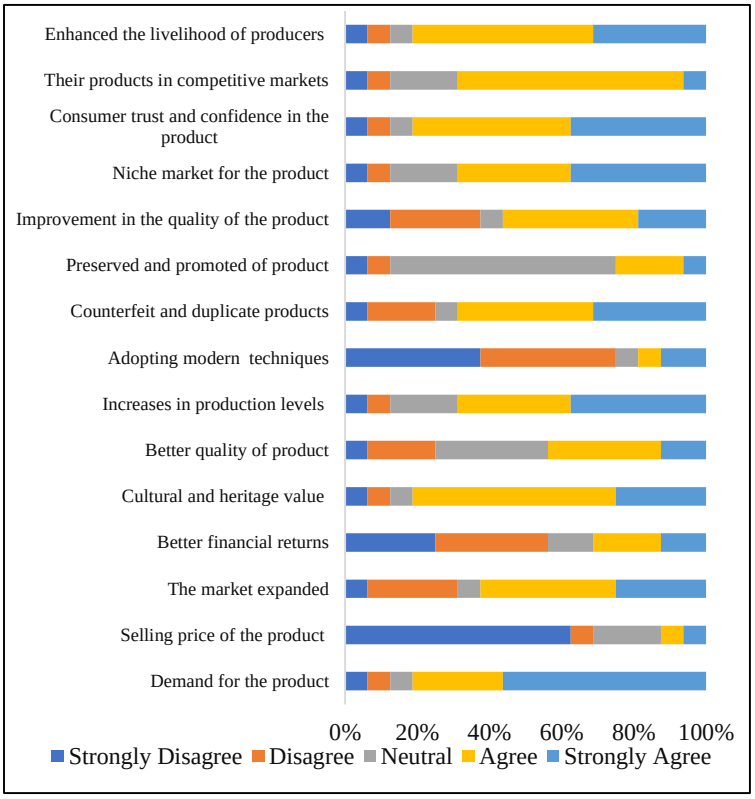


Fig 5: Impact of livelihood of Mukha craftsmen

1. Impact on Demand and Selling Price:

Demand is the most important for any product because demand increases as a result of the better financial livelihood of Mukha craftsmen. Almost all craftsmen (82%) have said that after GI recognition, the demand for Mukha products increases, but the selling price of each Mukha product is the same or has no change. According to the survey, nearly 70% of craftsmen have said that the selling price is not increasing as compared to the price of raw materials. As a result, they belong to better livelihoods.

2. Impact on Market:

The market has a huge impact on the growth and prosperity of any handicraft industry. According to the survey, nearly 61% of craftsmen have said that after GI recognition has expanded the market. The value of the Mukha products increases day by day in the local to international market. 70% of craftsmen have said that the value of this product is expensive in the international market. The competitiveness of the Mukha product is less because producers are able to differentiate their product in the local or international market (68%).

3. Impact on Financial Condition:

Financial condition is most important for livelihood in Mukha craftsmen. The craftsmen are only dependent on Mukha production. Almost half (56%) of the craftsmen have said that

they do not receive better financial returns for their product. But in recent times, the craftsmen have enhanced their livelihood. They increased their production of Mukha products, so they improved their livelihood. Average 10% income increase after GI recognition.

4. Impact on Culture and Heritage:

The Geographical Indication Registry gives the GI tag of any product because this GI indication shows the culture and heritage of the product of a particular region. Almost all craftsmen (81%) have said the awareness about the cultural and heritage value of the product has increased among consumers. Almost 62% of craftsmen do not know about the preservation and promotion of the Mukha product. They do not preserve their knowledge of Mukha making.

5.Impact on Quality of Product:

Quality of product attraction of the consumer. The demand for the product increases because the quality of this product is very good. After GI recognition, the quality of this product was found, but 60% of craftsmen said that the quality of the product is found with no changes. In recent times, it is called the modern age of technologies. The Mukha craftsmen (75%) do not use modern technologies and tools for Mukha making. Nearly 70% of craftsmen said that the GI tag helped reduce counterfeit and duplicate products in the market.

Recommendation:

1. To promote the people harvesting and plantation of gamer trees in a sustainable way and collaboration with the forest department.
2. To preserve the traditional techniques of the Mukha-making process and organize a regular training and workshop by skilled craftsmen.
3. To need a policy to empower the craftsmen, a small amount of money should be given to craftsmen from the government.
4. Create and expansion a wide market of Mukha product, well maintain a market area to empower the craftsmen.

Conclusion:

West Bengal's wooden mask craftsmen practice a traditional craft that has been passing the skills from generation to generation. Although they carry an ancient skill. These artisans hold valuable knowledge that is part of both West Bengal's cultural heritage. It is our duty to protect and preserve this skills form and its unique beauty. Every nation in the world has chosen to progress their skills while holding on to their core culture, using modern methods and tools. The old traditions and skills are important both in creating the art and in connecting across cultures generation to generation. I hope these crafts are a thoughtful and successful future.

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A Comprehensive Study on Land Potential Classification and Evaluation of Crop Suitability according to the UK Method of Land Assessment: A Case Study of Garubathan in Kalimpong, West Bengal

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1. Introduction

The amount of agricultural land is decreasing globally, and the majority of it has irreversible degradation that makes it unfit for agricultural use. Land Capability is the potential of the land use in specified way, or with specified management practices (Dent & Young, 1981). Most developed countries i.e., USA, UK, and France attempted land capability classification to organize the soil groups on the basis of ability to produce crops. The process of land's potential for a different use is known as land evaluation (Klingebiel, 1961). The various land characteristics, including the types of soil, which are essential for productivity, fundamental geology, topography, and hydrology, all contribute to determining the land's capability (Briggs, 1977).

Garubathan is located northern Himalayan part of West Bengal and now a days experiencing rapid population growth due to off spring effect of urbanisation across the Terai-Dooars Himalaya belt. Due to this population pressure the agriculture becomes so extensive to fulfil the human need. Some pockets of Garubathan are still experiencing slash and burn cultivation which finally leads soil degradation. In addition of this the soil fertility is continuously decreasing over time due to intensive practices (Mahmoud et al., 2015). Several scholars carried out various study on this area but some how land capability classification and crop suitability potentials analysis still not studied. Hence, an attempt has been made to study the land capability classification based on the behaviour of soil towards the agriculture and most suitable crops cultivation of the study area. The evaluation of land suitability Depends on land capability as well as other factors such as land quality, proximity to different Accesses, landownership, customer demand, and economic values (Mackay et al., 2018; Shirzadi Babakan et al., 2021; Taghizadeh-Mehrjardi et al., 2020).

The assessment of land characteristics for the present and potential capability and suitability of crop production are necessary (Dent, 1981; Mugiyo et al., 2021; Yan et al., 2021). The British method of land capability mapping is an adaptation of the US department

of agriculture method (USDA, 1964). It is an assessment of the capability of the land from known relationships between crop production and management and the physical factors of soil, topography and climate (Mitchell, 1973; Sameh Kotb Abd-Elmabod1, 2019). There are seven land capability classes in the British method (S. G. MacRae, 1981). Class 1 has a wide range of uses with few (if any) limitations, while the remaining six classes suffer from increasingly severe limitations and are progressively less flexible in the range of their potential land uses (AL-Taani et al., 2021; Davidson et al., 1994; Mackay et al., 2018; Qian et al., 2021; Rossiter, 2011). Land capability sub-classes are defined on the basis of one of more permanent or semi-permanent physical factors that limit production (Gessesse et al., 2023). Each of these sub-classes is denoted by a letter (w, s, g, e, c) attached to the relevant class number e.g., 2w or 6gs (Davidson et al., 1994). The present study is dedicated to the soils that possess maximum suitable for cultivation of Garubathan block at Kalimpong district in West Bengal.

2. Objectives

To study about the co-relation between the land capabilities and its suitability for crop production as well as try to evaluate the exact role of limitation of land with its flexibility to use for crop production.

3. Database and methodology

3.1 Study area

Garubathan Block is situated in the 21st district of West Bengal. The most northern district in the State of West Bengal is Kalimpong was formed on 14th February 2017 after separating from the Darjeeling district of West Bengal. The district, which is situated in the foothills of the Himalayas, serves as a gateway to the state of Sikkim and the neighboring nations of Bhutan. The Kalimpong district is divided into three Community Development Blocks: Garubathan, Kalimpong-I, and Kalimpong-II. Our study area Garubathan Block lies between 26° 51 N to 27° 13" N latitude and 87° 59' E to 88° 53' E longitude with average elevation of 417 metres (1,368 feet). The river Jaldhaka separates Garubathan, with Bhutan, a neighboring country, on the easter side. Sikkim State is in the north, bordered by the Rachela Range's dense forest. Kalimpong Block I & II in the western side and the vast plain areas of Jalpaiguri District in the southern sector. Kalimpong is the district headquarters. Garubathan block consists of rural areas only with 11-gram panchayats. This block has two police stations namely Garubathan and Jaldhaka.

3.2 Spatial database preparation

The present study of land capability classification and crops suitability is done using various factors i.e., slope, vegetation status, climatic domain, soil nutrients properties (soil pH, soil organic matter, soil nitrogen content) drainage and soil texture etc. Field properties of taxonomic classes and classification carried out following by British method based on the land judging form (Modified after Burnhum & Mcrae, 1974). Firstly, a base map is prepared

through the process of digitization and georeferencing from topographical map No.78B/9 on 1:50000 which provides the basic details such as watershed boundary, latitude and longitude etc. of the study area. The present work was based on both the primary and secondary data sources. Land capability and suitability analysis of study area was carried out by image processing of carto digital elevation model (DEM) data of 30-meter resolution with ID No. (SRTM3N26E088V1/SRTM3N27E088V1) which is used for slope map, contour map, drainage map preparation and further analysis obtained from https://earthexplorer.usgs.gov. we used the Landsat-8, LISS-3 sensed imageries for the year 2022 data for analysis of vegetation status and land use and land cover (Lulc) status again it is obtained from https://earthexplorer.usgs.gov. For analysis of climatic parameters, we essentially incorporated IMD data for temperature (°C) and rainfall(mm) as well as local tea garden station data. The soil nutrients properties (soil pH, soil organic matter, soil nitrogen content) and soil texture has been analyzed from ISRIC, world soil information data which is obtained from https://soilgrids.org. All these thematic maps have been vectorized, mosaic processed and rectified to world geodetic system WGS84 coordinate system in ArcGIS 10.8 environment. Besides of this the necessary date collected from regional agricultural office of Garubathan block, BDO office of Garubathan and soil office salugara, Siliguri. The collected secondary data from various sources are arranged and then a systematic analysis has been done as per subject knowledge, expert opinion, literature reviews and field experience on behalf of British method of land capability classification principal. GPS techniques are used for field checking and validation of result. Finally, the preparation of required maps, diagrams, table has been completed by using GIS platforms like Global Mapper 22.1, QGIS 3.18 and ArcGIS 10.8, SPSS 10.2, MS Word (2019), MS Excel (2019), MS Paint (2019) and MS Publisher (2019) etc.

3.3 Conditioning factors for land capability classification

Land capability classification takes both the physical nature of land (Mackay et al., 2018; Qian et al., 2021; Shirzadi Babakan et al., 2021). Though many variables are influencing land capability classification but most of the researcher's topography especially inclination of slope and soil properties such as soil depth and soil texture and nutritional aspect has been taken into consideration (Dar et al., 2024; Ismaili et al., 2023; Kear, 1982; E. A. Mahmoud et al., 2019; Raymond R Weil, 2017; Rodrigo-Comino et al., 2018). After being rigorous literature review, expert opinion and field consultant, the researchers choose a numerous factor i.e., slope (in degree), climatic parameter, vegetation status, various soil nutritional properties, soil textural condition, drainage competency, soil erosion and soil limitation parameters to determine the land capability classification and assess the crops suitability potentials in the study area.

3.3.1 Slope

Slope is the basic element for analysing and visualizing landform characteristics (Panhalkar, 2011). Slope may be assists in run off calculation, soil loss estimation, land capability

mapping etc. (Abdel Rahman et al., 2018; Shirzadi Babakan et al., 2021; USDA, 1964). Slope is a dimension which can directly regulate the nature and intensity of surface top soil erosion in term of rill and gullies formation (Ismaili et al., 2023). For the present study researchers used slope factor for land capability classification as per the scheme of UK method of LCC. Here slope map (in degree) was prepared from 30m resolution Shuttle Radar Thematic Mapper Model data with ID No. SRTM3N26E088V1/SRTM3N27E088V1 which is obtained from https://earthexplorer.usgs.gov. The final product of slope map (Fig. 3, Right Up) reveals that the steepest slopes (57- 71) ˚ are located in the Northern, North western and major middle parts of study area. On the other hand, the entire Southern and lower middle part of the study area is designated as gentle slope with less than 14˚.

3.3.2 Vegetation moisture status

Vegetation status is one of an important aspect for land capability classification (Gessesse et al., 2023). We employed the Normalized Difference Vegetation Index (NDVI) to assess the vegetal effect in our study. The relationship between vegetation cover and topsoil erosion, in term of rills and gullies formation is inverse, while it shows a direct relationship with soil organic matter (Briggs, 1977; Klingebiel, 1961; Mitchell, 1973). Some researchers (Dar et al., 2024; Sameh Kotb Abd-Elmabod1, 2019) considered NDVI is a numerical indicator which gives a measure of vegetation cover on the land surface over wide areas. The NDVI algorithm is computed by subtracts the red reflectance values from the Near Infrared and divided it by the sum of Near Infrared and red bands (Tucker, 1979).

$$NDVI=(NIR-RED)/(NIR+RED)$$

Here in the present study researchers used the Landsat-8 Thermal Infrared Sensor (TIRS) satellite imageries of 20th November (2022) and obtained from https://earthexplorer.usgs.gov. for the calculation NDVI. The calculated NDVI value of Garubathan lies between – 1 to +1. The negative values are representing the water body or water logging condition in the study area. Primarily they are concentrates from the middle western parts to north western part of Garubathan and the NDVI values ranges from -0.310 to -0.058 (Fig. 3, left down). Again, the values (-0.017 to -0.008) very close to zero is represent the bare rocky soil which is rare to be seen in the study area. The values of positive like + 0.051 to + 0.242 indicating that the land has cover with very dense forest. This highly dense forest area can be seen at the entire middle to southern belt and eastern belt of Garubathan block. Overall, it could be concluded that the vegetation status of the study area is verry healthy in nature.

3.3.3 Climate

Climate is a basic determining factor of an agriculture as because the crop phenology like sowing time, harvesting and tillage period and cutting time are primarily influenced by the climatic parameters (Abdel Rahman et al., 2018; Qian et al., 2021; Taghizadeh-Mehrjardi et al., 2020). Many aspects of climate like local climatology, mean annual rainfall, mean daily

maximum temperature (°C) in the month of April and September and exposed to wind etc. are combinedly plays a vital role to crop phenology in the study area (MacRae, 1981). In the present study we consult the climate data from https://mausam.imd.gov.in and beside of that we kept the weather station data of local tea garden in our study area. The mean annual temperature recorded more than 26℃ and mean monthly temperature of the month April and September are 26℃ and 26.3℃ respectively. The Mean annual rainfall is received 1555mm and maximum time of the year the study area remains exposed to wind. After being collection of the related climatic data, we decided the best approximation of land in to LCC classes as per the land judging form (Modified after Burnhum & Mcrae, 1974).

3.3.4 Soil nutrients properties

A proper nutrient soil can lead a better soil management practice. There are many variables which affecting a rich soil nutritional health. In the present study we incorporate soil pH, Soil Organic Matter (SOM) and Soil Nitrogen Content (SNC) for better understanding of soil nature in our study area.

3.3.4.1 Soil p^H

Soil pH has an enormous influence on soil biogeochemical process (Mackay et al., 2018). Proper pH levels are essential for maintaining soil health and promoting healthy crop production, while improper pH can reduce beneficial bacteria, such as rhizobium, which are crucial for nitrogen fixation in the soil (AL-Taani et al., 2021; Mugiyo et al., 2021). Here to analysing the nature of soil pH we essentially incorporate ISRIC, world soil information data which is obtained from https://soilgrids.org. The p^H values range from 4.9 to 5.8 which is designated as slightly acidic (Fig. 4, left down) in nature. The Fig. 4 (left down) is depicting the soil pH distribution of the study area, where the major part of the study area is called as moderately acidic and it is also not useful for soil bacteria. This range of soil p^H of the study area can support the plants who are acidic lover like tea plantation.

3.3.4.2 Soil organic matter (SOM)

Soil organic matter also help to enhance soil fertility and quality. The organic matter may play role like spongy which can allow infiltrate and store the water up to 90 percent of its weight in water as well as it will release the same water it absorbs. So, SOM has an important role for assessing the promising water to the crops (Rodrigo-Comino et al., 2018). For the present study researchers incorporated the ISRIC, world soil information data which is obtained from https://soilgrids.org. The values of SOM for Garubathan range from 122 up to 535 in dg/kg. The soil organic matter distribution map (Fig. 4, right down) showing that the northern part of the study area contains high proportion of soil organic matter as the high and the entire southern part of the study area contains moderate organic matter within the soil.

3.3.4.3 Soil nitrogen content (SNC)

Nitrogen content is another vital property which strengthen the soil health condition by allowing to capture sunlight energy in term of photosynthesis, growth of plants and grain yield (Raymond R Weil, 2017). In the present study we consider the ISRIC, world soil information data which is obtained from https://soilgrids.org. The nitrogen status of the study area defined as moderately low to very low and the value ranges from 137 up to 1635 cg/kg. The prepared nitrogen map of Garubathan (Fig. 4, left up) suggests that the lower southern part is comprising of very low nitrogen content while the entire middle to northern parts recorded moderately low nitrogen concentration.

3.3.5 Drainage

Drainage is an important determining factor in plants growth. It has been noted that moderate to well drained promotes a good plants growth, while poor and excess drainage condition restricted the plants growth (Sluijs, 1972). For this study, the researchers recognize the use of the 30-meter spatial resolution SRTM digital elevation model data with ID No. SRTM3N26E088V1/SRTM3N27E088V1, sourced from https://earthexplorer.usgs.gov. The drainage map (Fig. 3, Right down) suggests that the area is moderate to well drained with some major river like the Cheel Khola, Jholung and the Jorapani etc. The intensity of drainage is heavy at southern part of the study area than that of northern part.

3.3.6 Soil texture

Soil texture is the relative proportion of sand, silt and clay content within the soil. In the present study soil texture roughly incorporates soil limitations like boulder (more than 20 cm. in diameter), stoniness in the soil and root able depth (more than 20cm. in diameter). Big size boulder, severe stoniness and less deep root able textural soil are restricted land use, plants growth and better land management. In this study, we recognize the use of the SRTM digital elevation model data with a 30 m resolution, identified by ID No. SRTM3N26E088V1/SRTM3N27E088V1, which was sourced from https://earthexplorer.usgs.gov. The prepared soil textural map (Fig. 4, right up) of the study area clearly shows that the variation ranges from coarse sandy loamy at the major northern most part to fine sandy loamy in the southern lower part.

3.3.7 Framework of British method of land capability classification (LCC)

Land Capability Classification (LCC) is an indication of an inherent potentiality of land for alternative kind of uses. Here the British method of Land Capability Classification (LCC) is an adaptation of the US Department of agriculture method. Based on the capability or limitation the land is grouped in to seven classes which is presented by roman numerals I – VII or by standard colour or by both. First four classes are designated as lands available for agriculture while remaining are not suitable for agriculture as per the scheme. Ultimately it can be said that class- I have a wide range of uses with few limitations and progressively

less flexible in the range of their potential land uses. The whole analysis of land capability classification dealt with few segments such as land capability class, land capability sub-class, capability unit and soil mapping unit.

3.3.7.1 Limitations

Limitations are characteristics which have an adverse effect on capability. The sub- classes of land capability in the present study are defined on the basis of one or more permanent or semi- permanent physical factors that limit production. The present study accompanied each of these sub- classes is denoted by the small alphabets (w, s, g, e, c) attached to the relevant class number (e.g., 6gs) these are given below

w- very poor drainage, boggy soil (Water logging related hazard)

s- extremely stony, rocky or boulder, strewn soil, bare rock, scree or beach sands and gravels, untreated waste trips (soil related hazard)

g- very steep gradients (generally more than 25 degree)

e- severe erosion (erosion related hazard)

c- extremely severe climate, altitude over 610 m. (climatic related hazard)

In the present study researchers are essentially examine two types of limitation which minimizes the choice of crops production.

3.3.7.1.1 Permanent limitations

Permanent Limitation are those which cannot easily be withdrawn. In case of Garubathan block the identified such type limitation are include slope angle, soil depth, liability to flooding and climate. Here point to be noted that the present analysis of land capability classification (LCC) is done based upon the permanent limitation.

3.3.7.1.2 Temporal limitations

Temporal Limitation can be removed after being provide a special treatment. The identified temporal limitation for present study is soil nutrient content and at least minor degree of drainage impedance.

3.3.8 Functional structure of land capability classification (LCC) by UK method

3.3.8.1 Class-I

Land is the best and the most easily farmed and almost zero limitations. Soil is usually well drained, deep (more than 75cm), loams, sandy loamy which is easy to access for roots penetration and high nutrient. The land is nearly level or gentle (usually less than 3 degree) and climate favorable (altitude below 150 meters). A wide range of crops can be grown and yields are satisfactory with moderate input of fertilizer.

3.3.8.2 Class-II

Land with minor limitations that reduces the choice of crops. The land is fairly deep soil and good surface drainage with the gradient value of land is < 7 degree and altitude < 230m.

3.3.8.3 Class-III

Land with moderately limited that restrict the choice of crops. Hence it needs intense soil and water conservation treatment and requires careful soil management. Graded terraces are made on moderate slopes. The gradient of land is usually less than 11 degree and altitude are less than 380m.

3.3.8.4 Class-IV

The land has severe limitation that restricted its use and the water and soil conservation practices are more difficult to apply and maintain. The essential gradient of land is usually less than 15 degree and altitude are less than 460m.

3.3.8.5 Class-V

Land has very severe limitation that restricted its use to pasture, forestry and recreational purposes. The essential slope is usually less than 15 degree and altitude are less than 460m.

3.3.8.6 Class-VI

Land has the same limitations as pre-defined class except that are more severe and the land is steeper. The gradient of land is usually more than 20 degree and altitude are less than 610m.

3.3.8.7 Class-VII

Land with extremely severe limitations that restricted its use. The land is best utilized under forest and permanent vegetation and for limited grazing. The gradient of land is usually more than 25 degree and altitude are more than 610m.

4. Result and discussion

The land capability class (LCC) is an indication which provide a ranking of the capability of each part of land resource to sustain broad land use classes. The present work of Garubathan block in Kalimpong district mainly 5 land capability classes have been identified by considering aforesaid parameters. Those aye II, III, IV, VI and VII which are depicted in the Fig. 5. With major three limitations namely erosion(e), soil(s) and gradient(g). Here the result of the study generated by the incorporation of the possible aspect and parameter as per the land judging form (modified after Burnhum and Macrae, 1974). While the product is comprehensively discussed on the basis of prior knowledge of field, expert opinion, intensive literature reviewed and field experience.

4.1 Land capability class (LCC) and suitable crop phenology of Garubathan

4.1.1 Class-II

The result reveals (Table 3) that class-II is the most dominant in present study area. The land of Garubathan-I, Samsing and Kumai GP are fall under this category (Table 3; Fig. 5) which is dominated by gentle slope configuration (less than 11 degree), moderately to high root able depth (75-75 cm.) of plants. This class of land is identified as the most suitable for the agricultural crop production in the study area hence the degree of limitation is at negotiable level or minor which can be easily rectified with some scientific land management. So, the crops may be randomly selected for the cultivation, as class-II land has the modest flexibility to its suitability potentials in our study area. But here class-II lands have been also characterised by two minor limitations gradient and sheet erosion which are recognized as (2gs). For this minor limitation we noted by the field investigation, visual image interpretation and as well as unsupervised Lulc classification (Fig. 6) that the land of class-II presently using for tea gardening (monoculture) along with a limited patches of banana cultivation. After being field observation, we can made recombination that class II lands may be happily enjoy for arable crops like ginger, paddy (terrace cultivation), squash, tomato, betelnut etc with paid low to moderate attention of conservation practices.

4.1.2 Class-III

Class-III lands can be seen in Pokriyabang (Table 3; Fig. 5) which is located in the western part of the study area. The land in class-III (Table 3) has more restrictions than those in the class-II, still it is used for cultivated crops but it is less rigid to the crops other than edible crops. Here class-III land has moderate limitations in term of gradient and soil problem (3gs) with less root able depth and clay, sandy, peat soil without mineral mixture. Due to the limitations (3gs) it restricts the amount of clean cultivation, timing of planting, tillage and choice of crops of the study area. The present use of land under class-III category dominated by forest with single crops (tea garden). But this land also may be recommended for maize cultivation with a moderate land conservation measure.

4.1.3 Class-IV

Class-IV class of land is only can be seen Neem-II (Table 3) which is located at the south-western part and just below of Neem-I (Fig. 5) in our study area. The restrictions to use this type of land is greater than those of class-III and choice of plants is more restricted. This class of land in the present study area associated with two major issues such as moderately severe soil erosion along with a shallow root able depth (15 to 25 cm.) recognized as (4es). It has been observed that there are only two crops are being cultivating i.e., tea and maize but with proper management of soil and land evaluation it can be recommended that class-IV is also competent for chilli, Squash and ginger farming as well as woodland where moderate to high conservation method should be assured.

4.1.4 Class-VI

The analysis reveals that Neem-I and Garubathan-II (Table 3; Fig. 5) are fall under this category, located nearly the middle and western part of our study area. The major limitation is high gradient which is more than 15 degree and erosional soil hazard accompanied with to coarse sandy loamy as well as low level of level of nitrogen content with in the soil are termed as (6es) for Neem-I and (6gs) for Garubathan-II (Table 3; Fig. 5). But gradient is here the most inevitable limitation which cannot be totally removed. Due high gradient the land of this class highly susceptible for rill and gullies formation with alarming rate of top soil erosion. So, class-VI of land totally restricted the agriculture as it is confined with dense forestry. But this class of land may be recommended for social forestry and limited soil erosion protectional crops like maize and bamboo.

4.1.5 Class-VII

The analysis reveals that Todetangtha (northern most) and Jaldhaka (North- eastern) have been qualified the reputation of such category. This land having severe limitation of very steep gradient (more than 25 to 35 degree) with a shallow top soil associated with erosional hazard including local landslide at peak monsoon period and slips in the study area as it is designated (7ge). For these circumstances lands of this category totally restricted for edible agriculture. Rather the present use of lands is confined within social forestry and natural forestry. But considering the fact it can be recommended for indigenous monoculture tea gardening where a special measurement should be implemented. But it will be wise and sustainable decision if this category of land is used for recreational purpose and eco- tourism development.

5. Conclusion and recommendations

The methodology adapted for the present study has permitted to identify land capability class and sub-classes for discission making process. The detailed analysis proved that there are five capability classes has been identified i.e., Class-II, III, IV, VI and VII as per the guideline of British method of LCC in the study area. Further these identified classes are categorised into two distinct head i.e., land suitable for agriculture (class-II to IV) and land is not suitable for agriculture (VI and VII). Out of that, class-II is the major and dominant class (Garubathan-I, Samsing and Kumai), which allowed the maximum choice of crops selection and permitted to an intensive agriculture with the mandate of little to moderate water, soil management and conservation practices to the farmers of study area. The soil of this class is not only relied on single crop (Tea gardening) rather it may be happily enjoyed for arable crops like ginger, paddy (terrace cultivation), squash, tomato, betelnut etc. Class-III and IV category of land also may be used for agricultural purposes but here the randomness of crop selection has been reduced at a certain level which demands a better or moderately high nature of conservation and management setup. Keep these basic circumstances this group of lands can be used for maize, betelnut, potato, green chilli, tomato, squash cultivation. Finally

class-VI and VII category of lands are not suitable for agriculture and crops selection is highly restricted as because they are most susceptible to degraded by severe top soil erosion in term of rills and gullies formation. So kept the geographical location the land of this classes in the study area may be refer for social forestry with single crops (indigenous tea gardening) and recreational use specially development of a sustainable eco- tourism.

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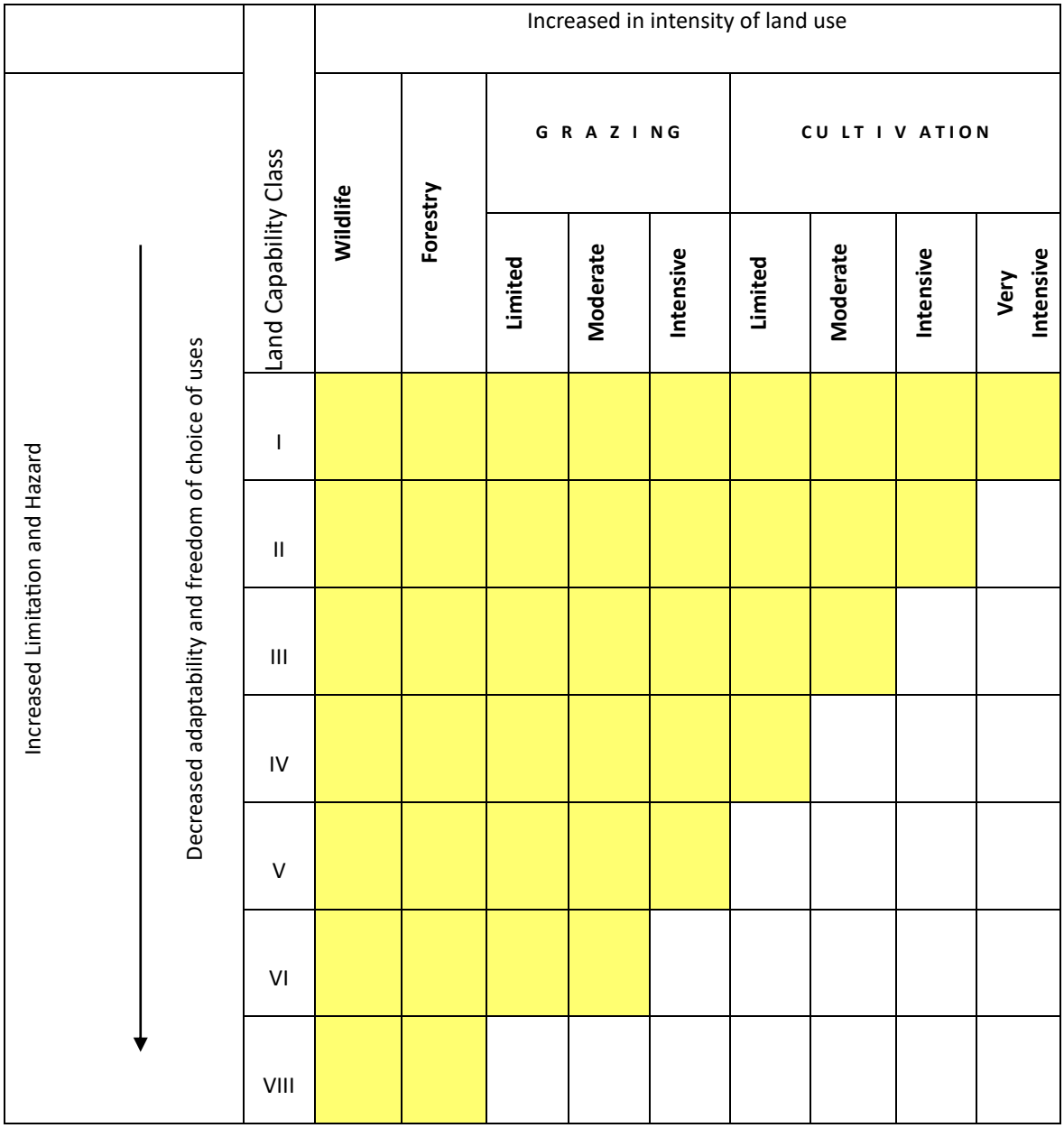
Table 1 Land Capability Classes and Freedom Adaptability of Choice of land Uses as per UK Method of LCC

Source: (Prepared by Researcher)



*(**Note**: Yellow colour denotes usability of variant class of land (I, II, III etc.) with to various purpose viz. Wildlife, Forestry, Grazing, Cultivation etc.)*

Table 2 General Configuration related to the aspect of Land Capability Classification (LCC) and Crop Suitability Potentials of UK Method of LCC

Land capability class	Capability Sub-classes	Capability Unit	Soil mapping unit	Standardized colour	Nature of land	Slope (in degree)	Altitude (from MSL)	Degree of Limitation	Characteristics	Degree of conservation measures
I				Green	Very Good	Usually less than 3 degrees	Usually below 150 mts.	Very minor or No limitation	Nearly level, fairly deep soil and good surface drainage	Land cab be cropped every year without special practices to control erosion
II	II e	II e-1	P	Pale/ Yellow	Good	<7 degree	<230 mts.	Minor	Moderate soil depth, light or heavy texture, gentle slope with moderate soil fertility	Requires moderate attention to conservation practice. Contour farming iv very helpful here.
III	II s	II e-2	Q	Purple	Moderately Good	<11degree	<380 mts.	Moderate	Seen gently slopped hill, crops must be more carefully selected for soil conservation	Terraces and strip cropping with contour and graded banding is most helpful here.
IV	II w	II e-3	R	Blue	Fairly Good	<15 degree	<460 mts.	Moderately severe	Hilly land, frequently subjected to gullies erosion and suitable for limited occasional use	Requires special conservation and management practices.
V	II c			Dark Green	Unsuitable for Agriculture	<20 degree	<530 mts.	Severe	Used for pasture crops, grazing, hay crops and tree farming.	Demands special practices
VI	II cs			Orange	Not suitable for row crops	>20 degree	<610 mts.	Very severe	Suited for horticulture crops	Very special conservation practices
VII				Brown	Totally restricted for cultivation	>25 degree	>610 mts.	Extremely severe	Best uses for permanent pasture, forestry, wildlife and recreational uses	A unique conservation management are mandatory

Source: Compiled by Researcher as per Burnham, C.P. and Mcrae. S. G. 1974. Land Judging. Area 6:107-111

Table 3 Capability Classes Determined for Garubathan block as per UK Method of LCC

Stations	Climate(c)				Gradient(g)	Erosion(e)		Soil(s)					Wetness(w)							Class & Sub-Class
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
Pokriyabang	1	3	1	2	4	3	1	3	2	3	3	2	1	1	1	1	1	1	1	3gs
Neem-1	6	6	3	1	4	6	1	1	4	6	1	1	1	1	1	1	1	1	1	6es
Neem-2	4	4	1	1	3	4	1	1	1	4	1	1	1	1	1	1	1	1	1	4es
Gorubathan-1	2	2	1	1	2	2	1	1	1	2	1	1	2	1	2	1	1	1	1	2gs
Gorubathan-2	6	4	4	1	6	7	1	2	2	4	6	1	1	1	1	1	1	1	1	6gs
Samsing	1	2	1	1	2	1	1	1	1	2	1	1	1	1	1	2	1	1	1	2gs
Kumai	1	2	1	1	2	2	2	1	1	2	1	1	1	1		2	1	1	1	2ge
Todetangtha	7	7	7	1	7	7	1	1	1	7	6	1	1	2	1	2	1	1	1	7ge
Jaldhaka	7	7	7	1	7	7	1	1	1	7	2	1	1	1	2	2	1	1	1	7gs

Source: (Compiled by Researcher*)*

Note: *The Table is compiled as per the Land Judging Form (Modified after Burnhum & Mcrae, 1974)*

Table 4 Land Capability Class and Sub- Class with their inherent crop's suitable potentialities of Garubathan Block as per the UK method of LCC

Capability Class & Sub Class	Relief	Slope in degree	Degree of soil water potentiality	Existing land use	Recommended land use	Degree of conservation measure recommended
2gs	Gentle	7-11	Moderate	Tea; Arable farming; Areca nut; Banana	Ginger; Paddy; Squash; Banana cultivation along with existing cultivation	Low conservation practice
3gs	Moderate	11-15	Low	Forest; Single crop	Maize Cultivation	Moderate conservation practice
4es	Gentle	7-11	Low	Tea, Maize	Chilli; Squash; Ginger	Low conservation practice
6gs	Gentle to Moderate	15-25	Low	Only Forestry	Restricted arable farming, maize, Betelnut cultivation	Special conservation with soil loss protection
7ge	High	25-35	Moderate	Forestry	Tea cultivation; Maize	Very careful conservation with terrace practice

Source: (Compiled by Researcher)

Note: *The Table is composite on the basis of present land use and Landcover status of the study area (based on Unsupervised Classification of Landsat 8 satellite Imageries) as well as the capability class & Sub-Class (Table 3)*

Table 5 Land Judging Form (Modified after Burnhum & Mcrae, 1974)

CLIMATE (Sub-class C)		
A. Elevation (in meters)	**Best possible classes**	**Sub- class**
<150	1	C
150-300	2	C
300-500	3	C
500-750	4	C
750-1050	6	C
>1050	7	C
B. Mean Rainfall (mm/annum)		
<3200	1	C
3200-3800	2	C
3800-4800	3	C
>4800	4	C
C. Mean Daily Max. Temp □ (April/ September)		
28 □ >	1	C
26-28□	3	C
<26□	4	C
D. Expose to wind		
Sheltered/ Moderately exposed	1	C
Very exposed	2	C

GRADIENT (Sub- classes G)	**Best possible classes**	**Sub- class**
< 7 ˚	1	G
7-11 ˚	3	G
11-15 ˚	4	G
15- 25 ˚	6	G
25-35 ˚	7	G
>35 ˚	8	G

EROSION (Sub-class E)		
F. Liability to water erosion (including evidence of past erosion)	**Best possible classes**	**Sub- class**
Negligible to slight	1	E
Moderate	2	E
Severe	6	E
Very Severe (including Landslides & slips)	7	E

G. Liability to wind erosion	**Best possible classes**	**Sub- class**
Negligible to slight	1	E
Moderate to severe	2	E
Shifting Sand Dunes	8	E

SOIL LIMITATIONS (Sub-classes)	**Best possible classes**	**Sub- class**
H. Boulders (20cm. In diameter) or Rock out crops		
None	1	S
Few	2	S
Several	4	S
Many	5	S
Dominant	8	S

I. Stoniness	**Best possible classes**	**Sub- class**
Stone less	1	S
Slightly stony	2	S
Stoniness a nuisance	4	S
Stoniness a hazard of Ploughing	5	S
Stoniness precludes ploughing	8	S

J. Root able depth (cm) i.e., depth of soil above a physical barrier to root growth e.g., bed rock	Best possible classes	Sub- class
75 >	1	S
50-70	2	S
25-50	3	S
15-25	4	S
< 15	7	S

K. Texture of land	Best possible classes	Sub- class
Texture of upper most 20cms, Sandy loam, Silt loam, loam, Silt or Peat with some mineral mixture	1	S
Find sand, Clay, loamy coarse sand	2	S
Clay, Sandy, Peat without mineral mixture	3	S
Coarse sand, Peaty soil organic matter 15%	6	S

L. Evidence of bleached horizon	Best possible classes	Sub- class
No	1	S
Yes, but soil mottled within 90cm or surface	2	S
Yes, but no such mottling	3	S

WETNESS (Subclass W)		
M. Liability to damaging flood (years in 10)	**Best possible classes**	**Sub- class**
1	2	W
2	3	W
3	4	W
>3	7	W

N. Spring or Permanently water-logged patches		
None	1	W
Few	2	W
Several	5	W
Many	6	W

O. Water regime (top soil) Annual period of water logging in to 30cm		
<1 month	1	W
1-2 month	2	W
3-6 month	3	W
>6 month	5	W

P. Water regime (Sub soil annual period of water logging in 30-60 zone)		
<1 month	1	W
1-6 month	2	W
>6 month	3	W

Q. Morphological of evidence of gleying in top soil		
No sign in gleying	1	W
Rusty root mottles	3	W
R. Sub-soil permeability	Best possible classes	Sub- class
Unimpeded	1	W
Slope	2	W
Impermeable	3	W

S. Feasibility		
Feasibility of artificial drainage unnecessary or total effective	1	W

Economically feasible but not totally effective	3	W
Economically marginal but could enable arable cultivation	4	W
Limited improvement possible to maintain grassland	5	W
Necessary but technically or economically impracticable	6	W

	First approximation	Final Decision
Land Capability Class		
Sub-class		
Reason Classification		For landscape architecture on the basis of land capability class & Sub-class

Source: Burnham, C.P. and Mcrae. S. G. 1974. Land Judging. Area 6:107-111

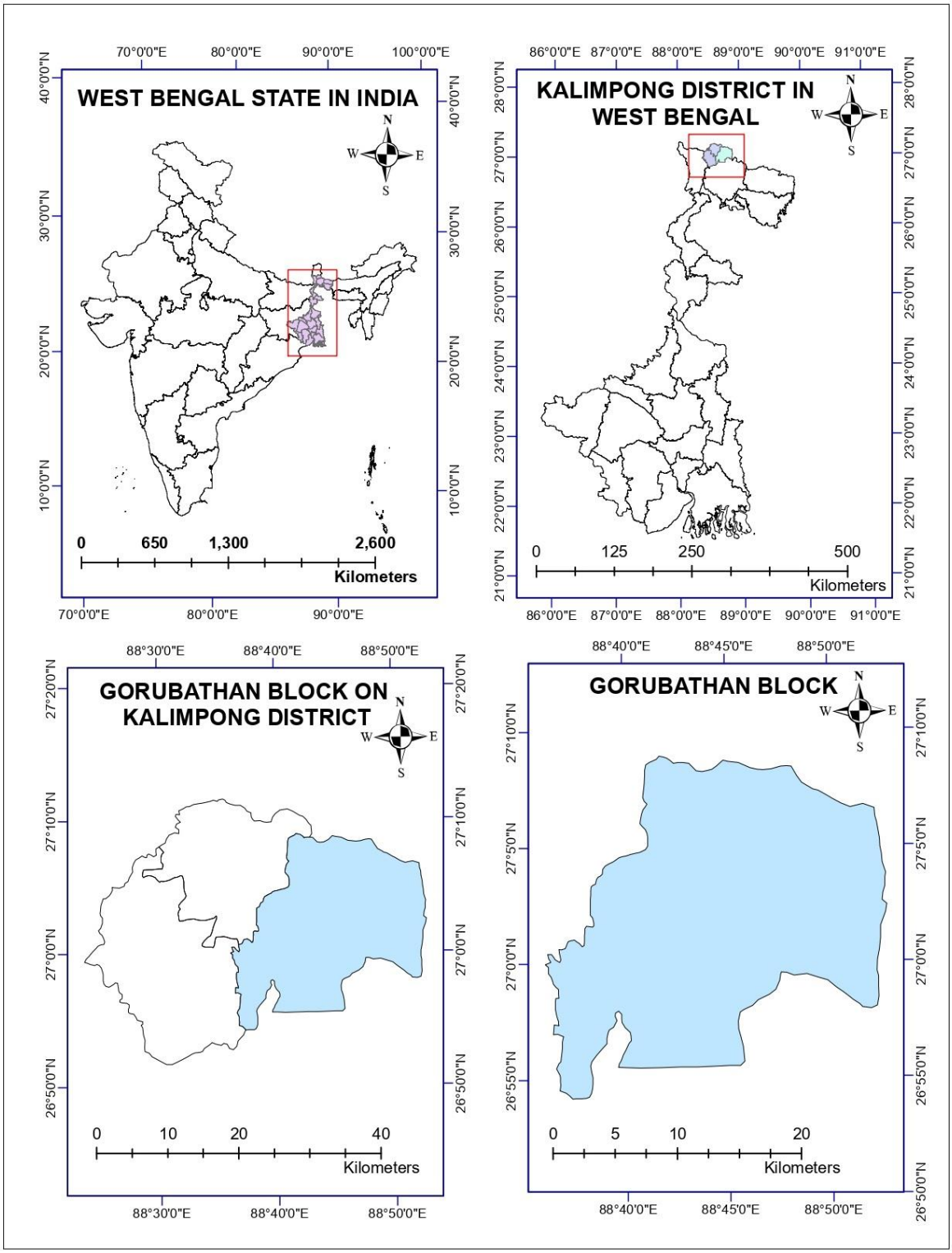


Figure 1 Location Map of Garubathan Block, Kalimpong District, West Bengal, India

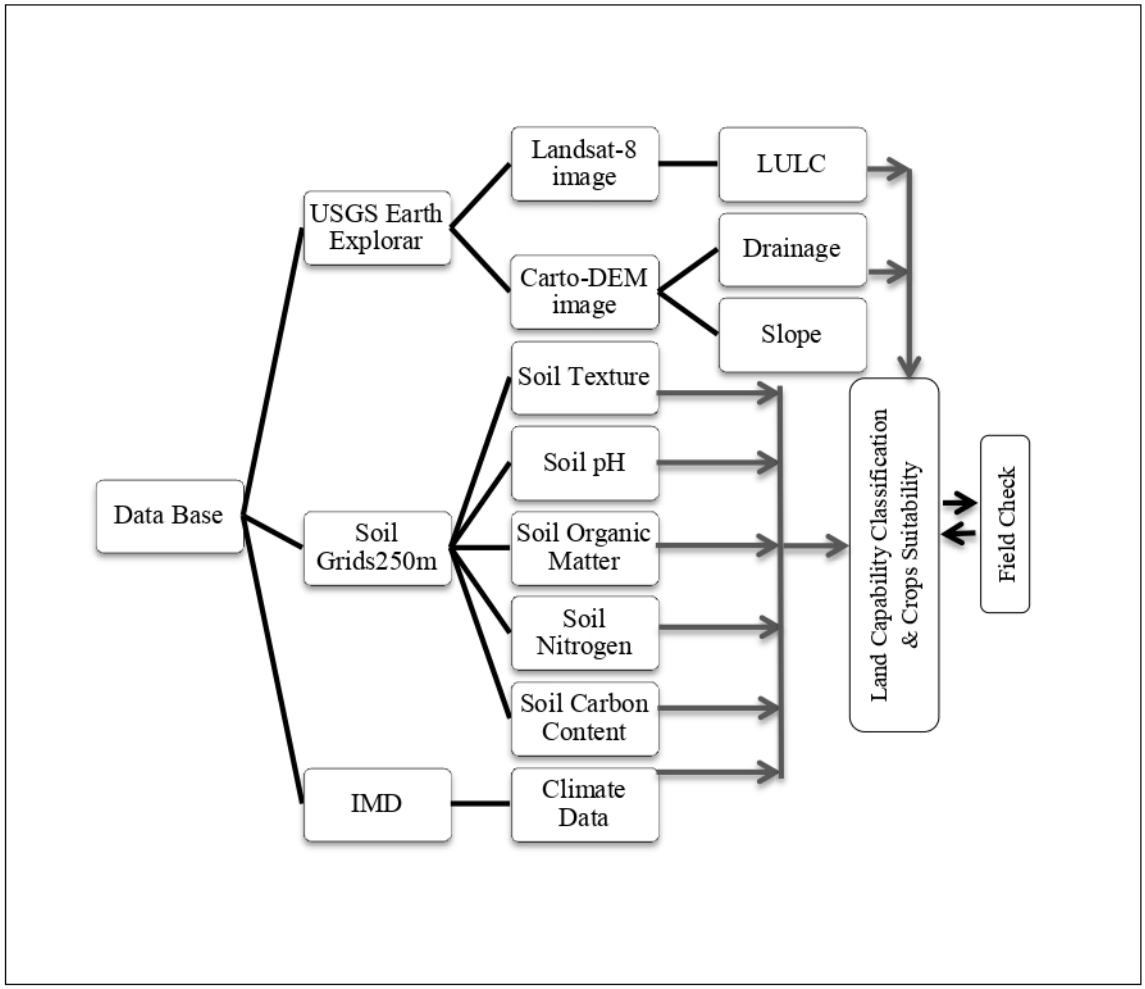


Figure 2 Flow Chart of Database and *Methodology*

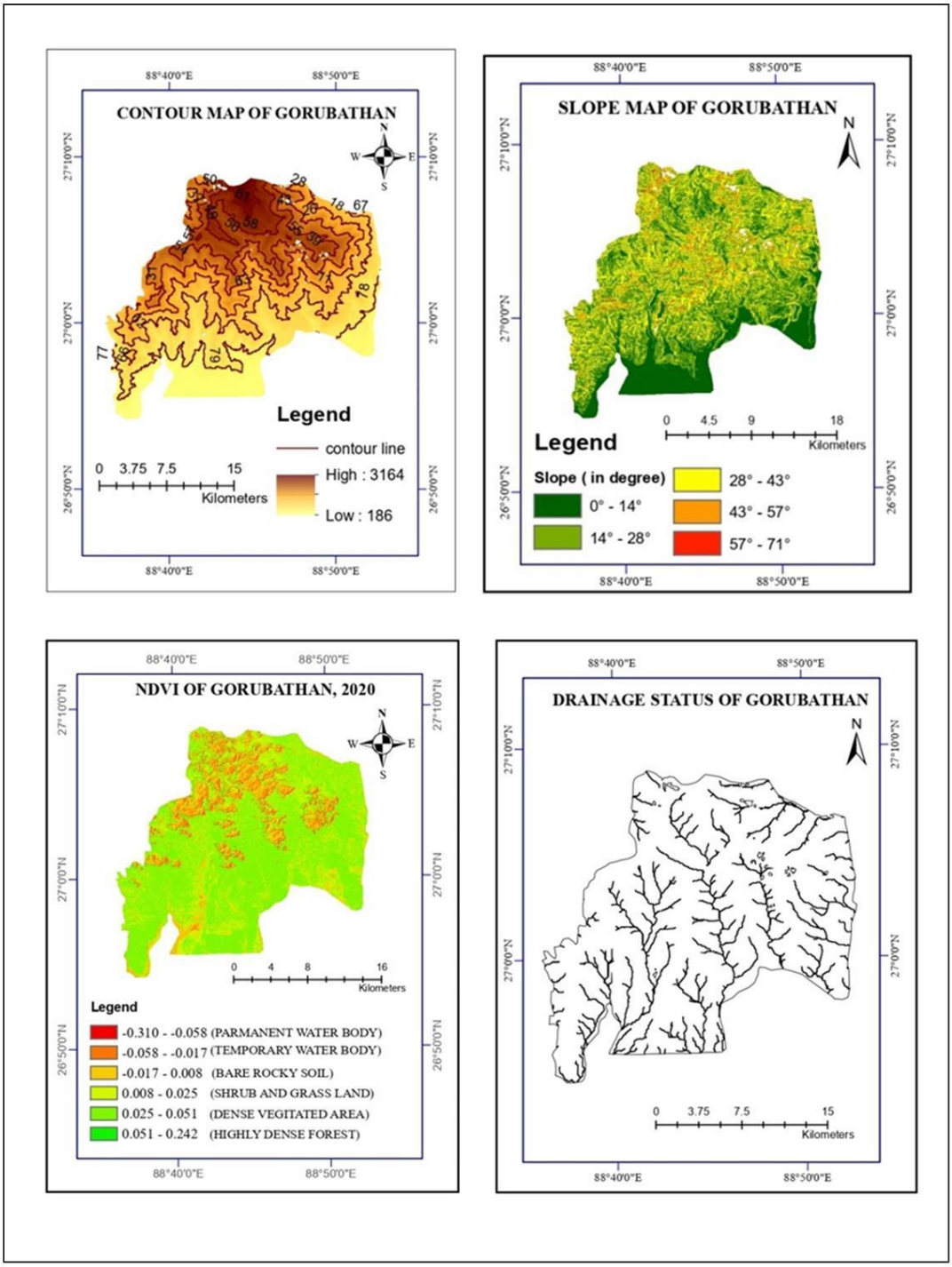


Figure 3 Geo-spatial and geographical parameters for analysing the Land Capability Classification (LCC) of Garubathan Block, Kalimpong District, West Bengal, India

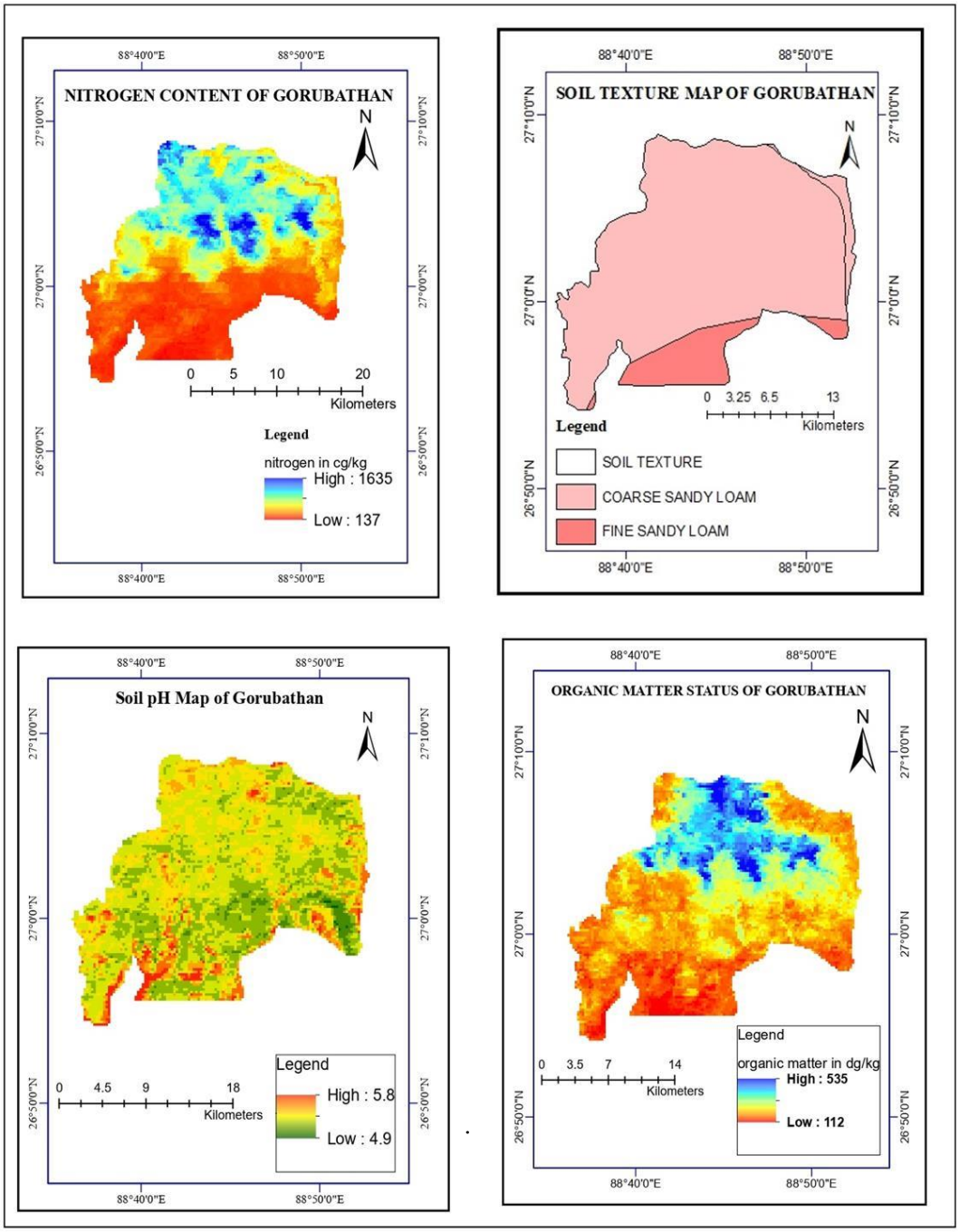


Figure 4 Geo-spatial and geographical parameters for analysing of Land Capability Classification (LCC) of Garubathan Block, Kalimpong District, West Bengal, India

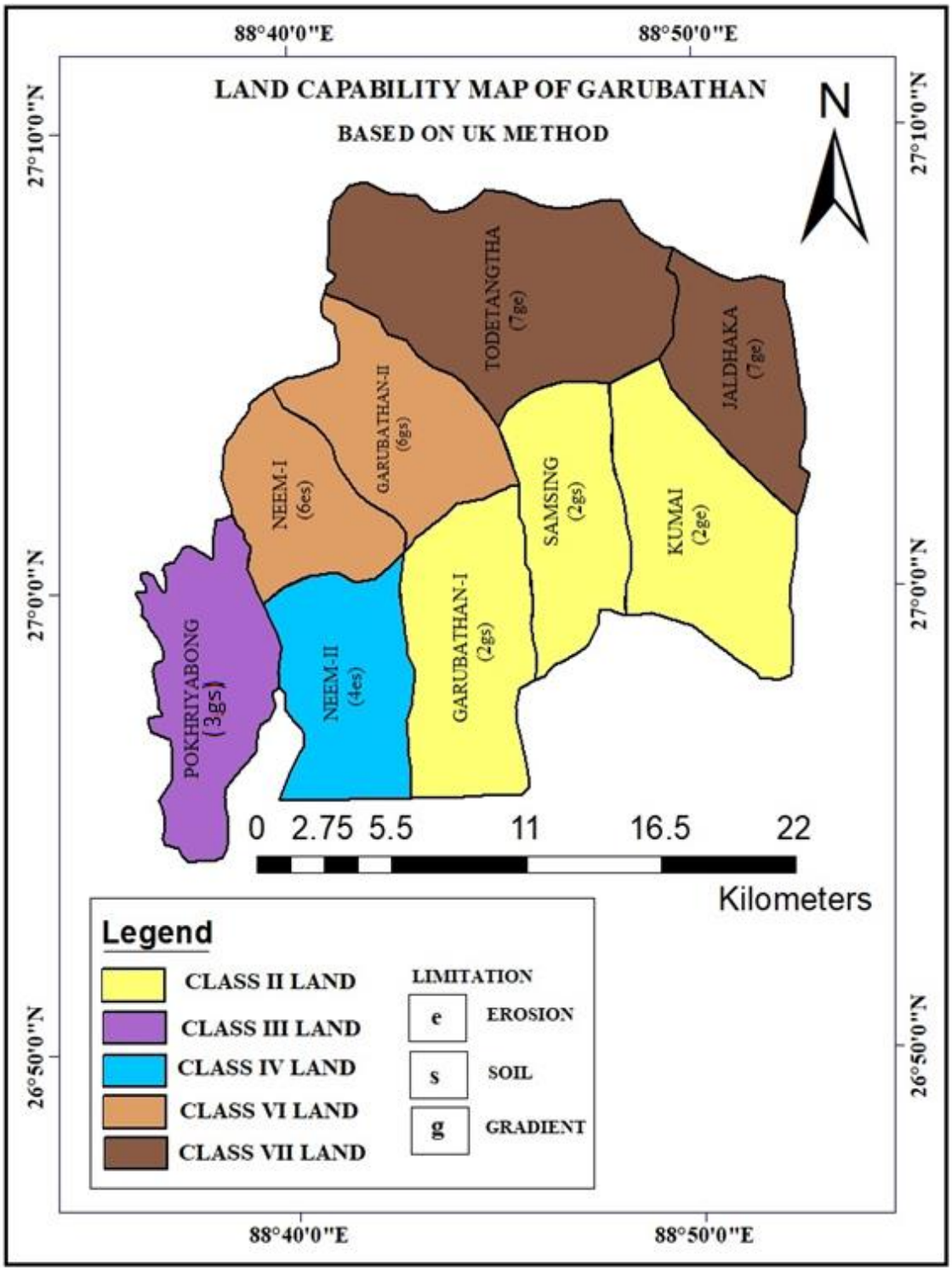


Figure 5 Map of Land Capability Classifications of Garubathan Block, Kalimpong District, West Bengal, India

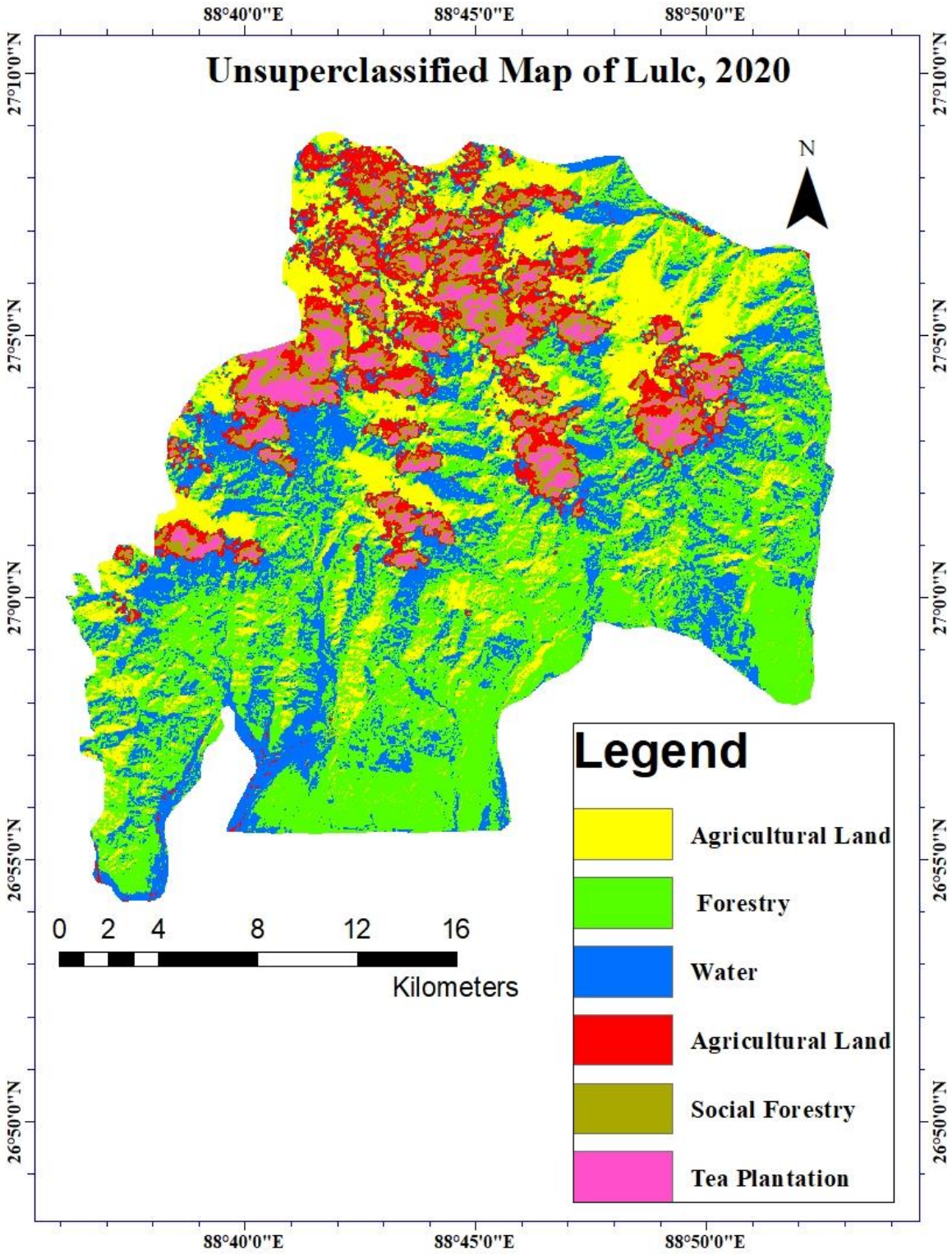


Figure 6 Land use and Land Cover (LULC) map of Garubathan, Block, Kalimpong District, West Bengal, India, 2020

Role of Moneylenders (*Mahajans*) in the Production of Santipuri and Tangail Sarees in Nadia District, West Bengal

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Abstract: The handloom industry contains different components, and the producers are the crucial element in the production process. However, the handloom industry, characterized by a capitalist mode of production, often exploits these producerswho are merely working as labor in the saree-making process. This demands further investigation at the ground level to understand the production process in detail. This study aims to analyze the production process, particularly the involvement of local moneylenders in the making of Santipuri and Tangail sarees in Nadia district, West Bengal.

Field observations reveal that the producers, primarily saree weavers of Santipuri and Tangail sarees, are often dependent on local moneylenders or *Mahajans* for financial assistance. This system eliminates the benefits for the saree weavers, as the moneylenders supervise and control the entire process. The moneylenders provide the inputs for saree weaving to the producers, collect the cloth from them at minimal wages, and then deliver the cloth to the market, reaping the profits. Consequently, the actual producers do not benefit from the profit and are often overexploited.Moreover, the geographical indications associated with these two handlooms do not benefit the producers; instead, the profit mechanism is managed and controlled by the local moneylenders.

Keywords: Mode of Production, Saree Weaving, Money-Lender, Santipuri and Tangail Saree

Introduction

The handloom industry, characterized by smaller producers, often reflects the capitalist mode of production. In India, the origin of the handloom industry dates back to the pre-colonial period, rooted in a pre-capitalist village economy (Nag, 2015). A capitalist economy typically features a lower-class dependent population, such as weavers in the textile sector. Rai (2021) emphasized the role of human capital in shaping the capitalist yet home-based labor process, which is deeply ingrained in the historical experiences of capitalism in the handloom industry. Saree weavers in this sector work from home within a capitalist production system. Koley and Sana (2016) found that Primary Weavers' Cooperatives (PWCSs) in West Bengal face challenges such as inadequate capital, affecting production and sales. The capitalist handloom weaving system comprises small registered and vast unregistered informal sectors in West Bengal (Sen, 2013). The informal economies and capitalist mode of production have led to the emergence of middlemen in the weaving process. According to Debnath (2022), there is a historical connection between the textile industry in Bengal and the Mughal era, which reached its peak before the colonial period. During the colonial period, mass production allowed moneylenders (*Mahajans*) to infiltrate as capital investors in villages, employing paikars to collect cloth from weavers and provide

advance money. Ray (2009) found that the cotton textile industry in Bengal faced a significant decline in the nineteenth century due to British commercial policies. D'Costa (2021) analyzed an alternative approach to capitalist progress, grounded in moral economy, which offers commercial branding for the handloom industry. This study focuses on the moneylending system in the production of Santipuri and Tangail Sarees in Nadia district, West Bengal. Nadia district, though not traditionally a region of cotton production, was introduced to it in the pre-Mughal era and exploited by the British for maximum profit (Roy, 2017). The partition of Bengal significantly influenced the handloom industry in Nadia and Bardhaman, with an influx of refugees, many of whom were weavers from East Bengal (Debnath, 2022). The Tangail Saree of Phulia and Santipuri Saree are both in crisis and require government attention (Basak & Paul, 2015). Khasnabis and Nag (2001) stated that capital has a powerful presence in the informal labor market, controlled by *Mahajans* who own or manage capital, input, and output markets in the handloom industry of Nadia district. This study explores how capitalism leads to deskilling when weavers work under moneylenders (*Mahajans*) as wage laborers, tied to them through bondage relations. Bardhaman is the second-largest cluster of textile industry after Santipur and Phulia (Sarkar, 2017), and an important region of textile growth in Bengal. Dutta (2018) recommended government intervention in the distribution and marketing of the textile industry in Purba Bardhaman to prevent the penetration of moneylenders (*Mahajans*) who profit by marginalizing poor weavers. While many scholars have studied the textile industry in Nadia district, few have conducted detailed analyses of capital management by moneylenders (*Mahajans*) in the production process.

The objectives of this study are to analyze the nature of weavers of Tangail and Santipuri Sarees in Nadia district, discuss the role of moneylenders in production, and examine the impact of moneylending on production and market.

Database and Methodology

This study is based on data collected for the Indian Council of Social Science Research Project Vision Viksit Bharat@2047 (VVB@2047) through a primary survey conducted in Santipur and Phulia, Nadia district. Individual surveys with detailed questionnaires were administered to weavers, and separate interviews were conducted with both weavers and moneylenders (*Mahajans*). For the questionnaire survey, 32 individual weavers (16 for Santipuri and 16 for Tangail Saree) were asked detailed questions regarding the process and impact of moneylending, and six in-depth interviews were conducted among them. In addition, interviews with moneylenders (*Mahajans*) were conducted to gather information related to the production process. Both quantitative and qualitative methods were applied for data analysis. The subject analysis was primarily based on information received through interviews and discussions, while quantitative data were collected and processed using SPSS software for statistical analysis.

Results and Discussion

Nature of the weavers and mechanism of weaving

Santipuri and Tangail sarees are the two main textile products of Nadia district in West Bengal. The hub of the textile industry is located in Santipur and Phulia, where weavers and local markets are readily available. Weavers of both Santipuri and Tangail sarees face financial struggles and are largely dependent on local moneylenders (*Mahajans*). These weavers typically work from home, using their own handloom systems for production. However, the initial investment in primary machinery is substantial, making it unaffordable for many poor weavers. In such cases, moneylenders often provide the necessary infrastructure. Santipur is home to a mix of native West Bengalis and migrants from Bangladesh who weave Santipuri sarees. In contrast, Phulia is predominantly inhabited by Bangladeshi migrants who specialize in weaving Tangail sarees. Many of these migrants settled in the area after partition, with some being extremely poor and unable to afford homestead land. Some have lived on government land for years, relying solely on saree weaving for their livelihood. Educational levels among the weavers vary, with some being illiterate and only a few having completed graduation. This limited educational background often leaves them unaware of the true profit and market value of their products (Table 1). Notably, among the Santipuri saree weavers, 7 out of 16 have completed graduation, and 1 has even completed post-graduation. In comparison, the educational qualifications of Tangail saree weavers, who are mostly Bangladeshi migrants, are lower due to limited opportunities.

Table 1 Educational Qualification of the Weavers

Product Name	Educational Qualification					Total
	Illiterate	Primary Education	Secondary Education	Graduate	Post - Graduate and Above	
Santipuri Saree	4	1	3	7	1	16
Tangail Saree	5	4	4	3	0	16
Total	9	5	7	10	1	32

Source: Data collected for Indian Council of Social Science Research Project Vision Viksit Bharat@2047 (VVB@2047) through primary survey 2025

Most of the weavers of both Santipuri and Tangail sarees belong to Other Backward Classes (OBCs) (Table 2). Only a few poor Scheduled Castes and individuals from the general population are engaged in this occupation. This is because weaving has traditionally been associated with specific castes within the OBCs. For Santipuri sarees, most of the weavers

are traditional residents of Bengal, while for Tangail sarees, most of them are OBCs who migrated from Bangladesh.

Table 2 Social Group of the Weavers

Product Name	Social Category			Total
	General	SC	OBC	
Santipuri Saree	4	1	11	16
Tangail Saree	2	2	12	16
Total	6	3	23	32

Source: Data collected for Indian Council of Social Science Research Project Vision Viksit Bharat@2047 (VVB@2047) through primary survey 2025

According to Table 3, the average years of experience for Santipuri saree weavers is 22 years, while for Tangail saree weavers, it is 21 years. Most of them have been engaged in this occupation since the beginning of their careers. For Santipuri sarees, some weavers have joined the occupation after working in factories, hailing from distant villages in Nadia and Purba Bardhaman districts. In contrast, Tangail saree weavers have typically inherited their skills from their ancestors, as this occupation has been passed down through generations. The Tangail saree originated in Tangail, a region now located in Bangladesh, and the weavers have preserved the traditional skills.

Table 3 Average years of Experience and Average monthly income (in rupees) of weavers

Product Name		Years of Experience	Average Monthly Income (in rupees)
Santipuri Saree	Mean	22	12125
	N	16	16
	Std. Deviation	4.242	2729.469
Tangail Saree	Mean	21	20000
	N	16	16
	Std. Deviation	3.572	21624.061

Source: Data collected for Indian Council of Social Science Research Project Vision Viksit Bharat@2047 (VVB@2047) through primary survey 2025

Production relation and labour management

The relationship between weavers and moneylenders represents a specific pattern in the production system. During the colonial era, commercialization led to mass production in the textile industry, with the British exporting textile products to foreign countries (Debnath,

2022). Labor management in the textile sector has been facilitated through agencies since the colonial era, with local moneylenders (*Mahajans*) acting as intermediaries between the market and weavers. This system supports capitalism, as weavers have no direct relation to the market and are often deprived of profits. The system allows moneylenders to invest capital in production and reap the benefits. In both Santipur and Phulia, the moneylending process has adversely affected poor weavers. Some large owners have established their own factories, with 4 to 8 separate setups, employing around 4 laborers per factory on average (Table 3). Laborers are hired on a daily basis, earning wages ranging from 200 to 300 rupees per day.

Table 4 Average Number of Employee in every weaving centre

Product Name	Mean	N	Std. Deviation
Santipuri Saree	3.94	16	2.016
Tangail Saree	4.13	16	1.857
Total	4.03	32	1.909

Source: Data collected for Indian Council of Social Science Research Project Vision Viksit Bharat@2047 (VVB@2047) through primary survey 2025

In Santipur, workers from surrounding villages often work in these factories, sometimes staying overnight. Despite recent technological advancements with power looms reducing employment opportunities, these handloom factories still employ a significant number of laborers. The factory owners are not directly involved in the weaving process; instead, laborers manage production, with skilled workers training new, unskilled laborers. These laborers are not traditional weavers and lack generational knowledge in the field; they have sought non-agricultural employment in these factories.

Smaller weavers in Santipur and Phulia, who produce Santipuri and Tangail sarees on a smaller scale, have their own setups at home. However, as poor weavers, they face financial constraints. It has been observed that landless weavers in Phulia experience seasonal economic crises. Due to commercialization, local moneylenders exploit these small weavers for their own profit. They provide raw materials to the weavers and collect the produced cloth, paying a fixed amount (sometimes 400 to 500 rupees per saree). Weavers can prepare one saree per day, working 14 to 15 hours, and sometimes it takes more than a single day. Their income is not fixed and varies according to seasonal demand. During festivals like Durga Puja, the high demand for sarees in the local market encourages moneylenders to supply larger quantities, providing more work for small weavers. However, in off-seasons with lower demand, weavers do not receive contracts from moneylenders, putting their survival and livelihood at risk due to lack of agricultural land for cultivation. Bangladeshi migrant weavers in Phulia, who produce Tangail sarees using their generational knowledge, suffer significantly due to the non-availability of work during off-seasons.

Role of moneylenders in controlling the production

In both factory-based large production and home-based small-scale production, owners and moneylenders play a crucial role in managing profit and market relations. The widespread influence of moneylenders at the village level controls the economy of the textile industry to a great extent. Weavers with poor economic conditions have no choice but to work under moneylenders due to their dependence on capital. Although weavers are members of local cooperative societies and carry weaver's cards, it does not make them financially independent. Moneylenders supply raw materials, such as cotton, and control the production process, holding a strong position in both local and outside markets to maximize their profit. Tangail sarees are sold in the market starting at 700 rupees, but weavers receive only 400 rupees per saree. The profit from the market goes to the moneylenders, while weavers provide labor. It is surprising that despite their long-term engagement in this occupation, the economic condition of weavers in Phulia has not improved. The moneylending system has resulted in the exploitation of weavers in the textile industry at the rural level in Nadia district, West Bengal.

From the moneylenders' perspective, this system generates large-scale employment and provides financial assistance to weavers. Local *Mahajans* have been involved in this occupation for generations and have benefited financially from the increasing demand for Santipuri and Tangail sarees. They have strong connections at the community level and hold significant positions in rural power dynamics. Community-level participation allows them to manage a larger number of weavers and obtain finished products more easily. However, if weavers fail to meet demand, *Mahajans* create pressure to deliver products within a stipulated time. Moneylenders also face seasonal economic crises due to lower demand in the market.

During festivals, the local market at Santipur is flooded with buyers seeking authentic Santipuri and Tangail sarees at lower prices. Moneylenders import large quantities of raw materials and supply them to weavers on a contract basis. Mass production using handlooms creates a better market with higher prices. Some moneylenders are also connected to markets outside West Bengal, putting immense pressure on weavers to produce on a mass scale, as there are off-seasons with no job availability.

Capitalist economy and impact of moneylending in the production

The impact of moneylending has further enriched the social and economic hierarchy in the region, marginalizing weavers or producers at the ground level. The system, with its historical legacy, has empowered owners or moneylenders (*Mahajans*) to control the mechanism and manage profits.

(a) Impact on quality production: When moneylenders or factory owners manage profits from products, weavers do not receive interest or monetary benefits for producing authentic products. The capitalization process has led moneylenders to accumulate

profits, depriving producers. Growing market demand has resulted in mass production, compromising product quality. The rise of power looms has taken over the market, creating cheaper products. Moneylenders or local *Mahajans* benefit from mass production, while product quality and authenticity decrease over time. Weavers with traditional knowledge are forced to supply mass products within a short time to meet moneylenders' demands, without incentives to invest in authentic production. Most Tangail saree weavers in Phulia work like wage laborers under moneylenders. One weaver acknowledged that the traditional knowledge of preparing Tangail sarees, passed down from Bangladesh, has deviated from its original form due to mass production. Given that Santipuri and Tangail sarees have received geographical indications, maintaining product authenticity is crucial.

(b) Impact on the economy of the weavers: As the production system allows moneylenders to intervene between producers and the market, weavers are economically deprived. Weavers have acknowledged that they receive more contracts from moneylenders during festivals, earning more money by producing more cloth. However, their remuneration per cloth remains unchanged, even as market prices increase. In non-festival times, weavers struggle to secure orders from *Mahajans* due to lower market demand, resulting in insufficient employment opportunities for their survival. The seasonal scarcity of employment significantly hampers weavers' livelihoods. The average monthly income for Santipuri saree weavers is 12,125 rupees, while for Tangail saree weavers, it is 20,000 rupees (Table 3). Although the income for Tangail saree weavers is slightly higher due to its production process and market cost, weavers still struggle to meet their basic needs, relying solely on the textile industry without any agricultural land.

(c) Domination and market control: Moneylenders play a crucial role in the production and marketing of textile output in Nadia district. Weavers are mostly uneducated and lack knowledge of market dynamics due to limited capital. Moneylenders provide employment, raw materials, and collect finished goods from weavers. They are well-connected to the market and hold a strong position. Permanent shops in Santipur and nearby regions collect cloth from *Mahajans* for their own shops, while other suppliers collect cloth from moneylenders to supply to outside markets. A group of moneylenders dominates product quantity and pricing based on market demand. Their investments in the textile industry, including raw materials and weaver payments, enable them to profit from higher selling prices. This involvement often results in high product prices, making them unaffordable for consumers. Although producers do not benefit from these higher prices, moneylenders reap greater profits.

The moneylending process has created employment opportunities at the rural level by providing poor weavers with capital and increasing market accessibility. Some weavers are satisfied with their income from weaving due to the involvement of moneylenders, as they

lack alternative employment opportunities. However, in the long term, this system is exploitative, and weavers are often unaware of market benefits. The textile industry in Nadia district, West Bengal, is capital-intensive and lacks nearby access to raw materials, making initial costs unaffordable for weavers. As a result, producers have become directly dependent on moneylenders, impacting their economy and market control.

Conclusion

The capitalist economy and involvement of moneylenders (*Mahajans*) in the production of Santipuri and Tangail sarees have significantly impacted the processes and market in Nadia district, West Bengal. Weavers are largely deprived of market benefits and profits in the textile industry. Moneylenders control the production process by employing weavers and managing the market through price control and supply of goods. Given Nadia's traditional concentration of cotton textile industry, government intervention and better management are necessary to benefit producers, particularly Santipuri and Tangail saree weavers. Although cooperative societies exist, they are not effectively addressing weavers' problems. Weavers struggle at the grassroots level for their rights and benefits as producers of culturally significant products. With Santipuri and Tangail sarees holding geographical indications, these textile industries attract broader markets, benefiting the local economy. Therefore, controlling moneylenders' involvement and establishing local financial management with government intervention is crucial. Microfinance agencies providing loans to women through self-help groups at the village level could also help weavers revive their economy with reduced dependency on moneylenders.

Acknowledgement

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Geographical Indication as a Tool for Women Empowerment: The Case of Darjeeling Tea

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Abstract: 'Darjeeling Tea' it become first Geographical Indication tagged product in India in 29th October 2004.It is known for authentic flavor and test.GI promote its flavor worldwide. Whenever we travel to Darjeeling, we see the misty hills covered by tea gardens and this gardens few women with 'dokos' on backs, in the overwhelming green make their way through the terrain, picking the coveted bud with two leaves. They are always smiling, but behind the smile is their untold story of hardship. Does anyone hear their silent struggles!

This study explores how GI recognition impact on women workers life, social condition, and empowerment. By compering pre and post GI conditions, the research examines whether women workers have experienced tangible economic upliftment, greater financial independence, and improved family contributions also participation of young generations. Besides, it highlights persistent challenges such as low wages, workplace safety and limited awareness of GI benefits among workers.

Through quaternaries survey and interview recordings, this study seeks to assess whether GI has truly empowered the women or if they remine trapped in cycles of economic and social struggle. The findings helpful for policymakers to enhance the welfare of women workers in GI production.

1. Introduction

"I am a village girl,
Who grew up away from the chiya kamaans
I belong here,
Where the famously marketed
Darjeeling Tea is picked by my peoples
Generations born and dead within tea plantation"

(Source: - "Darjeeling Tea" by Bibhusha Rai)

In these lines a girl says, whose community born and dead into generation after generation to picked famous Darjeeling Tea. Mid 1800 to 2004 after GI recognition there life beyond in the one bud and two leaves. Geographical Indication is like an open window, where the breeze carries the flavor and magic of Darjeeling tea leaves in cup of tea across the world. GI as a bridge between tradition and global markets, ensuring the authenticity and heritage of a region. In our country Darjeeling Tea first certified for 'Word and Logo' by GI authority

(The Geographical Indication of Goods Acts, 1999). In Darjeeling hills 87 tea gardens used this 'Word and Logo' which registered by Tea Bord of India (The Copyright Act, 1957). However, behind this global recognition lies the labor of thousands of women tea garden workers (according to tea statistics 60% labors are women in Darjeeling Tea gardens), whose livelihood conditions remain a subject of concern.

This study seeks to assess whether Geographical Indication status has significantly improved the livelihoods of women tea workers and their safety. It focuses on two crucial aspects: their awareness about GI and its advantages and the impact of GI status on the participation of young generations in tea gardens. This research compares pre and post GI conditions to discuss whether GI status truly empowered women or if structural challenges continue to limit their progress.

2. STUDY AREA

The study focused on West Bengal's northernmost district called 'Darjeeling,' which located in the laps of Himalayas. The word 'Darjeeling' come from the Tibetan word 'Dorje' meaning the thunderbolt of Indra (a Hindu deity) and 'Ling' meaning place or land, means the 'land of thunderbolt.' This district located between latitude 27.13 N to 26.27 and longitudinal 88.53 to 87.59, the total area of the district is 3149 sq.km. This district comprises four subdivisions and nine community development blocks. This district share boundary with international Nepal and states Sikkim, Bihar also districts Jalpaiguri, Kalimpong, North Dinajpur.This district is famous for its hill station and Darjeeling Tea. In the majestic hills of Darjeeling, world famous and India's first GI product Darjeeling Tea was cultivated. Most of the tea gardens are situated at evaluations from 610 to 2434 meters. In this district 87 tea gardens are registered by GI authority. For this study 10 tea gardens are covered, this are:

3.1. Happy Valley Tea Estate: -It was established by Mr. David Wilson in the year 1854.The first flush teas and second flush teas are much sought after in the entire world.

3.2. Tukvar Tea Estate (Puttabong): -This is Darjeeling's one of oldest tea estate, where the first Darjeeling Tea planted by Dr. Campbell in the year of 1852.The tea garden comprises of 5 divisions and covering 436 hectares are managed by a workforce of 1600+ workers out of which 60% are pluckers.

3.3. Barnesbeg Tea Estate: -This is located at lebong valley. The average elevation where tea bushes are growing ranges between 300 to 1260 meters. This garden was fully certified as an organic in the year 2010.

3.4. Thurbo Tea Estate: -This tea garden planted in the year of 1872. This tea estate is in the lush picturesque valley of mirik in Darjeeling district at an altitude ranging from 980 to 1440 meters.

3.5. Sourenee Tea Estate: -This is located in the mirik valley and is one of the best tea producing high elevation tea gardens of the darjeeling hills. The elevation of this tea estate is between 762 to 1524 meters.

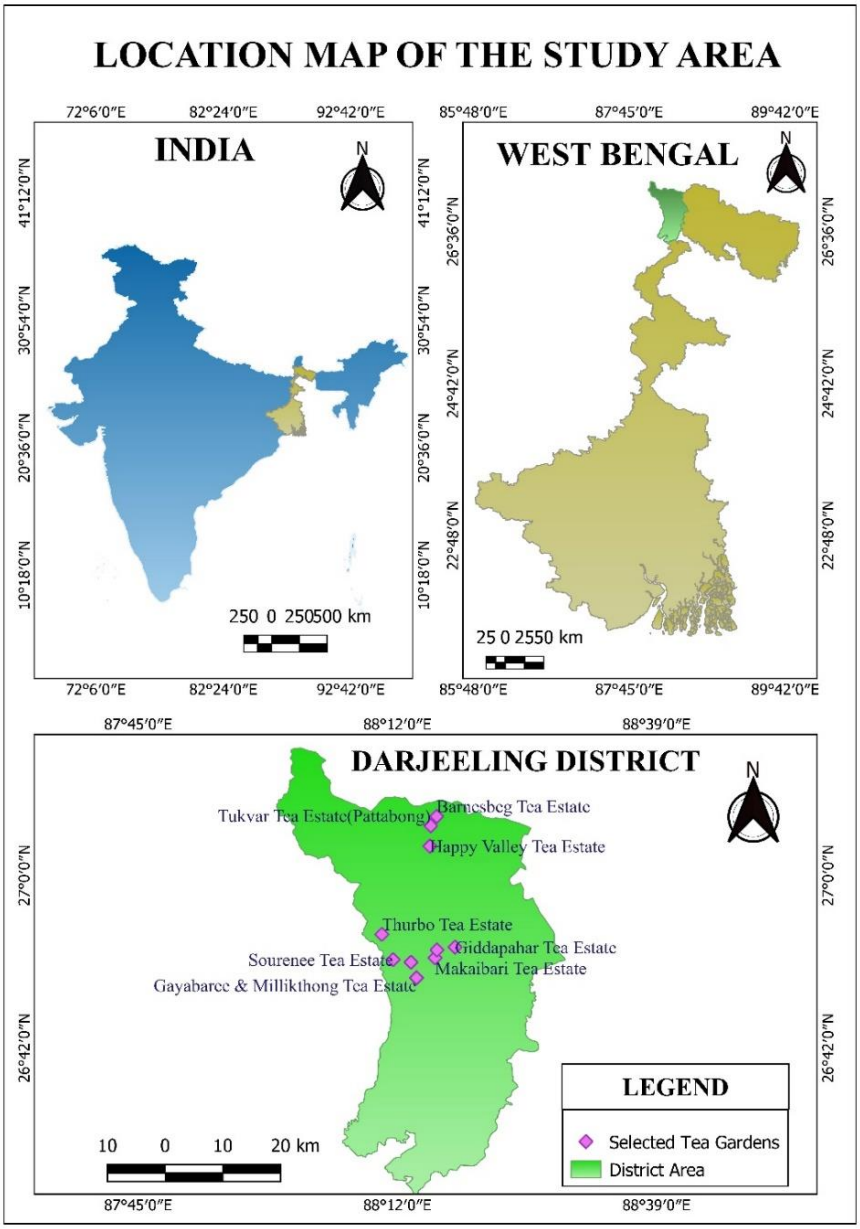


Figure 2:- Study Area

3.6.Singbulli Tea Estate: -Singbulli tea estate located in mirik valley in darjeeling district. The garden lies at an altitude of between 400 to 1350 meters and is spread across the nine hills.

3.7.Gayabaree & Millikthong Tea Estate: -Sprawling over an area of 812.85 hectare and situated in the mirik valley, it is one of the biggest tea estate in darjeeling district, which produced authentic darjeeling tea.

3.8.Castleton Tea Estate: -Castleton tea estate is located at an altitude ranging the hilly 980-2300 meters spanning the hilly slopes of kurseong and pankhabari. It was planted in 1885 by Dr. Charles Graham. This estate produces one of the world's best muscatels.

3.9.Makaibari Tea Estate: -Makaibari, where maki means maize and bari means land, this is the land of maize in local language. It is in the sloppy hills of kurseong, about 1 to 2 km from the town at an altitude of 1500 meters above sea levels.

3.10.Giddapahar Tea Estate: -The literal translation of the name 'Giddapahar' means Engl's Mountain, but is translated as Engle's Cliff. This tea garden was established in year of 1881.Giddaphar is located on the gentle slopes of kurseong valley.

3. LITERATURE REVIEW

The previous investigation of many scholars from various countries has emphasized the theoretical and empirical aspects of Geographical Indication status. Furthermore, they have underscored the connection between GI and the advancement of the product maker women worker's condition. For example, Bhadra, M (2004) focused on gender dimensions on tea plantation and Rao, N (2005) studies on role GIs status in Darjeeling Tea production.GI certification can significantly enhance the market value of Darjeeling Tea (Suh, J., & MacPherson, A 2007). However, studies in specific to Darjeeling Tea indicate that despite the international branding, local workers, especially women, receive little direct financial benefits (Das, 2010). Women's role in tea plucking is essential, yet gender-based wages, poor working conditions persist (Lutgendorf, P., Besky, S., & Sen, D. 2019). In recent research highlights the need for inclusive policies that integrate women into the economic advantages of GI-tagged products Mba-Kalu, S. (2024) and Jamal, S., Upadhyay, A., & Moin, K. (2024).

4. RESEARCH GAP

While multiple studies discuss the economic benefits of Geographical Indication in different products and Darjeeling Tea also, but there is limited research on how much tea workers (also women) know about GI and whether this knowledge has improved their livelihoods. Existing papers does not examine whether GI status influences younger generations to continue working in tea plantations or if they seek alternative and batter employment opportunities. Although GI is expected to enhance the market value of Darjeeling Tea, few studies assess whether this recognition has improved wages, working place conditions. Most

GI policies focus on product banding and protection rather than ensuring fair income and livelihood improvements of grassroot level workers, especially women workers.

This research aims to fill these gaps by evaluating the impact of GI status awareness on women tea workers and examining whether GI recognition influences younger generations career decisions in tea industry.

5. OBJECTIVES

1. To assess the level of awareness among women tea workers regarding GI status and its advantages for their livelihoods.
2. To examine how GI status impact on young generations participation in tea garden related works.

6. DATABASE

For this study, Primary and secondary data are from the following databases were accessed to collect data:

- **Primary data**: - Primary data was collected by in depth interviews and structured questionnaire surveys with women tea garden workers, youth women's, estate managers, consumers, and local community leaders.
- **Secondary Data**: - Secondary data was collected from,Tea Board of India Database-Website: [www.teaboard.gov.in] (http://www.teaboard.gov.in), District Statistical Handbook, Darjeeling Database-Website: [darjeeling.gov.in/statistics] (http://darjeeling.gov.in/statistics), Labour Bureau, Ministry of Labour and Employment, Gov of India database- Website: [www.labourbureau.gov.in] (https://labourbureau.gov.in). And some published papers on GI collected from,JSTOR (Journal Storage) Database- Website: [www.jstor.org] (http://www.jstor.org), Google Scholar Database- Website: [scholar.google.co.in] (http://scholar.google.co.in), Shodhganga Database- Website: (https://shodhganga.inflibnet.ac.in).

7. METHODOLOY

This study adopts a mixed-methods approach, combining both qualitative and quantitative techniques to assess the role of Geographical Indication in empowering women tea workers in Darjeeling district. The study is descriptive and exploratory in nature. It focuses on capturing lived experiences, awareness levels, economic impacts and generational

participation of women involved in tea gardens both before and after the implementation of GI status. The study was conducted in 10 selected tea gardens from three hill subdivisions (Darjeeling, Kurseong, Mirik) of Darjeeling district. Which are recognized by GI authority and Tea bord. These 10 tea estates are, Happy Valley, Tukvar (Pattabong), Barnesbeg, Castleton, Makaibari, Giddapahar, Thurbo, Sourenee, Millikthong and Singbuli tea estates. This study focused on following two key questions,

- How aware are women tea workers of GI status and its benefits on their livelihoods?
- Has the GI status influenced young generations decision to work in tea gardens or are they seeking alternative career opportunities?

A purposive sampling method was used to select respondents. A total of 60 women tea garden workers (approximately 6 from each garden) were interviewed. Their age rages are 20 to 60+ years and they are like pulckers, sorters, factory workers, shopkeepers, and youths. This study mainly based on primary data which collected from survey and interviews. To conducting structured questionnaires survey of women workers in 10 selected tea gardens to assess their awareness of GI status and its benefits, income levels, working conditions, participation of younger generations. Face to face interviews with recorders their verdicts of factory managers, local young generations women and workers in 10 selected tea garden areas to understanding their perspective on tea related work and whether GI recognitions has influenced their career choices. Group discussions organized in two gardens to understand collective experiences and shared challenges. In the next stage, by using secondary data collected from District Statistical Handbook, Tea Bord Statistical Handbook, pervious research papers and documentaries to examining their livelihood conditions before and after GI implementation. Ppercentages, averages, and comparative charts were used to analyze the awareness levels, income variation and participation rates, bar graphs are processed by using MS excel. And interview transcripts were coded to identify themes such as empowerment, safety, and participations. Some limitations are faced to conduct this study. Language barriers and time constraints limited the depth of interviews in some gardens and seasonal variation in empowerment mode it difficult to reach all categories of workers. In the result and discussion sections have extensively explored,

- The current status of female tea workers regarding awareness and understanding of GI benefits.
- The declining interest of the young generation in tea garden related works and GI not influenced them.

At last, conclusion is; the importance of GI recognition is not adequately understood at the grassroots level.

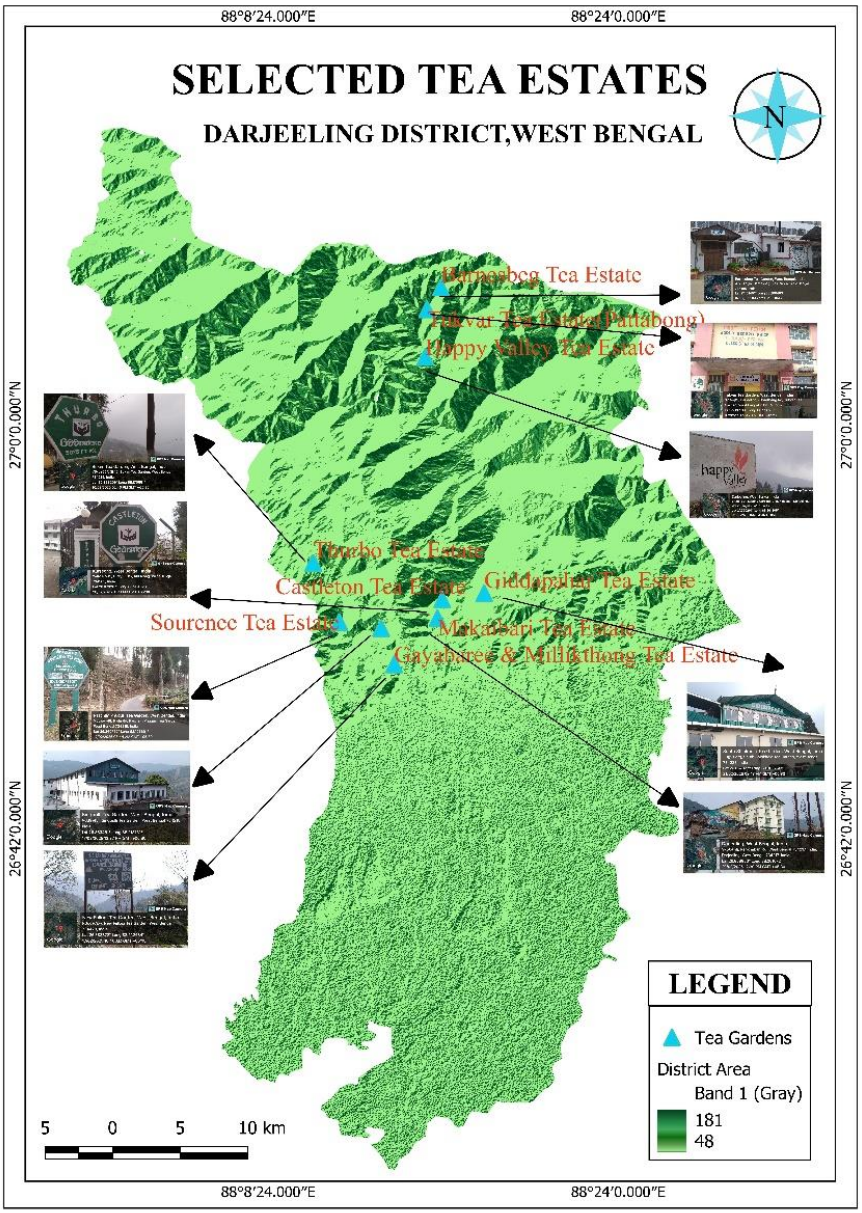


Figure 3:- Selected Tea Estates from Darjeeling district

8. RESULT AND DISCUSSION

In this part presents the key findings from field surveys, interviews with women's who work in tea gardens and factories. Data collected from the ten GI certified tea estates across Darjeeling district (Tea bord). The map below shows the location of the tea estates(fig,2).

In Happy Valley, Tukvar, Barnesbeg, Castleton, Makaibari, Giddapahar, Singbuli, Thorbo, Sourenee and Millikthong tea gardens offers deep insights into how Geographical Indication status has impacted the lives of women tea workers. The section is structured around the study's two main objectives.

Awareness of GI and its Benefits on Women Workers Livellihoods: -

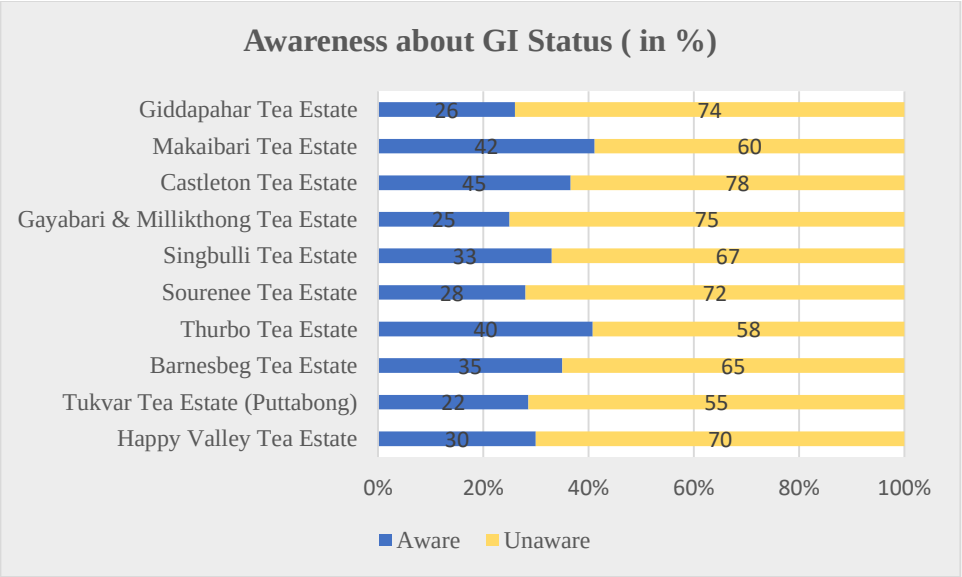


Figure 4:- Awareness (Source: - Computed from survey data)

- Despite Darjeeling Tea being the first product in India to be granted Geographical Indication in 2004, but awareness among women workers who plucks famous Darjeeling tea leaves about this status remains very low. Based on the collected data, only 22 to 45 % of workers across different tea gardens are aware of what GI means or how it benefits them. The highest awareness was found in Castleton tea estate 45% and Makaibari tea estate 42%, while Tukvar tea estate 25% workers known this word and Barnesbeg tea estate it 22% showed the lowest levels. In below the clustered bar(Fig,3) shows the percentages of aware-unaware status.

According to interview (Fig,4), Anju Rai, a worker from Tukvar tea estate say that, *"we know Darjeeling tea is famous, but GI? That is for the owners. We still pick the same leaves in the same sun generation after generation."*

Figure 5 Survey of a women worker

On other hand, a tea plucker from Makaibari, Namrata Subba says, *"we have heard that Darjeeling Tea goes abroad and has a name, but we do not know what GI means. Our work has not changed."*

- Despite limited awareness, the indirect benefits of GI such as marginal increases in income and batter recognition of the band have reached the workers to some extent. Since 2004, their daily wages increased slightly. In the present day it has become extremely difficult to sustain a living with those wages. After GI in 2000 to 2002 daily wages rate is 38 Rs(fig,5) and before GI at present days 2022 to 2024 is 250 Rs(fig,5). However, in 20 years of GI status their daily wages are still insufficient, it is not enough for their livelihood. Monthly income, for instance, rose from 3200-3600 Rs (before GI) to 4200-4800 Rs (after GI) across the surveyed gardens. While this seems significant, inflation and rising living

costs have offset the benefits. The table 1 below shows the of average monthly income.

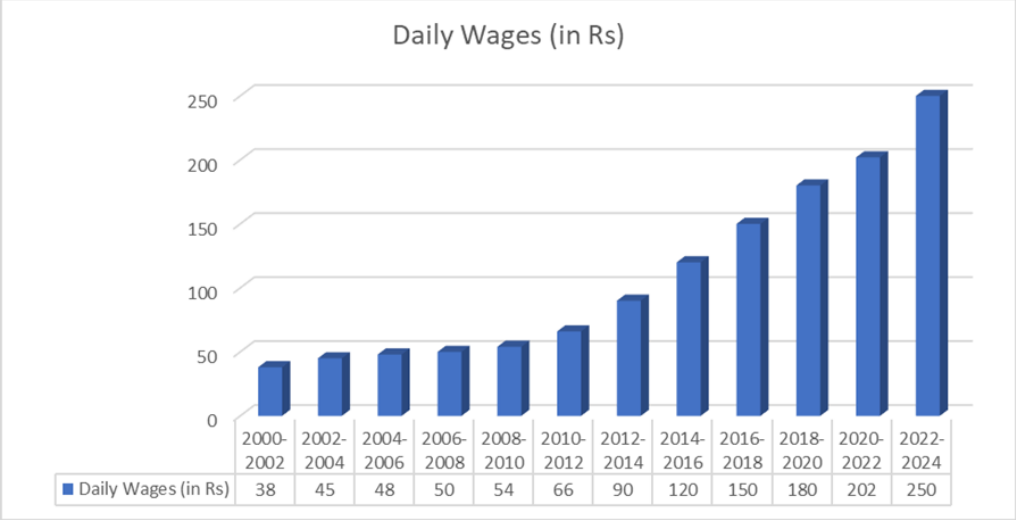
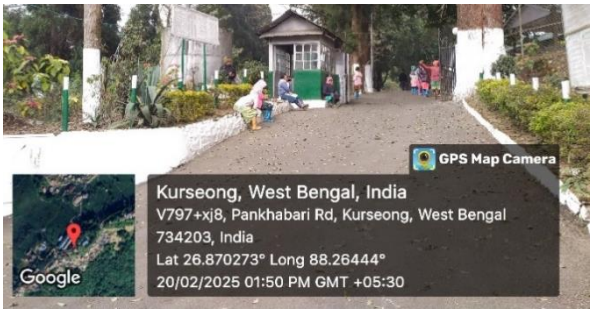


Figure 6 Daily Wages (Source: - Tea Statistical Handbook)

Table No 1-Average Monthly Income (in RS)			
SL. No	Name of Tea Gardens	Before GI	After GI
1	Happy Valley Tea Estate	3200	4200
2	Tukvar Tea Estate (Puttabong)	3500	4700
3	Barnesbeg Tea Estate	3000	4100
4	Thurbo Tea Estate	3400	4600
5	Sourenee Tea Estate	3100	4300
6	Singbulli Tea Estate	2950	4050
7	Gayabari & Millikthong Tea Estate	2800	3900
8	Castleton Tea Estate	2700	3700
9	Makaibari Tea Estate	3600	4800
10	Giddapahar Tea Estate	2900	4000

(Source: - Computed from survey data)



"We get 250 Rs at present days, but everything is more expensive. Oil, rice, medicines…so we are still the same." ___ Silla Pradhan, a tea worker from Castleton tea estate.

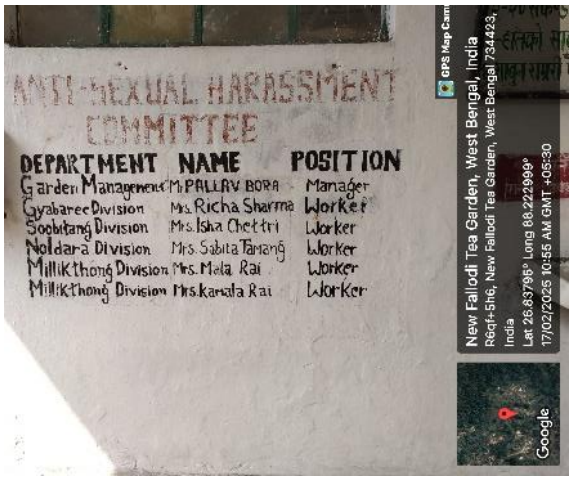
- Another important development is the gradual improvement of working conditions in some gardens.

Figure 8 Women Labors in Work Figure 7 Women Workers In factory

SL. No	Name of Tea Gardens	Safety Measures Present (%)
1	Happy Valley Tea Estate	65
2	Tukvar Tea Estate (Puttabong)	70
3	Barnesbeg Tea Estate	54
4	Thurbo Tea Estate	75
5	Sourenee Tea Estate	48
6	Singbulli Tea Estate	58
7	Gayabari & Millikthong Tea Estate	75
8	Castleton Tea Estate	60
9	Makaibari Tea Estate	72
10	Giddapahar Tea Estate	50

(Source-Computed from survey data)

According to the table 2, 60-75% women in Happy Valley, Tukvar, Millikthong, Castleton and Makaibari reported the availability of safety measures like gloves, drinking water etc. However, workers in Sourenee and Giddapahar still lack these basic facilities. Through conversations with managers, it has been learned that, to protect female workers from



physical harassment in the work place, a 6 member 'Anti-Sexual Harassment Committee' has been formed in each garden. In figure 8, we that on of committee bord on Millikthong

tea estate. Also in figure 9, women take water on work place in Makaibari tea estate. It can be inferred that post GI status gardens have taken several steps. However, more comprehensive measures are still needed.

In conversation, Riti Tamang a plucker from Tukvar tea estates shared, *"we pluck tea leaves in the cold, rain and sun, but there are no proper facilities for us"*

Figure 8 C acility in Work Place

Figure 10 Concertation with some Pluckers

This evidence suggests that, despite GI recognition many tea estates still fail to provide adequate benefits and rights to their workers.

8.1. Influence of GI's on Young Generation's Participation: -

One of the most telling indicators of the socio-economic shift is the declining interest of younger generation, especially young women in continuing tea garden work. Before GI, more than 60% of young women in many gardens joined tea work. After GI status or at present days, this has dropped to around 30 to 40% in most estates. In below the bar diagram shows that, Highest percentages of participation found in Castleton tea estate and lowest is found in Barnesbeg tea estate(fig,11).

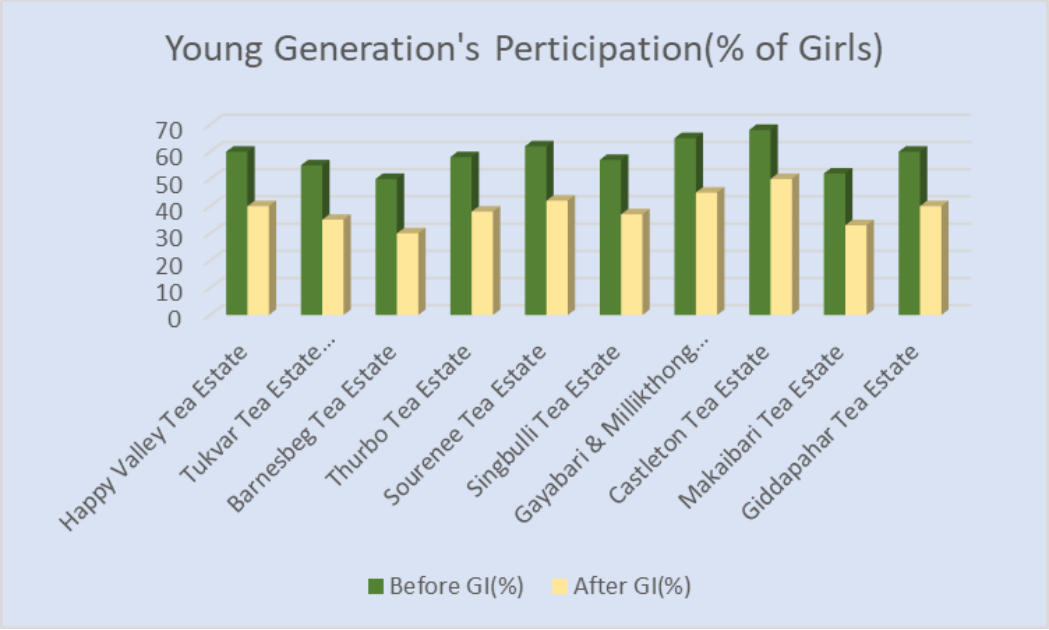


Figure 11 Percentages of Participations (Source-Primary Data)

According to 2011 census data collected from district statistical handbook, In Barnesbeg 430 women are littarte and in Castleton this number is 254. So it is clear that education is a very much influneced to choose other professions. Families now encorage daughters to pursue education or look for altertative employment.

Interview quote, *"I work here, but I want my daughter to study. This work is hard. It break the body."* __a mother and tea worker Sumana Gurung from Happy Valley tea estate(fig,12).

Figure 12 Survey of a Mother Worker

Figure 13 Survey of Youth Tea Worker

In interview a young girl from Thurbo tea garden who worked in tea shop(fig,13) say that, *"I come from a family of tea garden workers spanning generations. My mother is a tea plucker and I work in a tea shop. Despite our legacy in the industry, working in tea gardens fails to provide a decent living standard, leading many like me to pursue alternative careers."*

This decline suggests a rise in aspirations fueled by access to education and exposure, rather than any major shift caused by GI status alone. In interviews, women mentioned that although Darjeeling Tea has become globally known, they don't feel any greater sense of influence or upliftment in that success story. Following GI implementation, tea tourism has emerged in Darjeeling tea gardens, providing local women with alternative career paths. Nevertheless, young generation's women prefer to:

- Pursue higher education and careers beyond the tea industry.
- Over tea garden work, which has lost its appeal to them.

Interestingly, the GI status has not revitalized their interest in tea garden related works.

While GI status has helped Darjeeling Tea attain international identify and market protection, its potential as a tool for women empowerment remains only partially realized. There is gap between the products global branding and recognition and reward received by women who sustain its quality.

8.2.**Key Findings: -**

This study has revealed the following key findings;

- Awareness about Geographical Indication status of Darjeeling Tea is low in the ground levels. Only 22 to 45% of women workers known about GI'S.
- Monthly income has increased post-GI, but has not led substantial economic upliftment. The daily wages they currently earn are insufficient to maintain a decent living standard.
- Post GI safety and working conditions have improved in selected gardens but not uniformly.
- Participation of young generations especially women in tea garden related work has decreased as families seek batter futures for their daughters. But tea tourism has created alternative job opportunities for young folks.

9. Conclusion

The study conducted a narrative examine how Geographical Indication status effected on women tea workers life who engaged with world famous favorable Darjeeling Tea production. In summary, we say that the GI status of Darjeeling Tea has primarily benefited exporters and estate owners, with minimal direct impact on workers, especially women workers. GI status has strengthened the global reputation of Darjeeling Tea, yet its benefits remain underutilized at the grassroots level. Limited awareness, stagnant wages and challenging working conditions continue to hinder their socio-economic upliftment. The younger generations disinterest in tea industry further threatens its sustainability. Future policies should integrate GI status benefits into labor welfare schemes and create attractive career opportunities for young generations. Bridging this gap can ensure the long-term socio-economic upliftment of tea workers and sustain the legacy of Darjeeling Tea. At last, only when tea workers receive rightful development and benefits, will the phrase, tea leaves are the blood of tea garden laborers transform from irony to reality, redeeming the tea industry.

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Showcasing West Bengal's Rich Diversity through GI

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In this globalised world, the importance of local produce could hardly be gainsaid. As there is an increasing competition for natural resources all over the world, and the transnational corporations are engaged in cut throat pursuit of the same for reasons of profit, many countries have chosen to locate and earmark their natural resources on geographical basis so as to protect these from the avarice of multinational corporations. India being a vast country with an enormous biodiversity falls under the purview of this attempt to geographically tag and identify its resources on a regional basis. It has served not only to preserve and conserve our national resources for commercial and aesthetic reasons, but has also served to highlight the regional bio resources, such as those of West Bengal.

Food grains such as varieties of rice, and food stuffs like *mihidana* and *rosogolla* have attained world -wide fame, for their unique taste and culinary qualities. Similarly, the black *nunia* rice from North Bengal is prized for use in preparation of sweet meats. Textiles and handicrafts have also fallen under this purview on account of their uniqueness. This paper is a modest attempt to bring about the laudable attempt on the part of the Government of West Bengal to highlight the natural and culinary resources of the state both on the local and global scale.

Key Words: Geographical Indicators, India, West Bengal, Natural Resources, Globalization

Introduction

Since time immemorial Bengal always has had a rich rural base owing to the abundance of natural and agricultural resources. The prosperity of Bengal finds echoes in Greek sources. Both the Chinese traveller Ma-Huan and the Moroccan traveller Ibn Batuta marvelled at the natural riches of the province. The Mughal Emperor Akbar described Bengal as a 'paradise on earth'. The acquisition of the province by the English East India Company led to wholesale plunder of Bengal, Bihar and Orissa with the result that nearly 16 million pound sterling were siphoned off to England. During the colonial period, the English East India Company and the British Home Government in particular made a detailed survey of the land and resources through the great geodetic survey and elaborate cartographic arrangements so as to enable the European Capitalists and Entrepreneurs to effectively study and map the resources for their profitable ventures. This exploitation of India, and Bengal in particular was effected through public-private partnership.

The period after independence witnessed a frantic effort on the part of the national government of free India to study and husband the resources of the country under the purview of various Five Year Plans so as to compensate for the enormous loss in resources

and monetary terms in the colonial period. After the opening up of the Indian economy to foreign multinational companies in the wake of the GATT Agreement and India's inclusion in the WTO, the quantitative restrictions (QR) on several commodities were lifted so as to open up the lucrative Indian market for transnational companies. This decision on the part of the then Government of India exposed the country to a host of dilemmas. On the one hand, there was an urgent need to revamp the Indian economy to meet the demands of globalization and to bolster the hard currency assets. On the other hand, there was the danger of MNCs using the legal and trade loopholes to make forays into the Indian market in search of resources and cheap labour. India sought to strike a delicate balance between reaching out to the foreign investors for capital investment and technology and at the same time to safeguard its resources from unscrupulous elements, to the extent possible.

Geographical Indication and its Significance

A Geographical Indication (GI) is a name or sign used on certain specific products which are identified with certain specific locations or place (for instance a town, district or region of India). India as a member of the World Trade Organization enacted the Geographical Indication (GI) of Good Act 1999, which came into effect on and from September 15, 2003. The enactment of Geographical Indication of Goods Act by the Government of India was in keeping with the norms of TRIPS (Trade Related Intellectual Property Rights) which stipulates GI as "indications which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin." As of the year 2024, there have been 643 Geographical Indications of India. With so many products from all over the world jostling for space in the spirit of fierce competition, the enactment of the GI Act of 1999 gave India a breathing space to be able to highlight and show case its vast human and material resources, each of which had been unique to a region, and thereby to be able to identify potential buyers from all over the world.

West Bengal and GI

In this vast arena of activity, West Bengal stands out prominently and has got much to offer in terms of its rich human resources and exquisite biodiversity. Erstwhile colonial officials administering undivided Bengal had been overly impressed, albeit for commercial and exploitative purposes, and attracted to this rich diversity of flora and fauna, including the endless supply of cheap labour to clear the forest tracts and bring more and more land under cultivation and for "productive purposes." The districts of North Bengal in particular had drawn the attention of the administrators notably D.H.E. Sunder, who made elaborate surveys of the same

The tract under settlement consists of so much of the Jalpaiguri district as was ceded to the British Government by the Bhutias in the year1864-65. It forms a parallelogram with a

length, east and west, of 86.E. 75 miles, and breadth north and south of, about 38 miles…The total area of the present survey has been found to be 1,209.70 square miles, or 774,208.16 acres, excluding tea lands and forest lands…3

The Report by Sunder highlights the aesthetic and scenic beauty of the place while simultaneously drawing the readers' attention to the plenitude of fruits and crops, including cash crops of numerous varieties that could be had from the region

The northern portion of the Western Duars, between the Tista and Toorsa rivers, lies at the foot of the most southern slopes of the Bhutan Himalayas…The chief characteristic of the Duars is the numerous rivers and hill streams which intersect it in every direction, ***and the large tracts of sal forests, heavy grass, and reed jungle, mixed with wild cardamom, that lie on the north principally between the Toorsa and Sankosh rivers***.4 ***Here the beautiful cotton tree (Bombax malabaricum) used to found growing in large numbers;5*** but with the extension of cultivation it has been cut down, and the only good specimens of this tree remaining may now be seen at the foot of hills, east of Buxa.

Further, "***In the northern taluks, between the Tiste and Toorsa rivers, where heavy grass and reed jungle formally existed, there are new numerous gardens planted out with tea. On the plains below these gardens and up to the Kuch Bihar (sic) border, the whole of the land has been brought under cultivation with rice, tobacco and mustard***."6 In the plains may also be seen a few large trees, mainly mango, jack, pipal and tamarind, as also the graceful betelnut palms, with the piper betel creeping over them, while fields of rice, tobacco, on the borders of homesteads, make the landscape at all times, exceedingly beautiful.7

The hills had a natural attraction for European travellers, surveyors and adminsitrators of all hues and Sunder was not an exception to this rule. He is practically fascinated by the grandeur and beauty of the eastern Himalayan ranges which he expostulates in the following words

The grandeur of the scenery is enhanced the blue hills of Bhutan which form a splendid background, and in the cold weather months, when these hills are snow-capped and Kinchinjungha (sic) is seen , the picture is magnificent, more than words can explain8.

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3 D.C. Roy (Ed), D.H.E Sunder, FINAL REPORT ON THE SURVEY AND SETTLEMENT OF THE WESTERN DUARS IN THE DISTRICT OF JALPAIGURI, 1889-95, N.L. Publishers, Shiv Mandir, Siliguri, West Bengal, 2013, p.82
4 Ibid, p.84 Italics and Emphasis Mine
5 Passim , Italics and Emphasis Mine
6 Passim
7 Ibid, p.85
8 Ibid

Trees like Sisu (*Dalbergia Sisoo*), Khair (*Acacia cathechu*) and Sal (*Shorea Robusta*) were highly valued for the manufacture of houses, furniture and agricultural implements.

The painstaking and systematic scientific classification of the various fauna and flora were meant to provide the British Indian Empire with an enormous and seemingly endless reserve of natural resources that the best of the biodiversity of undivided Bengal had to offer. Armed with maps, guns and a long train of Indian "coolies" and local trackers and scouts, nothing escaped the eyes of the beholder who informed the Home Government of all the booties, natural and human, that the land had to offer. Sub-Divisional Officers, Foresters, Rangers, Guards, Peons and the whole lot of minor officials who constituted the paraphernalia of the enormous colonial state apparatus worked overtime for the extraction of the bounteous resources of Bengal. 9

Post-Independence Efforts towards Rejuvenation of Natural Resources

Following Indian independence there was an urgent need not only to rejuvenate the ailing economy suffering from the depredations of the erstwhile colonial state apparatus, but also to re-assert independent India's rights over its natural and human resources that had been virtually put at the service of the imperial metropolis. Since the common people had a tremendous role to play in the freedom movement, it was felt imperative to allocate the resources accordingly not only to uplift the standards of living, but also to restore the sovereignty over the resources that had been subjected to merciless colonial exploitation and plunder. The attempt at GI Tag as an implement to re-assert the country's sovereign rights over its natural resources is a step in the right direction. Among other states of India that have engaged in this gigantic task of identifying and Geo-marking their inalienable resource-heritage, West Bengal stands out pre-eminently. The state is a microcosm of India with lush green plains and valleys, turbulent rivers and mountains and hills of unsurpassable beauty. Moreover, the state is home to people from all backgrounds and diverse ethnic groups, each of whom have a unique identity and artistic skill, whether in the domain of artisanship or culinary traditions. Each district of West Bengal is noted for its own heritage and traditions.

Initiatives of the Government of West Bengal towards GI

The Government of West Bengal in active collaboration with the people of the State have been successful in providing GI tags to as many as 28 products. These range from the world famous Darjeeling Tea to the Dokra Art of Bankura along with the vibrant *Chou* dance of the District of Purulia. It may be noted in this connection that the Government of India had provided GI tag to Darjeeling Tea way back in 2004, immediately in the aftermath of the enactment of the GI Registration of 1999, and its enforcement in 2003. Some of the famous products that had come under the GI tag mention may be made of *Joynagar Moa*, *Mihidana* from Bardhaman, *Sitabhog* from Bardhaman, *Rosogolla*, Sarees from Santipore, Sarees from

9 Vide Appendix for a list of Colonial officials and Administrators of the Buxa Sub-division

Dhaniakhali, the Baluchari Saree, the *Dokra* Art from Bankura District, rich tapestry of folk art known commonly as *Patachitra*, to name but a few. Apart from these delicacies and fabulous art works crafted by artisans and craftsmen with consummate skill and endless improvisations, the knowledge of which have been handed down the generations from father to son, natural products consumables such as the *Laxman Bhog* Mango from the Malda District, Gobhindabhog Rice, and the Kalo (Black) Nunia Rice from North Bengal have caught much attention of consumers both at the domestic and international levels.

Tapping the Potentials of GI Tagging

GI and Women Empowerment, boosting rural literacy

Geographical Indication could be a useful tool with a view to show casing rural handicrafts and simultaneously enhancing the household incomes in rural and semi-urban areas. Its noteworthy that much of the preparatory work are done by the women folk of the household such as boiling the molasses for *nolen gur* that go towards the making of the famous *Joynogorer Moa*, in addition to preparing the cast for the long –eared horses made of brass which is the speciality of Bankura district and making dolls from rags using multi-coloured cloth. Basket-weaving is another such painstaking craft which has to be done with patience and a great deal of imaginative outputs. The paintings done on the pots with scenes depicting mythological characters to contemporary events are done by women themselves. Such painstaking and labourious work done by the womenfolk of the rural households not only gives them a sense of artistic and aesthetic satisfaction, but also creates a great deal of self-confidence in the art of creation and artistry using sustainable natural resources. It's important to remember in this context that the majority of the GI tagged products comprise mostly of handicrafts and are potential sources of income for rural areas. Its thus evident that proper marketing and show-casing of such products not only go towards the creation of jobs for self-employed rural entrepreneurs looking for markets beyond their immediate vicinity, but also act as a valuable tool for women empowerment. Women-centered Self Help Groups could play a valuable role in this regard by the pooling of resources and thereby create greater awareness among the women to showcase their artistic and productive talents, not only to increase the household income, but also to educate their children with the money thus earned. Literacy among the rural populace would be enhanced to a considerable extent. Money spent on education would go towards creating responsible and able citizens, thereby reducing the drag on scarce resources.

Proper highlighting and showcasing traditional rural handicrafts would thus contribute to wholesome and sustainable development by bridging the rural-urban divide by increasing the purchasing power parity (PPP) of the producers. If properly and effectively followed up by the state and central governments to their logical conclusion, then the tradition of a self-sufficient and prosperous farming community like the days of old in the pre-colonial period

would surely follow suit. It would serve to stem the exodus of the rural people to congested urban conglomerations, and thereby solve much of the housing and sanitation problems that are faced by migrant workers who come mostly from the rural areas. It would likewise save the rural people from the clutches of unscrupulous labour contractors and traffickers, particularly women who tend to fall prey to the prospects of increased income for the sake of their families and are lured away to dangerous and unhealthy professions. State-sponsorship of rural industries through incentivisation by rural banks by means of micro-credit and soft loans would not only stimulate the traditional handicrafts of Bengal, but also go a long way towards alleviating poverty and income inequity.

Proper Marketing Strategy and Farmers' Activism at the Grassroots level: Raising Awareness and Revival of Rural Cooperatives

Proper marketing through a detailed survey of products unique to each district and region of West Bengal needs to be taken up in earnest so that the producers of these exotic goods get the just and due share of their sales. In today's growth-driven globalised world, consumers pay increasing attention to the geographical origin of their products, and care about specific characteristics present in the products they buy.10 Often, consumers are prepared to pay more for such products.11 This has favoured the development of specific markets for products with certain characteristics linked to their place of origin.12 Often the farmers and primary producers have been at the forefront of such campaigns to safeguard and extract the correct price in the international market and have been mostly successful in doing so. The case of farmers producing the world-renowned Colombian Coffee could be an instance of such dedicated rural activism. The Colombian Coffee Growers Association (FNC) fought tooth and nail and managed to create the archetype JUAN VALDEZ logo with the assistance of the Colombian Government, and began to license the mark to roasters for use on their own branded products that contained, exclusively Colombian Coffee.13 This was followed by intensive advertising campaigns.14 Grassroots level activism in Latin America thus went a long way towards protecting the local products that created a niche for itself in the international market.

In the case of West Bengal, the Cooperatives could come forward to create such general awareness among the rural people to be aware of their traditional products and have a greater say in protecting the same from the vagaries of the international market. Simultaneously, the State Government could consider in extending its support and cooperation to such ventures

10 Paraphrased from Geographical Indications An Introduction, World Intellectual Property Organization (hereafter WIPO), p. 13 (Source: https://www.wipo.int/publications/en/details.jsp?id=4562 (Accessed dated 26.01.2025)

11 Ibid

12 Ibid

13 Ibid, p.14 Paraphrased from Geographical Indications An Introduction (WIPO)

14 Ibid, Geographical Indications An Introduction

so that the region as a whole is benefitted. This would also tend to revive the Cooperative Movement of the bygone days wherein wholesale shops selling and showcasing such goods could be initiated. The great poet and Nobel laureate Gurudev Rabindranath Tagore had been an ardent votary of rural cooperatives for elimination of poverty and destitution in the rural areas.

Sustainable Usage of Natural Resources

GI Tagging would have far-reaching consequences in terms of Sustainable Usage of Natural Resources. This particularly applies to the traditional folk art of spinning and weaving. The coarse variety of Thai Silk produced on the Korat Plateau is a case in point.15 There are several varieties of Thai Silk, each one unique to its place, and contingent on the particular variety of silk worms that are used to spin such material.16 Lamphun Brocade Thai Silk has always been used by the Thai Royal Family and the royal court in most of their ceremonies.17 In Thailand it is known as the Queen of Silk.18

Thailand thus demonstrates a classic case in point where the patronage towards the usage and preservation of traditional handicrafts using age-old and time-tested methods comes from the highest level. This emphasis on the use of indigenous resources gives a boost not only to production, but also tends to protect the national heritage of an Asian country. During the struggle of freedom, Indians used the Khadi or hand-spun cotton while boycotting the foreign manufactured goods in order to boost the indigenous industries while displaying ardent nationalist spirit in their defiance of colonialism despite repression and police atrocities. Unfortunately, in the post-independence era when most of the cosmopolitan urban centres have an affluent class that use foreign brands, rural handicrafts are languishing for the want of corporate sponsorship. This spirit of the *Swadeshi* should be revived with the increasing use of nature-friendly products from the rural areas. This would reduce waste and enhance the untapped productive entrepreneurship of the rural folk. Crafting prosperity through the increasing use of indigenous natural resources should be the motto of national self-sufficiency and rural development. Fortunately, the Government of West Bengal has brought up several “Biswa Bangla” centres in different parts of the state to sponsor and highlight the rural products ranging from fruits and grains to packaged edibles to be able to cater to various consumer needs. In the Pandemic stricken years 2020-2021, West Bengal showed a steady and remarkable growth of 1.1 percent alongside Tamilnadu and Bihar despite the devastation wrought by the COVID Pandemic.19 The State contributes 5.8 percent of the total GDP of the country. Tapping into the resources of rural areas in a sustainable manner would not only elevate the status of the province, but also contribute

15 Ibid, p.18, paraphrased from Geographical Indications An Introduction
16 Paraphrased. Passim
17 Ibid, p.18, Geographical Indications An Introduction
18 Ibid
19 *The Times of India* (Kolkata), 04.07.2022, p.6

significantly towards alleviation of rural poverty and increasing the purchasing power of rural consumers.

Role of GI in boosting Travel and Tourism

GI would also give a boost to the tourism and hospitality industry that would greatly benefit the locals. The Pous Mela at Shantiniketan that had begun during the days of Tagore draws a considerable crowd not only from Bengal, but also all over India and the world. The displays of traditional handicrafts like wooden toys, bead necklaces, textiles alongside household items of day to day use are much admired and sought after. Pous Mela is an event which is intimately connected with Bengali sentiment. With the celebration of Pous Mela, the identity of Bengal and its treasured artefacts have been globalised. It is truly a representation of Biswa Bangla. Besides the Gangetic *Rarh* plains of West Bengal, the North Bengal region is equally rich in biodiversity and provides an instance of abundance in terms of human diversity, ethnic cultures, and, linguistic diversity. Being geographically contiguous with the North-Eastern States of India, especially Assam, there have been human migrations for thousands of years. This has produced a veritable "anthropological museum" of human beings who speak various dialects and give spontaneous expression to their artistic ethos in the form of dance, music and handicrafts. Recently, there has been a spectacular fashion show organized by the tribal communities in the district of Alipurduar.20 Its noteworthy that in this fashion show cum fair organized at Alipurduar, as many as 50 stalls displayed the variety of handicrafts made by rural households that were put up for sale of inquisitive buyers.21 Among them there had been stalls run by Self Help Groups, mainly from North Dinajpur, Coochbehar and Jalpaiguri Districts who showcased various artefacts and edibles like Tulaipanji Rice, Yellow Foot-mattresses, Sitalpati, Jute products and wooden artisanal works of exquisite variety. 22 These fairs not only draw local people for production and marketing of products, but also tend to boost the travel and tourism sector. The initiative on the part of the Government of West Bengal for enactment of GI for all these products would go a long way towards providing the necessary impetus to this vast and magnificent display of human energy and skill, and boosting travel and tourism in general.

Conclusion

It cannot be denied that GI presents a wonderful opportunity not only to showcase and market traditional handicrafts, but also provide incentives at the aesthetic and artistic levels to rural households for the preservation of their heritage which represents virtually the soul

20 Pallab Ghosh, "Bibhinno Jonojatir Fashion Show Sristimelay", Uttorbongo Sambad, 30.01.2025, p.5
21 Ibid
22 Ibid

of West Bengal. The people engaged in the traditional sector would not only be energized by the additional income, but also would be able to raise their sense of self-esteem and realize their human worth in all respects. In a diverse multicultural country such as India, West Bengal is verily a microcosm of the whole, and its people as well their artistic and cultural creations have a lot to say in terms of attaining "atmanirbharta" or self-sufficiency that have been the hallmark of their ancestors who lived by the plough as well the loom. This artistic and cultural heritage needs to be preserved at all costs. A web of GI across regions and districts would surely bind the population in the true spirit of fraternity and creative productivity without compromising on their quality. The "Make in India" initiative should come from the villages and it's the responsibility of both the state and central governments to sponsor and safeguard this national enterprise. Only then the aspirations of the majority of the people would be fulfilled, leading not only to a healthy GDP but also improve the overall Human Happiness Index. Therein lies its significance.

Appendix

Sl.No.	Name of the Officer	From	To
1	2	3	4
1	Mr. T.A. Donogh	1864	----------
2	Captain Hedayet Ali	1865	1866
3	Mr. W.M. Clay	1867	1868
4	Mr. F. Grant	1869	1872
5	Mr. E.M. Reily	1872	1873
6	Mr. C.F. Manson	1873	1874
7	Mr. W.C. Muller	1874	----------
8	Mr. R.H. Renny	1874	1876
9	Mr. J. Rattray	----------	----------
10	Mr. W.O'Reilly	1876	1881
11	Mr. E.M. Reilly	----------	----------
12	Mr. A.W. Cosserat	1881	1882
13	Babu Amulla Charan Mallik	1882	For a few days
14	Mr. A.W. Cosserat	1883	1885
15	Mr. D. Sander	1885	1890
16	Mr. W.F.G. Montriou	----------	----------
17	Babu Purna Chandra Mitra	----------	----------
18	Mr. Y.H.W. Mackenzie	1890	1893
19	Babu Nibaran Chandra Ghatak	----------	----------

Source: .C. Roy (Ed), D.H.E Sunder, "FINAL REPORT ON THE SURVEY AND SETTLEMENT OF THE WESTERN DUARS IN THE DISTRICT OF JALPAIGURI", 1889-95, N.L. Publishers, Shiv Mandir, Siliguri, West Bengal, 2013, p.118

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An Analysis on the Socio-Economic Significance of Gorkhey Haats in Kurseong, Darjeeling Himalayas: A geographical perspective.

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Abstract: *The Gorkhey Haat, a weekly local marketplace has been emerging as an important socio-economic hub for the Darjeeling Himalayan Region catering the cultural exchanges, local trade patterns, and livelihoods. The study explores the origin of Gorkhey Haats, local traders, their trading networks, traditional items sold, while identifying the difficulties faced by them like, transportation constraints, market accessibility, and their socio-economic barriers.*

In this regard, site observation and perception were done in Kurseong Municipality area through field survey. Utilizing certain geospatial techniques, maps of Kurseong Sub-division as well as Municipality area have been prepared to visualize the mobility of vendors from the surrounding rural areas to the Haat. The research also investigates their journey from home to Haats, prevalence of the marketplaces, including their key role in sustaining livelihoods, promoting local products, aid from the governing bodies and solidifying the language and identity amidst acculturations. Hence, the findings aim to contribute the role of cartography in analysing the dynamics of rural-urban interactions through Gorkhey Haat in Kurseong town.

Keywords : Gorkhey Haat, Kurseong Municipality, Socio-Economic Interaction, Himalayas.

1. INTRODUCTION

Haat is defined as an open market that serves as a local market outlet in rural areas taking place once a week in some areas (Sathyanarayana & Suresh, 2017). It possesses the characteristics of being localised that offers certain platforms for not only selling their product but also for showcasing the skills of local entrepreneurs (Deogam, 2023). Etymologically, the term *haat* is derived from Sanskrit word '*hat'* meaning a marketplace for buying and selling of certain goods taking place at a particular time and place. In those times, where transportation was not easily accessible of now, mobile nature of marketing system was prevalent in the forms of Haats, as seen today (Patel, 2022).

The history of the origin of Haats has been a successful intervention for selling of goods and services, dates to the time as old as the history of trade. It is evidenced that Haats in India is described in Chanakya's Arthashastra forming the country's conventional trade network. Many studies have even opined that the Haats in modern era have started from 18th century, since pre-independence. Haats gained a momentum during the era of Swaraj movement for promoting indigenous goods (Gupta et al., 2021). Recent studies of Rural Marketing Association of India (RMAI) have documented that there are about 47,000 haats in India, in different rural and urban pockets of the country (Singh et al., 2012).

In hilly areas, the rural markets are the only sources of the daily consumable commodities including the edible items. These markets are not only the sources of the commodities but also the source of income for the farmers (Akoijam, 2021). The constant mobility of traders and pastoral peoples in such highly elevated regions benefited Haats, not only through mutual socialising but also by connecting the geophysical regions in terms of economy and diverse culture (Singh, 2001). In Darjeeling region of West Bengal, the Haats have been popular in the piedmont plain areas with high population densities, where the vendors are large in number owing to strong network in terms of transport and communication for the efficient flow of goods and services. Studies in this regard have already been done in the Haats of piedmont plain areas like Matigara, Bagdogra, Leusipukhri and Naxalbari within the jurisdiction of Siliguri Sub-division, Darjeeling district (Singha & Paul, 2021).

A large volume of literature based on the above-mentioned topic in the hilly areas are relatively less as compared to those areas of lower elevations. The study in this topic is very much adhered to mere economic and social connotations rather than the spatial oriented analysis. There are no footprints of Gorkhey Haats in academic atmosphere, despite its progression in many areas of Darjeeling Himalayas. Therefore, this study is aimed at exploring the socio-economic set up of Haats in hilly areas through field observation, statistics and geospatial techniques.

2. OBJECTIVES

a) To explore the historical background of Gorkhey Haat and its significance in the lives of local people of Kurseong.

b) To quantify the associated components of Gorkhey Haat visualizing spatial distribution network of certain places of vendors.

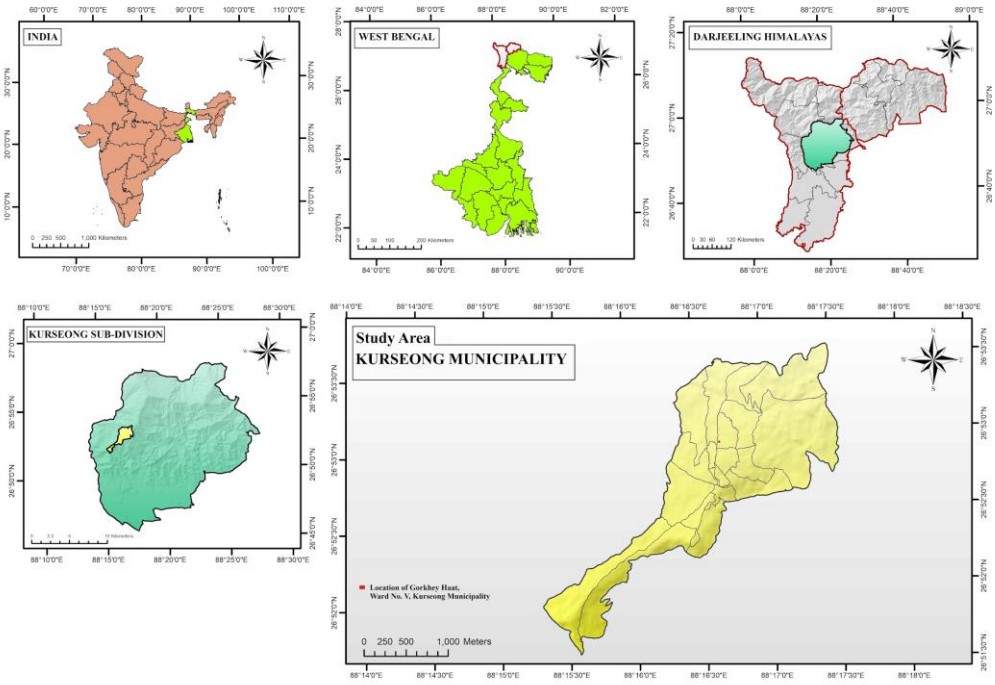
c) To analyse the vendors' perception towards Gorkhey Haat – problems, prospects and its role in shaping their socio-economic livelihood.

3. BACKGROUND & STUDY RATIONALE

Kurseong Municipality, the administrative centre to the Kurseong Subdivision in the Darjeeling district, of West Bengal. It is situated, at an elevation of approximately 1,458 metres above sea level, at an area of 7.5 km^2, lying between the co-ordinates – 26°51'42" N to 26°53'36" N latitude and 88°15'12" E to 88°17'32" E longitude. According to the Census of 2011, Kurseong Municipality had a population of 42,446 (Census of India, 2011). The town is divided into twenty wards within municipal jurisdiction.

Gorkhey Haat has been an emotion to the people of hills than just a mere, marketplace in a very short span of time. In this era of social media, the Haat has been gaining popularity

displaying a vibrant hub of local economy and socio-cultural unity. It is obvious that Gorkhey Haat helps in promoting the minor-scale local trade, especially among vendors and artisans living in rural pockets of Kurseong. Despite widespread media coverage, the internal mechanism of the vendors, bringing Gorkhey Haat to life is a journey of great hardships, where the discourses relevant to it is almost nil. Hence, this study will be a first attempt to map Gorkhey Haat on the academic grounds where the problems and prospects of the vendors striving to make the ends meet through Gorkhey Haat is explored. According, to the hearsay of the stakeholders, it is essential to acknowledge Kurseong for being a source of nomenclature given to the marketplace as Gorkhey Haat. Stressing importance on the local economy and social life, detailed research on Gorkhey Haat helps academicians and policy makers to suggests measures on how to make such markets sustainable for supporting livelihoods of the rural people.



4. METHODOLOGY

This research employs a mixed-methods approach to study the role of socio-economic factors in the set-up of Gorkhey Haat in Kurseong (Berman, 2017). Firstly, qualitative data was brainstormed through interviews with esteemed stakeholders, including the Secretary and President of the Haat, provided an estimate of 113 stalls in its initial stage. The entire study is based on participant observation and field survey. However, the fieldwork disclosed 51 stalls running, allowing a deeper investigation of the factors behind this discrepancy, including market fluctuations and incomplete records.

To further understand the structure and dynamics of the market, a survey was conducted with the 51 vendors present during the field study. A survey was conducted to collect quantitative data on demographic factors – number of active stalls and operating vendors, sex composition and average income per vendors in a day, which enumerated the socio-economic profile of the vendors. In addition, Focus Group Discussions (FGDs) were organized with 11 vendors to capture qualitative insights into the challenges and opportunities in the market, as well as the role of local governing bodies in providing support in terms of infrastructure and security (Mishra, 2016). The single focus group discussion was done using the Thumb Rule 1 where the discussion was less than an hour (Yayeh, 2021). This was done through interviewing eleven vendors where questions were administered focussing on six different themes within socio-economic conditions.

The data collected was analyzed using both statistical methods for the quantitative survey results in MS Excel software. And the thematic analysis for the qualitative data from FGD responses of the vendors were done using the MAXQDA Analytics Pro (24.7.0) software. Geographic data on the spatial distribution of vendors was also documented through field survey and mapped to present the route network and connectivity from source region to the Haat. This helped to identify the spatial concentration of vendors contributing in the Haat through a flow map prepared using ArcMap 10.8 version software. Visual evidence was also recorded with the help of a software called NoteCam installed in android smartphone, within the accuracy of 3-4 metres above mean sea level. By combining these methods, the study offers a comprehensive view of Gorkhey Haat, analyzing the intersection of geography, economics, and social dynamics.

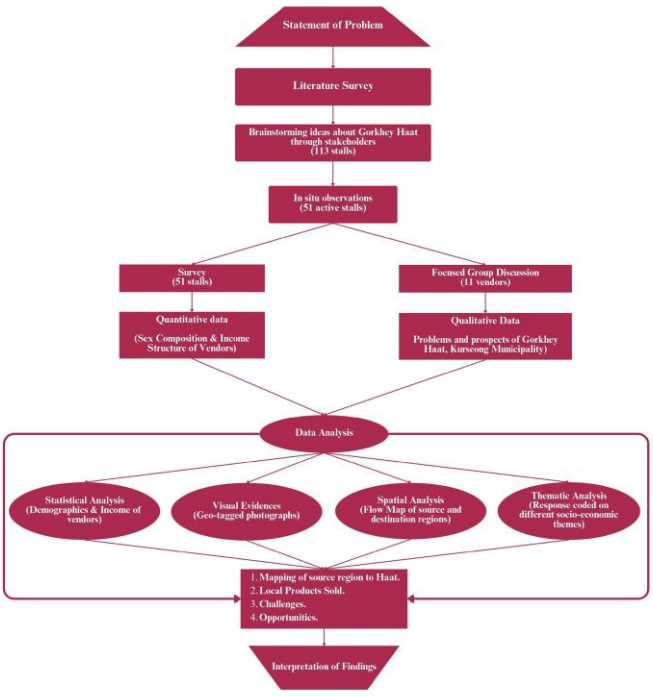


Figure 2. A flowchart of methodology prepared by the author.

5. RESULTS AND DISCUSSION

5.a) Historical Account of Gorkhey Haat in Kurseong.

Gorkhey Haat is a weekly, traditional marketplace meant for making the local people of Darjeeling Hills self-reliant entrepreneurs to secure their socio-economic livelihoods. Historically, there was a decades-long traditional market in Kalimpong, by the name Bihibaarey Haat (Mountain Echo, 2023).

The origin of the term "Gorkhey Haat" has been a subject of varying statements. Numerous sources like tabloids, have claimed that the term is derived from Kalimpong or Darjeeling; and there is no such evidence to support the claim. Then, the etymology of Gorkhey Haat owes to a report produced by the firm, Grant Thornton Bharat in collaboration with the Gates Foundation. This research produced the alternative solutions to the means of livelihoods despite the vulnerable socio-economic condition of tea garden workers where most of the people migrated from their own resource rich region (Grant Thornton Bharat, 2024).

The COVID-19 exacerbated a great distress to the people in the hills, where the migrants suffered in this sheer socio-economic catastrophe (Yu et al., 2022). In Kurseong, the current socio-economic distress caused by heavy migration flow and rising unemployment since the inception of COVID-19 inspired the concept of Gorkhey Haat.

Figure 3. A banner of Gorkhey Haat in Kurseong Municipality.
Source: Mr. Santa K. Gurung (President, Gorkhey Haat Community) (05/01/2025).

The etymology of Gorkhey Haat was brought to light by the Gorkhey Haat Community of Kurseong on 15th October 2023 (Figure), when they collaborated with Kurseong Municipality and Darjeeling Himalayan Railway of Kurseong Subdivision, to bring the marketplace for local inhabitants in urban area. Henceforth, this term has been gaining

momentum in all the places of Darjeeling Himalayas especially in urban areas of Darjeeling, Kalimpong, Siliguri and Mirik, to name a few, as shown in Figure 4.

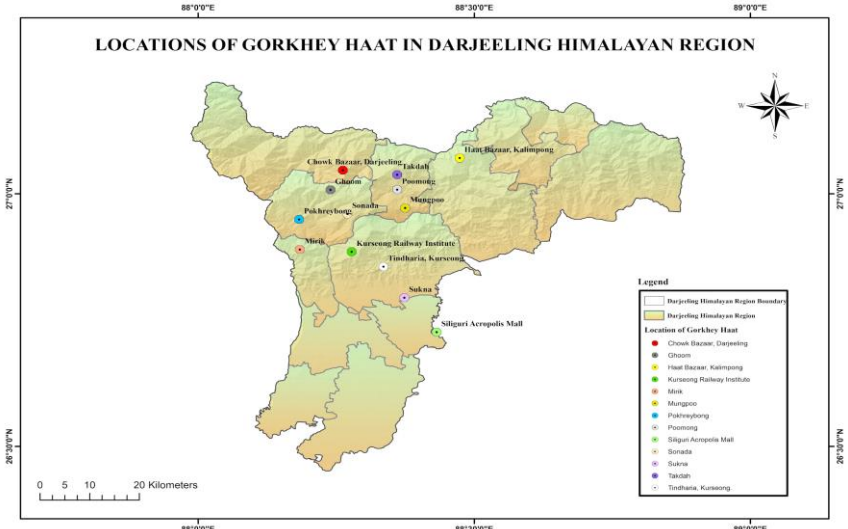


Figure 4. A map showing spatial distribution of Gorkhey Haats in Darjeeling Himalayas

Source: Census of India, 2011.

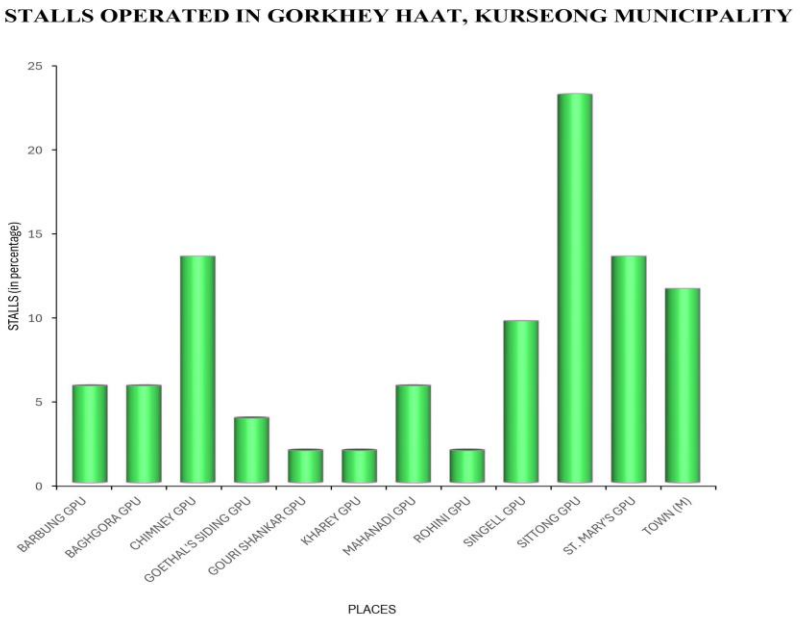
Presently in Kurseong, Gorkhey Haat is held every week (Sunday) in Kurseong, in the Railway Institute Area of Ward No. X, Kurseong Municipality. The Haat encompasses the theme of "Vocal for Local" which ensures to support the livelihoods of local entrepreneurs. The main purpose of Gorkhey Haat is to provide a platform for small-scale farmers to sell their goods, preserving their customs and traditions of the hill's cultural heritage. It is noteworthy that the products sold in Gorkhey Haat are locally grown or manufactured; no imported items are sold here. This has stimulated the rising demands of the natively produced goods, making Gorkhey Haat to shift their focus from "Vocal for Local" to "Local for Global", where local produced goods are rare and are demanded by the visitors from all nooks and corners of the country.

5.b) Quantitative Data Analysis

1.) Stall Profile in Gorkhey Haat

The figure 4, shows the distribution of 51 stalls across various rural areas of Kurseong. It is seen that majority of the vendors are from the outskirts of the town, where Sittong holds the top position by 23.53 percent. This is mainly because majority of the people in Sittong is engaged in agricultural activities. Most of cash crops like orange, round chillies and avocados are grown here, thereby claiming the title as the Orange Basket of Darjeeling Hills (Bireswar Banerjee, 2023). Followed by Chimney and St Mary's with 13.73 percent, along with the town areas like Ward No. III and X, due to its proximity to the Haat. Other remaining

rural areas like Goethals Siding, Gouri Shankar, Kharia Busty and Rohini GPU have fewer stalls ranging from 3 to 1 percent, due to non-availability of local taxi syndicates.



2.) Vendor Demographics in Gorkhey Haat

The stalls in Gorkhey Haat are functioned by 58 vendors coming from different location of Kurseong. Like in the previous Figure, Sittong again leads by 24% owing to the agriculture-oriented nature of people living there have majorly occupied the Haat. On the other hand, Rohini, Kharia and Gouri Shankar holds the lowest position. Several rural areas like St. Mary's, Chimney GPU, Barbung Busty, Singell, Mahanadi, etc has considerable percentage of vendors serving in Gorkhey Haats owing to easy accessibility.

The figure illustrates the sex structure of vendors in Gorkhey Haat in Kurseong town. Out of 58 vendors, female leads by 72.4% while the male vendors account for 27.6%. This denotes that Gorkhey Haat offers the most significant opportunities for women to be self-reliant by engaging in entrepreneurial affairs contributing to their household both socially and economically.

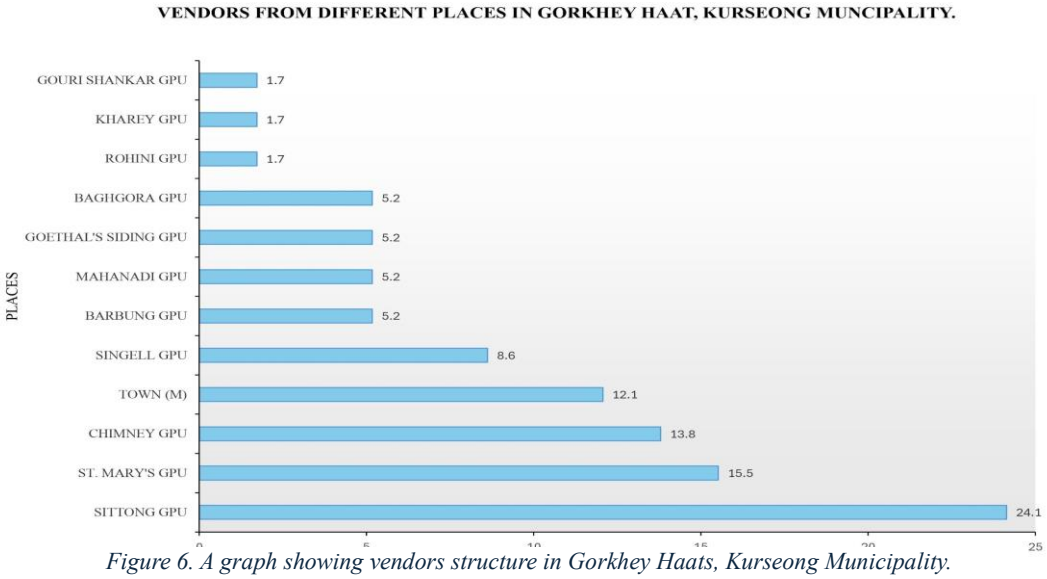
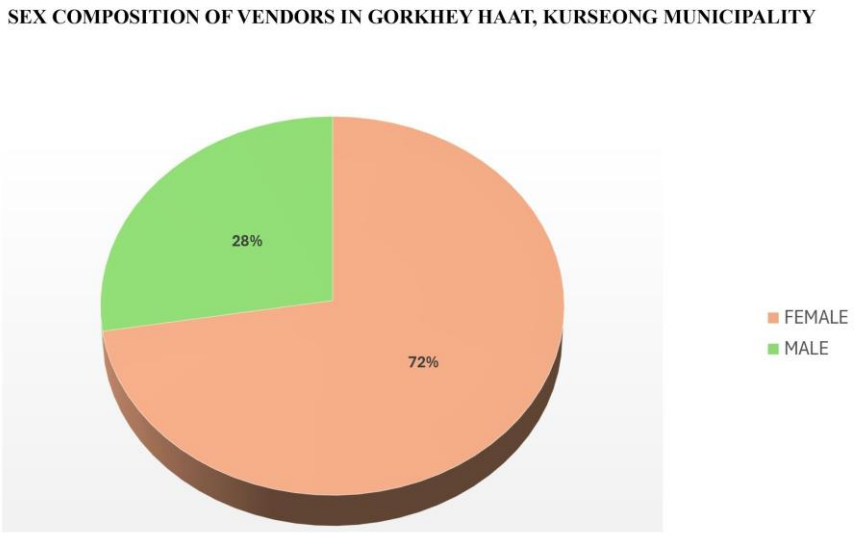


Figure 6. A graph showing vendors structure in Gorkhey Haats, Kurseong Municipality.

Source: Field Survey (05/01/2025)

3.) Gender Records in Gorkhey Haat

The figure illustrates the sex structure of vendors in Gorkhey Haat in Kurseong town. Out of 58 vendors, female leads by 72.4% while the male vendors account for 27.6%. This denotes that Gorkhey Haat offers the most significant opportunities for women to be self-reliant by engaging in entrepreneurial affairs, contributing to their household in terms of socially as well as economically.



4.) Commodities Sold in Gorkhey Haat

The Figure 6 denotes the tree map showing the local products sold in Gorkhey Haat. Among the 51 stalls, greengrocery shows the highest percentage share by 43%. Being a voice of "Vocal for Local", the Haat promises to bring the locals produced fresh organic vegetables and fruits.

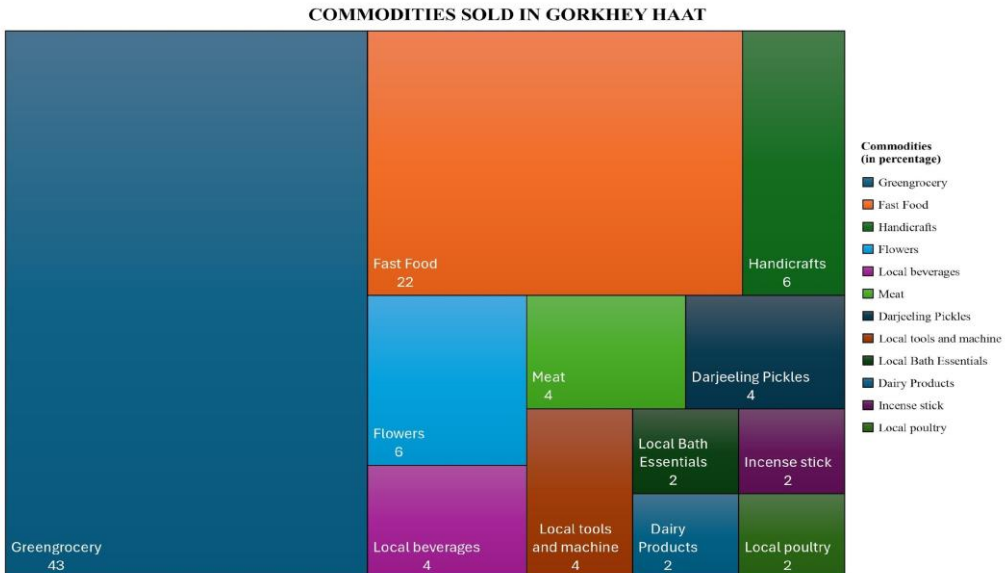


Figure 8. A tree map showing commodities sold in Gorkhey Haats, Kurseong Municipality.

Source: Field Survey (05/01/2025).

It provides a wide range of vegetables like Mustard Greens (*Rayo ko Saag*), Avocado (*Kaulo*), Oranges, Nettle Greens *(Sisnu ko Saag),* Round Chilli (*Dalley Khursani*), Black Lentils (*Kaalo Dal*) and so on.

Furthermore, fast food category accounts for second position by 22%, reflecting on the natively produced food items that savours the tastebuds of the visitors. The locale prominent street food items reflecting Darjeeling Himalayan culture are *Selroti*, *Wachipa*, *Sausages*, *Honeycomb*, *Laphigne, Momo, Gorkhey Alu Dum* and many other items.

Then, handicrafts and flower stalls accord for 6% of Gorkhey Haat, showcasing the local artistry and floral market traditions of hilly areas. Darjeeling Pickles, Local Beverages, etc are represented by 4% by each category that focus on supplying the localised food items which are produced by the local entrepreneurs along with the local tools and Machinery.

On the other hand, Local Bath Essentials, Dairy Products, Incense Sticks, and Local Poultry accounts for 2%, each which emphasises on the sale of specialized products. Even though less in number, the vendors selling tea packets, local poultry and incense stick has made a household name as the exemplary entrepreneurs in Kurseong (Figure 12). Hence, the spectrum of commodities available in Gorkhey Haat shows a diverse market structure that reflects the potentials of the local people in contributing to the regional economy.

5.) Income Structure

I. Per Day Average Revenue Structure

Figure 13., shows the average revenue generated per day by the categories of stalls in Gorkhey Haat, where Fast Food and Greengrocery accord oothe highest position by 30% and 29% respectively. As majority of the vendors are engaged in providing edible items as well as processed foods to the visitors have attracted most earnings in a day as exhibited by the Table. The other categories are Meat, Handicrafts, Flowers, flowers, pickles, and Local beverages like tea, which have garnered average visitors. Their sales range from 9% to 4.6% as these are a part of supplementary goods and earning is not as high as the former categories.

Other categories like Local Poultry, Local Bath Essentials, Dairy Products, Incense Stick, and Local Tools and Machinery, earn a minimum revenue ranging accounting from 3% to 1% as it depends on the visitor's necessity rather than its compulsion to purchase it. Hence, it can be opined that a diverse market structure of Gorkhey Haat have facilitated the local farmers and entrepreneurs where the everyday items play a key role in market sustenance.

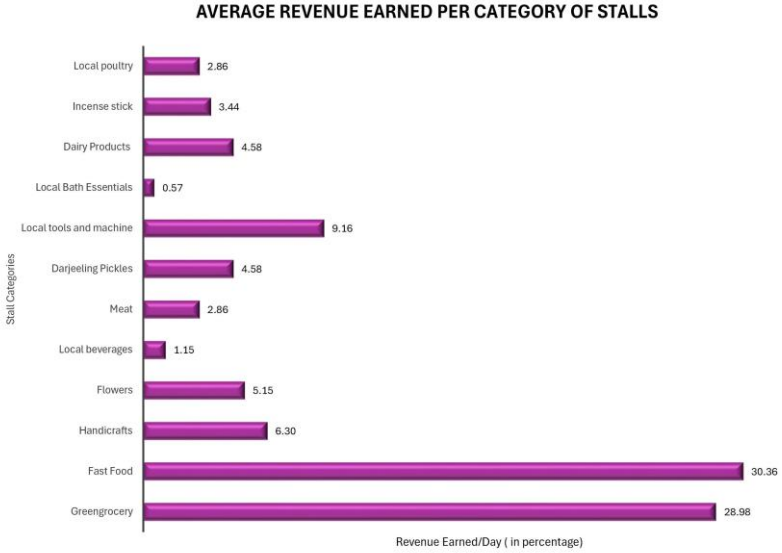


Figure 13. Average total revenue earned by the type of stalls in Gorkhey Haats, Kurseong Municipality.
Source: Field Survey (05/01/2025).

II. Mean Average Revenue Structure

The figure 14, shows the mean average revenue generated in a day by each stall in Gorkhey Haat. Here, the meat category along with local poultry, dairy products and fast food holds the apex position with 17%, 13% 10.8% and 10.4% respectively as the prices of the items sold in these categories of stalls are comparatively high, and people tend to buy them despite their inflating rates. The following stalls dealing offering Local Beverages, Darjeeling Pickles, Handicrafts, Flowers, Greengrocery, Local tools and bath essentials, generate the mean average revenue ranging from 8% to 4% approximately as their price is relatively

lower than the prices of the items in the former categories. Incense stick stall incur the least mean average revenue as it faces stiff competition against the same product sold in the market, but the visitors in Gorkhey Haat purchase them for the sake of motivation and supporting the indigenous product.

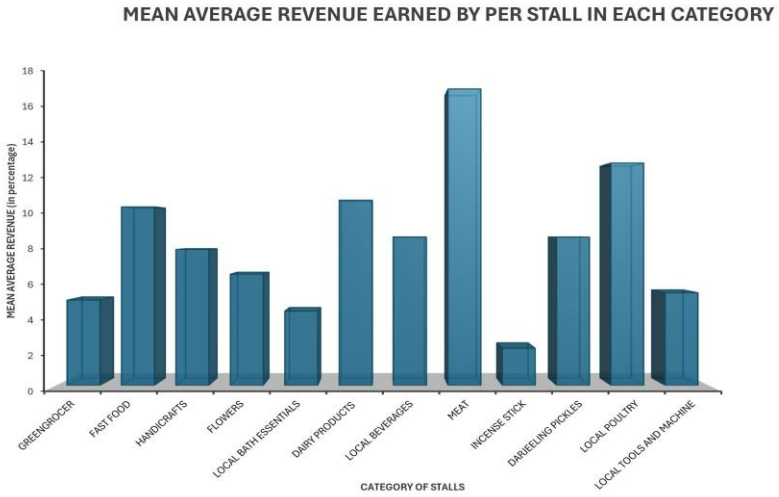
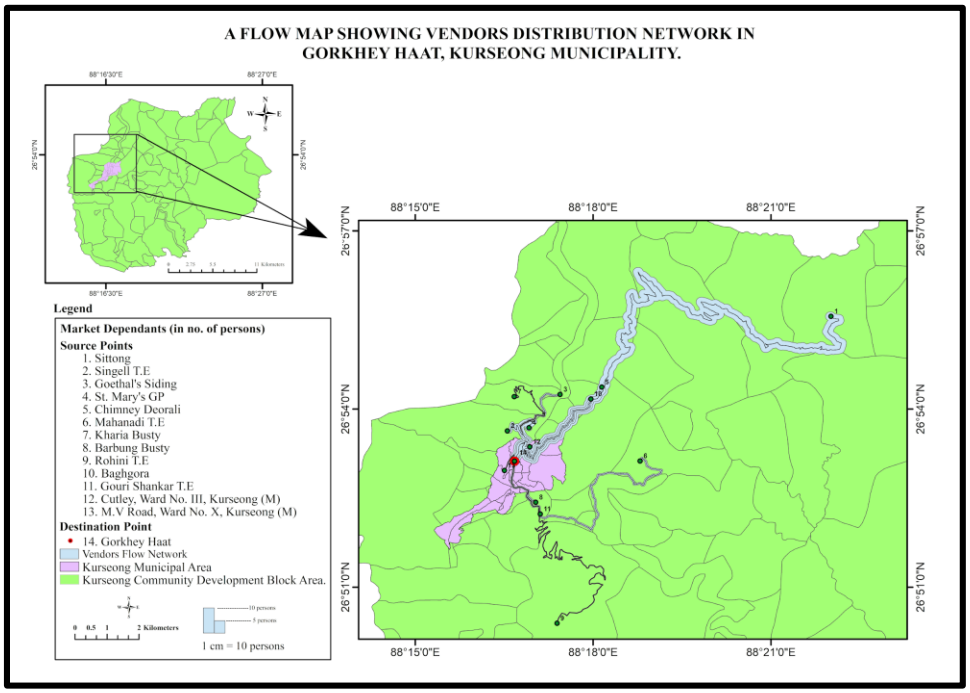


Figure 14. Mean revenue earned per stall type in a day, Gorkhey Haats, Kurseong Municipality.
Source: Field Survey (05/01/2025).

5.c) Spatial Data Analysis

Flow map is an appropriate choice of modelling the interactions between one or numerous variables (Guo, 2009). Figure 15 illustrates a flow map of places with corresponding distances where the vendors travel to the location of Gorkhey Haat for their trading purpose. 1:10cm is assumed as a scale for representing the proportional value of vendors at each site. Sittong, the most distant location at 23.88 km, has the highest number of traders (14) and the value of the width is 1.4 cm indicating a significant level of reliability on Gorkhey Haat for marketing their products.

On the other hand, several places such as Rohini T.E., M.V. Road, Kurseong (M); Kharia Busty, and Gouri Shankar T.E. report one vendor each with a minimal width of 0.1 cm, suggesting smaller or less dependent on Gorkha Haat. Mid-range locations like St. Mary's GP (2.12 km, 9 dependants, width of 0.9cm) and Chimney Deorali (5.76 km, 8 vendors, scale 0.8 cms) denoting moderate dependency on the Haat. Overall studies shows that the variations in convienience, socio-economic or demographic factors may be responsible for the number of vendors to carry their trade in the Haat.



5.d) Qualitative Data Analysis

The socio-economic significance of vendors operating in Gorkhey Haat is well understood through the information given by the participants of Focussed Group Discussion. In this conversation, the socio-economic significance of Gorkhey Haat in the lives of the people is examined by certain themes – motivations, other income sources, expenditure, challenges, local government initiatives and socio-economic changes in their livelihood which were coded in MXQDA software as shown in Figure 16.

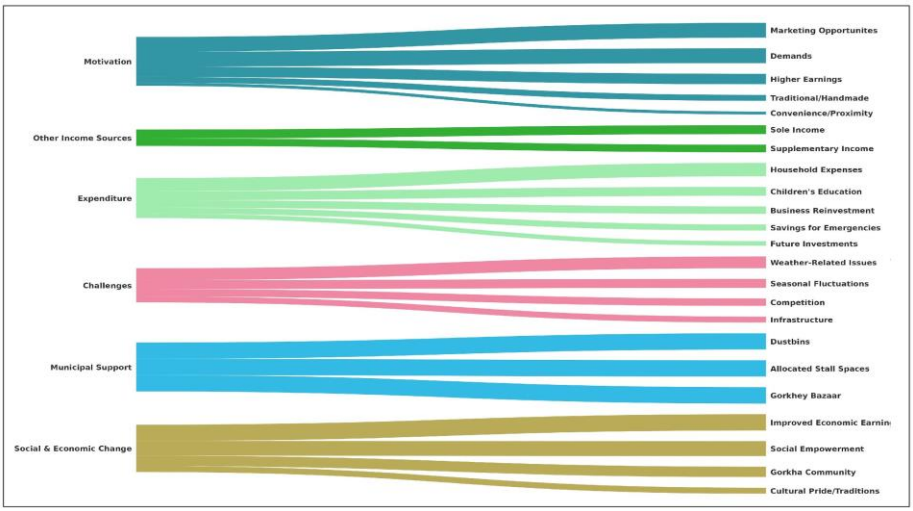


Figure 16. Sankey Diagram showing overall themes reflected in Focus Group Discussion.

Source: Field Survey (05/01/2025).

In the Figure 16, it is evident that 44% of vendors are largely motivated by marketing opportunities in Gorkhey Haat as it has become a "selling platform" for them. The products which are locally produced here have a great demand, where the tourists enjoy buying the

indigenous goods, creating demands that motivates the vendors in Gorkhey Haat. Whereas 30% of vendors see Gorkhey Haat as a point of higher returns selling their product in their village is comparatively less than they sell in the market. Some of the respondents have felt that exhibiting their traditional finesse (17%) through their local merchandise like *Khukuri* or *Hemp bags* and the ways the tourists appreciate their art have motivated them to market their goods at Gorkhey Haat. Some of the respondents from St. Mary's and nearby town are satiated by the proximate locations (9%) to meet the needs of the people at the short duration of time have led to trade their produce in Gorkhey Haat.

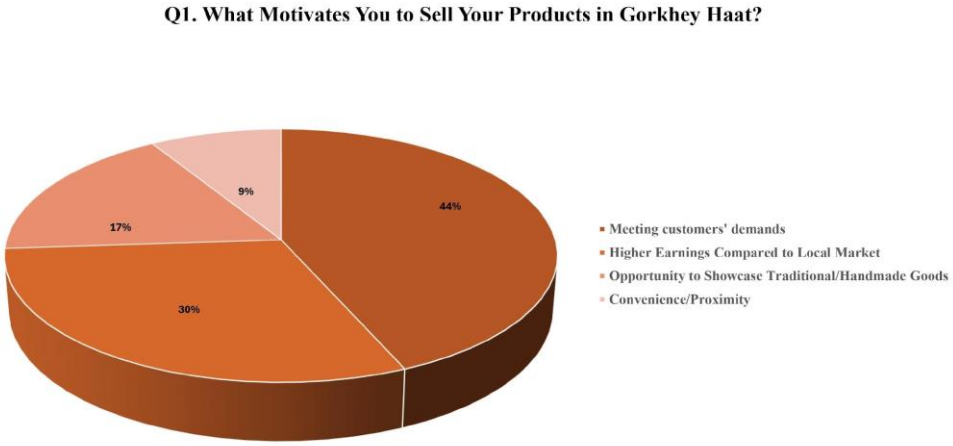
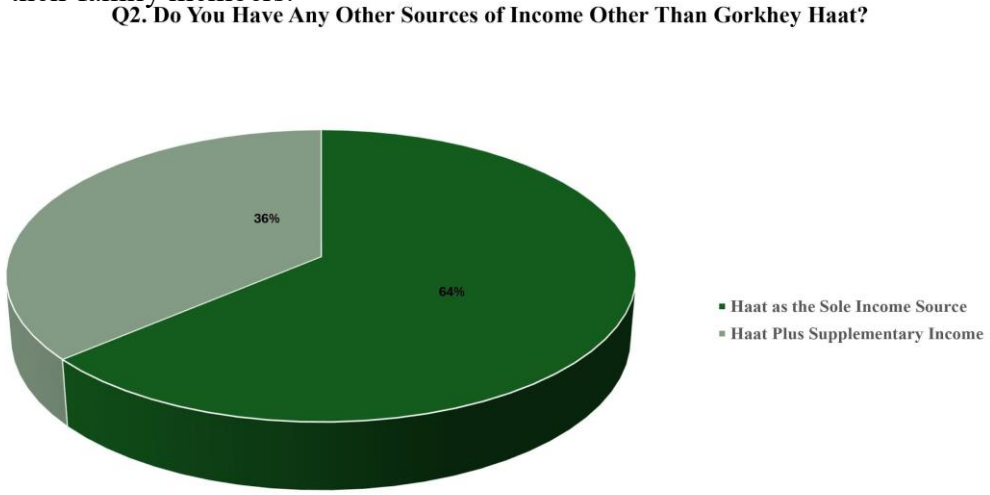


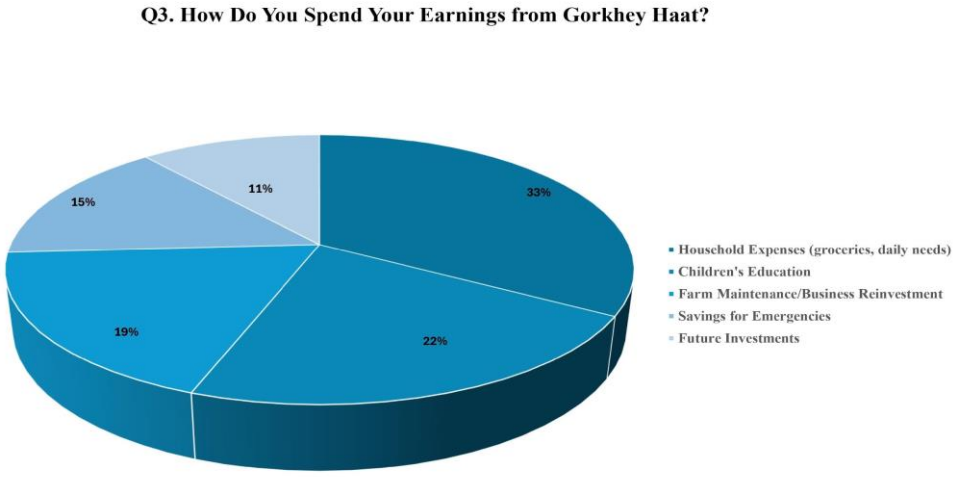
Figure 17. Motivation of vendors towards Gorkhey Haat.

Source: Field Survey, 05/01/2025.

The second theme is based on the other sources of income as shown in Figure 18, where 64% of the respondents see Gorkhey Haat as the main source of income. On the other hand, Gorkhey Haat alone does not suffice the livelihoods as 36% response states that they must opt for supplementary sources of income like some of them are into recurrent taxi driving, some of them sell eggs and some of the respondents even do freelancing. Some are mutually supported by their family members.



The expenditure pattern of the vendors in Gorkhey Haat is shown in Figure 19, the figure reveals that 33% of vendors spend their major portion of their earnings on household expenses like groceries and necessities. About 22% of the vendors cannot compromise on children's future so their earnings from the Haat significantly supports their child's education. This shows that the Haats have been playing a major role in securing their families' well-being. On the other hand, 19% of the traders contribute their earnings on their business investments to stimulate growth in their business by buying inputs like seeds to grow crops along with freezers for storing meat to prevent it from decaying which leads to a heavy loss. Many of the vendors (15%) also spend their earnings in case of medical emergencies and even from financial deficits when needed. The remaining 11% show that the earnings go to future investments to expand their business by miniature steps like selling snacks along with tea business, expanding their greengrocery, etc.



The vendors in Gorkhey Haat are facing multifaceted challenges to meet certain growing expectations in their business. Figure 20 illustrates that meteorological factors like rainfall have huge impacts on their business as stated by 35% of the responses. Rainfall in Kurseong is erratic and this has affected the trade of the local vendors where much of the edible items like vegetables and meat are prone to decaying incurring heavy loss. Even though the stalls are rudimentary without any solid roof, they lack protection from such severe climatic impacts leading to rotting of vegetables, flowers and edible items especially during monsoon seasons.

About 26% of the responses denote that seasonal fluctuations impact their trade especially during non-festival and monsoon seasons. Competitions in terms of price with the nearby malls and shops in the town have also impacted the trade as mentioned by 22% of statements given by the participants. Sometimes the vendors encounter bargaining pressure which affects their returns. The remaining 17% of the replies stated that dearth of space and the location of Haat away from the main town have been a problem to some of the vendors.

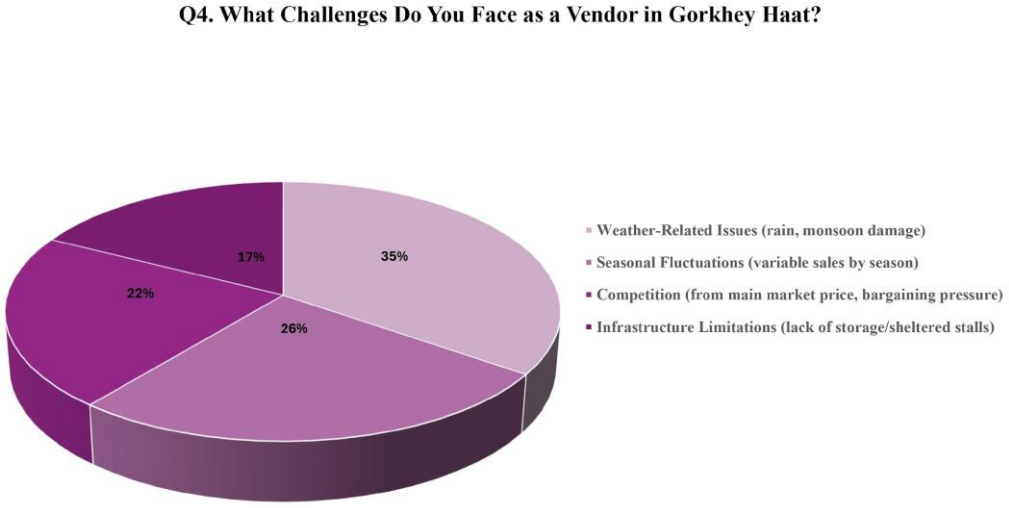
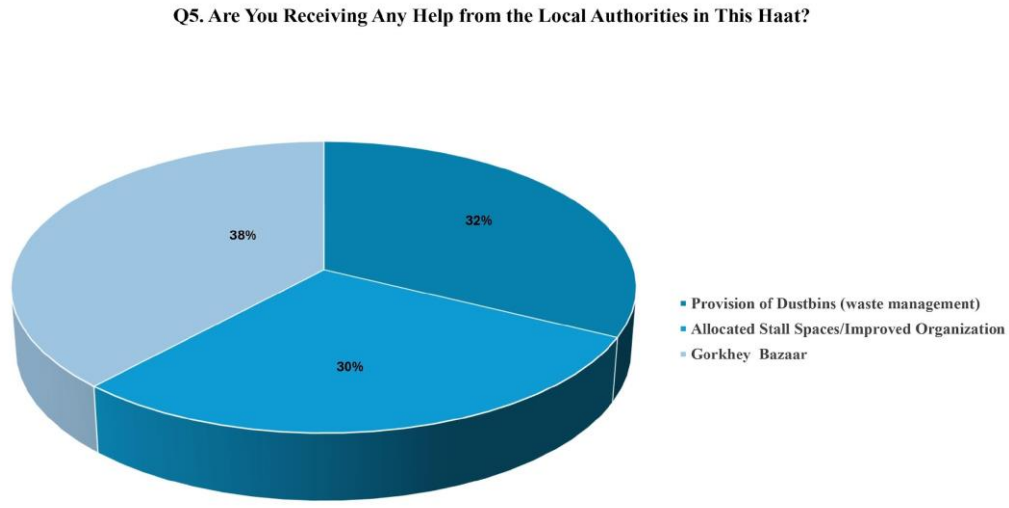


Figure 0. Repercussions of the Vendors in Gorkhey Haat.

Source: Field Survey, 05/01/2025.

The local governing authority, Kurseong Municipality, has been actively supporting the initiative of Gorkhey Haats through infrastructural and future possibilities for the local entrepreneurs. In Figure 21, most of the responses from the vendors affirmed the fruitful efforts towards cleanliness and space management by providing dustbins and area allotment for establishing their stalls by 32% and 30%, respectively. They even appreciated the future initiatives to extend the weekly Gorkhey Haat into Gorkhey Bazaar, where the Gorkha Bazaar will be providing goods and services daily in Ward No.13 of Kurseong town. Overall, the respondents seem to be satisfied with the support and facilities provided to them by Kurseong Municipality.



The final section explains the socio-economic effects on the livelihoods of the vendors in Gorkhey Haat. Figure 22 illustrates that 34% of responses assess that Gorkhey Haat has improved the economic conditions of the local farmers and entrepreneurs. This is because

vendors get to sell the products from the markets where their exotic products are valued; demands are raised, thereby helping them to earn profits, and that motivates them to see more. 31% of responses depict social empowerment as the Gorkhey Haat has been a brand in Darjeeling Hills, where they could engage with different sects of people through Haat, helping them to be skilled and acquainted for their socio-economic benefits. Community building and cultural traditions go hand in hand where the vendors have not only created the bonds with each other but also strengthened the value of Nepali culture, fraternity, and integrity; where such traditions could be passed from one generation to the other, despite acculturation.

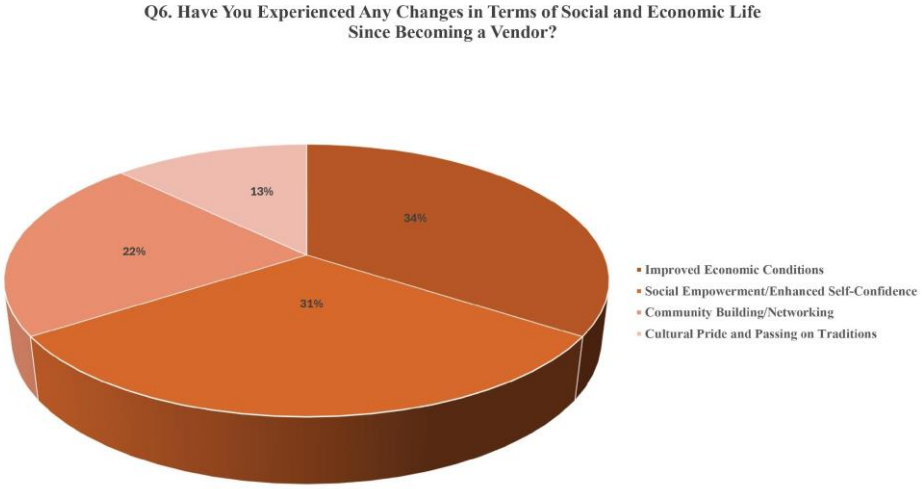


Figure 22. Socio-economic effects in the livelihoods of vendors.

Source: Field Survey, 05/01/2025.

6. CONCLUSION

Gorkhey Haat in Kurseong has been a pride of Darjeeling culture and a vital socio-economic platform that facilitates small-scale entrepreneurship while preserving the cultural heritage of the Darjeeling Himalayas. It has been successful in providing a marketplace for local farmers, artisans, and entrepreneurs to highlight their skill through their products, envisaging the "Vocal for Local" initiative. This has been transcending towards a broader focus "Local for Global" where demand for exotic local goods has expanded beyond the local regions. The diversity of Haat, in terms of vendors, commodities and culture play a key role in generating employment opportunities, especially for women, who form a major portion of the vendor demographics. Despite its success, the Haat faces challenges such as harsh micro-climatic effects, seasonal fluctuations in tourism and profits, and competition from nearby main market. However, the encouragement from Kurseong Municipality and the widespread popularity of local production have laid a strong foundation for sustainable economic growth among the hill communities.

7. LIMITATIONS

This research has certain limitations like data was collected at Gorkhey Haat on a single point of time, which may not reflect the overall seasonal variations of vendor participation, product demand and supply. Time constraints is one of the major limitations and a detailed survey for the quantitative data of socio-economic conditions was not possible. Future researchers can work on this topic, taking account of case study in different areas where Gorkhey Haat is organised.

8. SUGGESTIONS

1. **Infrastructure:** Open spaces or wasteland should be utilised for erecting stalls with proper roofing to protect vendors from unpredictable weather conditions, preventing losses caused by rains and affects as such.
2. **Capacity Building:** Conducting training sessions on marketing strategies and customer engagement should be provided to vendors to enhance their entrepreneurship.
3. **Large Scale Advertisement:** Collaborating with nationwide tourism agencies to advertise Gorkhey Haat as a hub of socio-economic and cultural attraction will boost the local economy, expanding their micro-scale business.

Acknowledgement

The authors are indebted to the esteemed stakeholders of Gorkhey Haat Community, Mr. Bijay Singh Sinchury (President), Mr. Mahesh Chettri (Secretary) and especially, Mr. Santa K. Gurung (Convenor) for providing the necessary resources and information. Our thanks are extended to Mrs. Smriti Tamang, nee Ramudamu (Assistant Teacher, Dowhill School), for assisting in the fieldwork along with the respondents in Gorkhey Haat who devoted their time to participate, despite their busy schedule.

Conflict of Interest

The authors declare no possible conflicts of interest while conducting this research.

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Struggles of Women Jute Mill Workers: A Take on Hooghly District, West Bengal

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Abstract: As environmental concerns are growing daily, which increases consumer interest in sustainable and eco-friendly products. With the growing environmental concern, jute can contribute significantly to the economy given the global rise in demand for natural fibre products. So, the importance of jute and jute related products if marketed properly will become highly popular in near future. As Indian economy flourish with the time and there is a scope for rapid industrialization, Indian labour market became an important aspect of discussion. Gender disparities in the labour market can be linked since the historical time and continues till now. Women's participation in formal manufacturing sector is almost negligible in West Bengal and jute is not an exception. Jute mill workers in particular and women workers in general several challenges in their work place; the highlight being an exploitative labour practice because it deprives workers of job security and benefits.

The objectives of the paper are to find out the present socio-economic status of the women jute mill workers; to gauge how far the constitutional and legislative protection instruments are effective in safeguarding their interests and to delineate the role and representation of women in trade union politics of jute mills. The study area entails Hooghly district and from there 30 women workers based on snowball sampling have been selected from 6 presently functional mills. The methodology involves both secondary and primary data sources. Qual-quant methods have been implemented to determine the nature of working environment, employee job satisfaction level. Result shows that they are at the stage of marginalization in the society because of their poor economic condition, less payment and no job security. Job satisfaction level is very low which entails work environment is not at all suitable for the women worker within the jute mill. They are less represented in the Trade union politics as Indian politics is highly masculaine.so, If Jute and jute products get GI tag then the demand of the jute made goods as well as the market value will increase and in turn benefit the currently vulnerable labourers.

Keywords: Jute mill, Hooghly, Women, Job satisfaction, GI tag

Introduction

At the time of its independence in 1947, India was a nation that held great potential for prosperous industrial growth. Although the industrial sector was long dominated by cotton and jute textiles, a movement of diversification started after World War I and gained impetus after the British government implemented a discriminatory protection policy in the 1920s. India was one of the more industrialized ones amongst the developing nations following World War II, particularly those that had recently emerged from colonial rule. Despite their limited numbers, India's industrial capitalists were capable to convene shortly before independence to create their own blueprint for the country's post-independence growth

(Chandrasekhar, 2014). One of India's most industrially advanced areas during the colonial era was the undivided Bengal, the first stronghold of the English colonial empire. Three major categories can be used to categorize colonial Bengal's industrial landscape. (i) Greater Calcutta, which was home to numerous jute mills and a few cotton mills, as well as engineering firms, iron foundries and other establishments; (ii) the collieries; and (iii) tea gardens (Basu, 2013).

With industrialization, Indian labour market became an important aspect of discussion. The labour market is thought to be a self-correcting market that, if left unchecked, has a natural tendency to return to equilibrium. A free market is thought to be disrupted by labour regulation, which is viewed as state involvement. This viewpoint has prompted several nations to implement deregulation measures, which have led to a global decrease in collective bargaining and the implementation of flexible employment protection laws (Deakin, 2014). When it comes to manufacturing employment, the Indian economy has recently painted a bleak picture. According to Goldar and Sadhukhan (2015), employment increased by 2.4% between 1993–1994 and 2011–2012, while manufacturing production increased by 7.6% over that same period. Chakraborty (2021) pointed out that the underwhelming performance of labour-intensive industries is one of the main causes of the slow rise in employment in organized manufacturing industries.

The nation's overly pro-worker labour regulations have been the main cause of its subpar manufacturing performance; laws have decreased productivity, labour turnover, entry by new businesses, output, investment, promoted labour unrest, increased the detrimental effects of trade liberalization on trade union representation, caused businesses to outsource employment to labour contractors who provide lower pay and no job security and shifted manufacturing activity to the unorganized/informal sector where both productivity and wages are low (Bhattacharjea, 2021).

Gender disparities in the labour market can be linked to the historical and current values placed on men and their labour, their role as the provider for the family, the idea of the family wage, men's primary attachment to and commitment to their jobs, their dominance in the home and at work, and women's subordination in all of these. The issue of unequal wages between women and men is a global one. In most cases, when women first enter the workforce, their pay is lower than that of their male counterparts (ILO, 2013). Although there is a pay disparity between the sexes in both developed and developing nations, its magnitude and nature differ. The literature in the domains of economics and sociology regularly highlights this type of gender-based wage discrimination. Because of this worry, maintaining minimum wage disparities continues to be one of the key priorities of the International Labour Organization (ILO) and the Sustainable Development priorities. As per the ILO’s Global Wage Report 2014-15, women’s average wages are between 4 and 36% less than the men’s average. The significance of gender-related issues in relation to employment and income is illustrated by the most current Pink Economic Survey of India

(2017–2018). This tendency was recently illustrated in the ILO's 2018 India Wage Report. These wage and earning disparities in the labour market essentially result in multifaceted poverty, which can be caused by a variety of factors like age, gender and caste. These factors also tend to limit these groups' access to basic social services and their ability to participate in the labour market (Majumder, 2007).

In India, as in any other nation, women's experiences in the workforce differ greatly from men's and it is far more diverse. This suggests that, in terms of the labour market, women are far more influenced by cultural norms and traditions, the nation's institutions of governance, etc. Women's economic participation is crucial to improving their standing in society (Biswas, 2018). The female workforce participation rate is 18.08% according to Census of India (2011) which is lower than the national average of 25.51%. Women's participation in formal manufacturing sector is almost negligible in West Bengal.

However, jute played a significant role in the Bengali economy during the reign of Mughal Emperor Akber. Jute was first cultivated in erstwhile Bengal's Khulna and 24 Parganas (Jahan, 2019). The success of trading raw jute led to an understanding of the need to trade manufactured jute goods for higher profit prospects. This desire led to the establishment of industries and jute processing mills. The first jute mill was built in Kolkata, India, in 1855 and then in 1900s, several other jute mills came up across south Bengal. The partition of India had a negative impact on the Indian jute sector. The best-quality jute stocks were still found in the southwest region of Bangladesh (formerly East Pakistan) during the 1947 split, whereas the jute mills that processed raw jute were in West Bengal, India; a demand-supply issue creeped in.

From 1965, the industry's output was impacted by the general recession in Indian industry as well as a decline in exports. The government-provided funds for modernization were either diverted to other uses or went unused because the machinery in many mills was severely worn out (Bagchi & Das, 2014).Nonetheless, many of the mills made significant profits by employing low-paid permanent employees and alongside that an increasing number of low-paid temporary workers were also recruited for the labour-intensive works. By continuing to take advantage of a situation in which a close-knit oligopoly faced several million small and marginal farmers who lacked the collective strength to oppose the manipulations of the mill-owners and traders who were closely associated with them (Bagchi & Das, 2014). Jute mill workers though a part of organized sector lacked proper job security.

For long women workers were excluded from the manufacturing sector and jute industry of West Bengal was not an exception. It can be argued that the way poor women's social identities are constituted has been significantly impacted by the resulting masculinization of organized labour.

The industry relied on both local labour and immigration from the Bengal areas prior to the 1880s. Women made up nearly a fifth of its workforce at this point. The percentage of

women and local Bengalis in the workforce decreased toward the end of the century as the workforce was growing quickly. Although the employment of women workers did not decrease in absolute terms, their share of the workforce decreased to around 12%. They were unable to hold onto their market share in the growing sector, but their share was relatively constant between 1900 and 1930 (Sen, 1997). Millowners had a policy of gradually lowering the number of women in their workforce starting in the 1930s and again starting in the 1950s. Women made up a pitiful 2% of the workforce by the 1970s. Thus, this tale of women's relative exclusion also reflects their increasing marginalization as a result of industrial growth (Sen, 1997). It is believed that the low percentage of women in the industrial workforce results from a culture of gender segregation and seclusion and that social sanctions against women engaging in visible productive labour were successful. The jute workers' collective political effort led to improvements in income and working conditions, but these same factors also made women's exclusion stricter.

As environmental concerns are growing daily, which increases consumer interest in sustainable and eco-friendly products. According to science, natural fibres are reusable, biodegradable and ultimately ecologically friendly. With the growing environmental concern, jute can contribute significantly to the economy given the global rise in demand for natural fibre products. So, the importance of jute and jute related products if marketed properly will become highly popular in near future. In this situation this study tends to identify women’s position in the jute mill industry, their political participation in the trade union politics and governments strategy for the workers to make the industry more equitable and productive.

Literature Review

Sen (1999), through an analysis of the Bengali jute industry, raises concerns over the poor participation of Indian women in contemporary industries. Although the colonial era is the paper's primary emphasis, several of the patterns that emerged during that time are demonstrated to be extremely robust or to have been strengthened during the post-independence era. It is suggested that the colonial state contributed to the establishment and maintenance of a specific compromise between patriarchal and capitalist forces, allowing women to continue working in domestic and non-capitalist sectors or at the bottom end of the wage labour market.

A comprehensive examination of the service sector's contribution to the recent economic growth of India was done by Singh (2006). It offers a summary of India's overall growth experience as well as a thorough analysis of the service sector's growth-promoting role. Drawing on econometric research, it examines the possibility of spillovers from IT, ITES, and other service sectors, such financial services, to the rest of the economy. This data suggests that deficiencies in important service sectors like energy and transportation may have limited the growth of India's manufacturing sector.

According to a study by Chakraborty & Chakraborty (2009) on certain block-level variables based on 2001 Census of India data, makes an attempt to understand participation of women in paid work and the related aspect of disparity in earnings of men and women. And it shows that that women were stuck with low-skill low-wage home-based work whereas men enjoyed better work opportunities. The earning differential between men and women can be thought of as the combined effect of differences in 'endowment', such as education and number of days of work they manage to get, and 'pure discrimination'. This leads to conclude that even in areas where home-based work is highly predominant and women's representation in this type of work is significantly higher than that of men, it cannot be said that men enjoy much better work opportunities. Both men and women seem to be engaged in types of work that are low-skill low earning type – no matter whether it is home-based or not.

The study by Thomas (2012) contends that several beneficial developments, particularly in rural India, contributed to the "jobless growth" that occurred in India in the second half of the 2000s. Employment growth decreased in the majority of the services sector's components, and manufacturing employment declined nationwide. Construction in rural areas accounted for the majority of the newly created jobs. Due to the gradual diversification of India's employment structure, a significant number of women have left the workforce. It is becoming more and more obvious that India's economy, which is driven by services, is having serious job issues. Only with a major resurgence in manufacturing growth, especially in rural areas, can the millions of impoverished Indians—especially women—achieve the objective of decent work and living.

Bag et al. (2016) pointed out that the jute industry has a special chance to enhance the social and economic circumstances of the participating states as well as the nation. Due to favourable topographical conditions, the jute industry is the favoured sector; thus, focus must now be directed on modernizing the jute industry in order to create a sustainable and effective jute manufacturing sector in the nation.

Alvi & Das (2016) stated that over the past 68 years, West Bengal and Bangladesh who share a common culture, history, and landscape have experienced significant political and economic development. Despite these similarities, the socioeconomic growth of the two regions differs greatly, as evidenced by the large gap in female labour force participation. Since the 1990s, Bangladesh's garment industry has grown rapidly, and more recently, community and health services have also contributed to the country's high rate of young women entering the workforce. However, West Bengal's LFPR (Labour Force Participation Ratio) for women is still pitifully, among the lowest in all of India's major states and the aim of the paper is to find out the causes behind that.

The essay by Kumar (2017) documented both the expansion of Indian jute products in the national and international market and discusses the general state of Indian jute industry in recent years based on secondary data sources.

Biswas (2018), investigated how female employees are getting marginalized since their involvement rates are significantly lower than those of their male colleagues. Rural women make up a far larger percentage of the workforce than urban women do. But when it comes to the job market, women in rural India are obviously at a disadvantage compared to their urban counterparts. The fact that most rural women work in low-paying agricultural jobs and have part-time jobs makes this clear. More than 35% of rural women had a casual job in 2011–12, compared to less than 15% of metropolitan women. This suggests that most rural women put in a lot of overtime under unfavourable circumstances.

Majumder & Rajarshi (2018) investigated about the significant pay gap between workers of different genders, industries and geographical areas. In addition to receiving far lower pay than their male counterparts, women workers also experience far greater inequality. Additionally, the data indicated a rather large gender wage disparity across a number of activity areas. Surprisingly, the fundamental reason for wage gap in India is the wide wage differences among the different labour categories. Furthermore, the analysis of the causes of the gender wage gap shows that discrimination against female employees in wage distribution accounts for the majority of the gender wage discrepancy.

Jahan (2019) aims to determine the environmental properties of jute. It was conducted to have an idea about the economic potential of jute in Bangladesh as well as the ways in which new uses and a variety of jute products can boost the country's economy. Based on the results of the interviews - social aspects were identified and the relationships between the social, environmental, and economic advantages were examined.

Padhi et al. (2019) using data from the NSS 50th (1993–1994), 61st (2004–2005), and 68th (2011–2012) Employment and Unemployment Surveys, this study aims to confirm the trend of the gender wage disparity in India's urban labour market. Over a two-decade period (1993–1994 to 2011–2012), the gender wage disparity in the metropolitan labour market is confirmed for regular and casual workers.

Rationale of the study

Jute mill workers in general and women workers in particular are facing several problems in West Bengal as well as Hooghly district, where most of the jute mills are concentrated. The general employment in this sector is largely controlled by “Sardari system” in which the local job providers, known as sardars, are the main avenues for recruitment in the jute mill industries. The term "budli system" describes a practice in Indian jute mills where a significant percentage of the workforce is employed as temporary, casual workers who are paid only when they work, which basically means "no work, no pay." This system is frequently used to adjust labour costs based on production needs and is regarded as an exploitative labour practice because it deprives workers of job security and benefits; the majority of "budli workers" are regarded as being a part of the jute industry's informal workforce. As most of the worker are classified either as “Budli” or “New entry” they lag

the basic job security. Because of illiteracy and poverty there is little scope for the women worker to be vocal about their demand and assurance of work, their shift as well. Under these circumstances, is it important to discuss about their situation and strategies to improve their state.

A geographical indication is a design or sign applied to any product that identifies its specific geographical origin and the distinguishing traits or reputation that result from that origin. Undivided Bengal has been famous for its "Golden Fiber "from time immemorial. Several types of jute products that came from Undivided Bengal are mentioned in the well-known 16th-century book Ain-i-Akbari (1590). According to science, natural fibers are reusable, biodegradable, and ultimately friendly to the environment. If Jute and jute product get GI tag then the demand of the jute made goods as well as the market value will increase. Which will be highly beneficial for the population dependent on the Jute industry as they are at present at the stage of vulnerability.

Objectives

- To find out the present socio-economic status of the women jute mill workers;
- To gauge how far the constitutional and legislative protection instruments are effective in safeguarding their interests; and
- To delineate the role and representation of women in trade union politics of jute mills.

Study Area

Hooghly Industrial Belt (also known as Kolkata Industrial Belt), a 100 km long stretch along the banks of Hooghly River, covering seven districts, is India's oldest industrial area and taking benefit of the locational advantage the area the very first jute mill of the country was established here and it is currently hosting about sixty jute mills. For this study, only Hooghly district has been considered where at present there are six operational jute mills (the number of operation mills varies with season and other factors) (Fig 1).

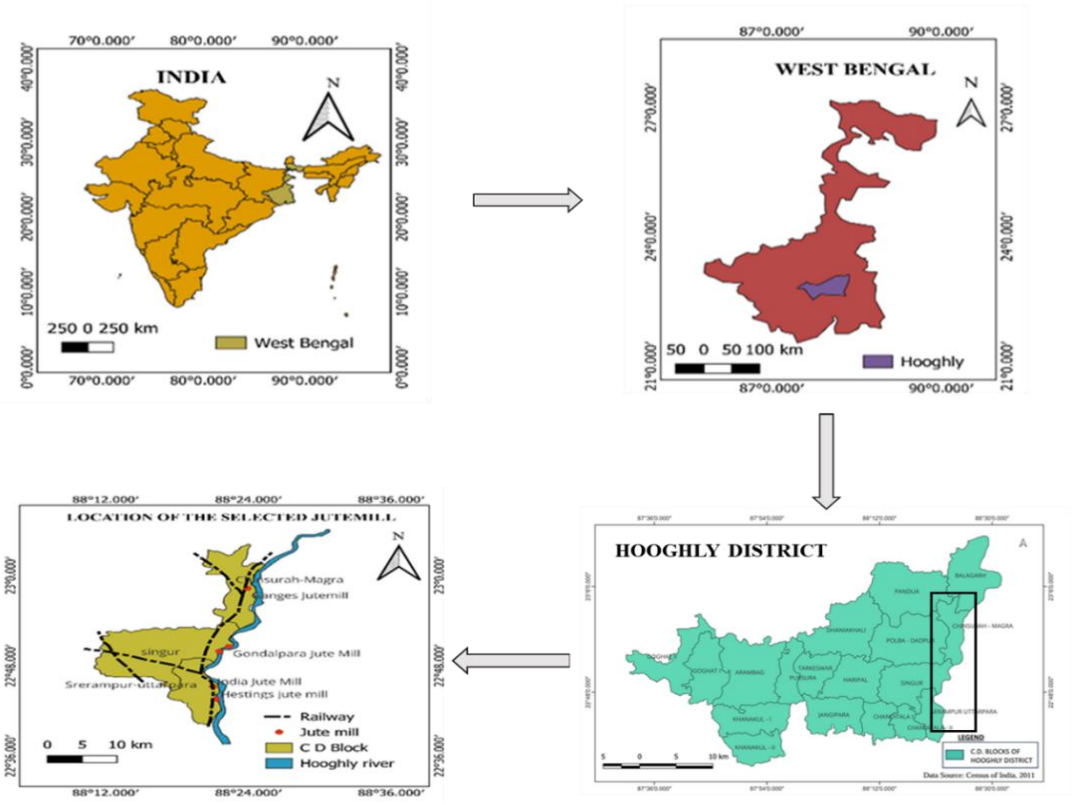

Fig 1: Introducing the study area

Materials and Methods

The paper is based on both primary and secondary data sources. A theoretical framework has been constructed highlighting research objectives and research design. This paper is based on literature review and is explanatory in nature. Secondary data has been derived from various reports from Jute Commissioner, Ministry of Agriculture & Farmers Welfare and Trade Union Offices, books and journals relevant to this sector. A questionnaire was prepared including socio economic condition, legislative protection, and to understand their role in trade union politics. Likert Scale and open-ended questions to ensure randomness and quantity of data. A survey was conducted involving 180 respondents across 6 jute mills of Hooghly district having women workers, to know about their first-hand experience about their situation. A structured interview has been conducted face to face apart from focus group discussion based on snowball sampling.

Statistical analysis has been done based on the framework designed and primary data generated with the help of SPSS V25. Socio economic data analysis using descriptive statistics, job satisfaction analysis, principal component analysis and case study methods has been used for the purpose of the study.

Backdrop

Jute, the golden fibre, has all the qualities to become a standard packaging material as it is natural, renewable, biodegradable and eco-friendly. There was a total of 94 composite jute mills in India, out of which the state of West Bengal had 70 jute mills **(**Ministry of Textiles, 2015). A more recent report documents the presence of 114 jute mills nationally, with West Bengal having 86 of them (Office of the Jute Commissioner, 2024).

Table 1: Major producers of jute fibre, 2016-17 to 2021-22 (in thousand tonnes)

Countries	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22*
Bangladesh	1549.0	1665.8	1543.7	1448.1	1677.2	1514.5
India	***1556.0***	***1268.0***	***1196.0***	***1124.0***	***980.0***	***1448.0***
Nepal	11.6	11.6	11.2	10.6	10.2	10.5
Myanmar	0.3	0.3	0.4	0.4	0.2	0.1
World	**3116.9**	**2935.7**	**2751.2**	**2583.1**	**2667.6**	**2973.1**

** Preliminary projected figure*

Source: Ministry of Agriculture & Farmers Welfare, 2023

From Table 1, it is evident that Bangladesh is the leading producer of raw jute over the years and India stands second. But the real concern is the gradual declining trend for India which might affect the supply of raw materials to the industrial units.

Table 2: Production scenario of raw jute, West Bengal, 2016-17 to 2022-23

Year	Area in ('000 hectare)	Production in ('000 bales)	Yield in (kg/hectare)
2016-2017	536.17	8349.59	2803
2017-2018	525.44	7637.85	2616
2018-2019	529.01	7770.23	2644
2019-2020	517.66	8067.38	2805
2020-2021	518.63	7592.76	2635
2021-2022	518.50	8353.60	2900
2022-2023	516.32	7747.03	2701

Source: Office of the Jute Commissioner, 2023

Table 2 reflects that area under jute production in West Bengal is slowly decreasing while the resultant raw jute production showed a fluctuating trend over the years in along with the

yield rate. As a result, the price of raw jute has also increased. Mill owners are now trying to cost cutting of their production, as a strategy they are now modernizing their mills with modern machines which needs less manpower than before. The primary survey revealed that the jute mills in West Bengal are employing workers termed as "New entry" who receives some benefits declared by the government like Minimum wages and Employees' State Insurance but there is no guarantee of work for them, keeping them at lurch.

Table 3: Overview of the workers from the surveyed mills, Hooghly, West Bengal

Name of the Jute Mill	Total Workers	Male Workers	Female Workers	Permanent Female Workers
Hastings Jute Mill, Rishra	3800	3648	152	30
Gondalpara Jute Mill, Chandernagore	2500	2400	100	20
Indian Jute Mill, Serampore	3200	3040	160	00
North Shaymnagar Jute Mill, Shyamnagar	2400	2300	100	15
Ganges Jute Mill, Bansberia	2200	2112	88	00

Source: Primary Survey, 2025

From the number of total workers (registered) it is clear that the mills have significant operational scale; the share of female workers is abysmally low with their representation hovering around 4-5% and if permanent female workforce is considered then it is almost conspicuously absent (less than 1%). Most of the women workers are not permanent, they work in the jute mill for not more than 5 years and termed as "new- entry" workers (Table 3).

Table 4: Outline of the benefits offered to the female jute mill workers from the surveyed mills, Hooghly, West Bengal

Name of the Jute Mill	Minimum Wage	Employees' State Insurance Benefit	Provident Fund	Gratuity	Quarter Facility	Maternity Benefit	Equal Remuneration Act	Financial Help at the Time of Lockout
Hastings Jute Mill, Rishra	Wages provided					Recently started		No lockout within last 3 years
Gondalpara Jute Mill, Chandernagore						Only to permanent women workers		No financial help provided

Indian Jute Mill, Serampore	as per the Tripartite Agreement dated 03.01.2024 [Minimum Rs. 485/-]	Provided to all workers	Provided to all workers	Only to permanent workers	Only to permanent workers	No information available	Both male and female workers get equal wages	No information available
North Shaymnagar Jute Mill, Shyamnagar						Only to permanent women workers		No information available
Ganges Jute Mill, Bansberia						All working women workers		No information available

Source: Primary Survey, 2025

After the tripartite agreement dated on 3rd January, 2024 it has been agreed by and among the parties that wages for all categories of workers in the jute mills in West Bengal will be resettled and minimum wages will be Rs. 485/-. Management agreed to pay one time ad-hoc payment of Rs. 130/- per month (for 208 hours of work) to all the workers. But the irony is that most of the time the factory does not provide work every day to the women workers because of which they are unable to reach the allotted working hours (Table 4).

Statutory leave is the type of leave to which employees are legally entitled. This crucial clause allows workers to take time off for legitimate reasons without having their pay withheld. In addition to improving motivation, statutory leave guarantees a positive work-life balance. In India, statutory leave is frequently offered in the form of earned leave, maternity leave, paternity leave, casual leave, sick leave, and festival holidays. various varieties of leaves may have various eligibility requirements. Pay varies as well; for some leaves, employees receive full pay, while for others, prorated wages are computed. In certain situations, proper documentation is necessary to take advantage of statutory leaves.

Authorized Leave is any leave of absence, whether paid or unpaid, that is granted in writing by the company and lasts more than four weeks while the Participant is still working for the Corporation as an employee or as a consultant. To calculate leaves Statutory leave and authorised leaves are taken into account while calculating 12 days attendance in a fortnight But in reality situation is different, most of the time workers specially women workers are not able to get all the aforesaid leaves by the factory.

Demographic and Socio-Economic Status of the Women Jute Mill Workers

To understand the position of women labourers in jute mill sector, it is imperative to know about the background of the workers; otherwise, one will fail to understand the compulsions for which they have to bear the unjust and unequal dealings of the owners. Interactions were done with 180 women jute mill workers and the factors taken into account are - age,

education, marital status, religion, caste, housing facility, income and nature of employment of female employees (Table 5).

Table 5: Frequency table showing demographic and economic variables involving the female jute mill workers from the surveyed mills, Hooghly, West Bengal

Age in years	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
≤ 30	11	6.1	6.1	6.1
31-40	71	39.4	39.4	45.6
41-50	65	36.1	36.1	81.7
51-60	33	18.3	18.3	100.0
Total	180	100.0	100	
Education Level	**Frequency**	**Percent**	**Valid percent**	**Cumulative percent**
Illiterate	111	61.7	61.7	61.7
Middle Education	63	35	35	96.7
Secondary-Higher Secondary Education	6	3.3	3.3	100
Total	180	100	100	
Marital Status	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Married	149	82.8	82.8	82.8
Unmarried	1	0.6	0.6	83.3
Widow	28	15.6	15.6	98.9
Separated	2	1.1	1.1	100
Total	180	100	100	
Religion	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Hindu	102	56.7	56.7	56.7
Muslim	78	43.3	43.3	100
Total	180	100	100	
Caste	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
General	76	42.2	42.2	42.2
SC	44	24.4	24.4	66.7
ST	2	1.1	1.1	67.8
OBC A	46	25.6	25.6	93.3
OBC B	12	6.7	6.7	100
Total	180	100	100	

Housing Facility	Frequency	Percent	Valid Percent	Cumulative Percent
Own House	71	39.4	39.4	39.4
Rented House	12	6.7	6.7	46.1
Quarters	97	53.9	53.9	100
Total	180	100	100	
Income (in Rupees)/Day	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
485-509	81	45.0	45.0	45.0
510-534	15	8.3	8.3	53.3
535-559	84	46.7	46.7	100
Total	180	100	100	
Nature of Employment	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Permanent	45	25	25	25
Budli	57	31.7	31.7	56.7
Others	78	43.3	43.3	100
Total	180	100	100	

Source: Primary Survey, 2025

The majority of female employees are in their thirties and forties, aged women employees have very low representation as jute mill work demands a lot of physical power, which becomes difficult with this age. 61.7% of women are illiterate while middle school education exposure if any is mostly up to class VIII, limiting their opportunity to be eligible for variety of works. The female workers are integrated into various manufacturing tasks in the mills that do not require a great deal of formal education and besides basic training facilities are also offered if required for some specific tasks in the mill. On the communal lines, both Hindu (57%) and Muslim (43%) female workers can be seen. Jute mill area is characterised by non-Bengali, migratory population on a large extent having a varied linguistic and caste profile - 42.2% of the female working population is from General category. More than half of the respondents (53.9%) stay in the mill quarters. In most of the cases, either their husband or any close family member was also a worker of the same jute mill; while rest stay at own or rented house with family close to the factory. 82.8 % of the women workers in the study area are married and about 15.6 % are widows and, in many cases, other members of their family are also engaged in mills.

Most of the women workers are entitled as new entry 45 % and their salary as fixed by the government at Rs. 485/- per day. Remaining respondents are either permanent and budli (casual), who get wages around Rs. 535-559/-. But there is a problem of uncertainty of work and irregularities of payments for both new entry and budli workers, making their situation

precarious. From the study it can say that there is not much variation in their income. For this, many jute mill workers are always in debt to meet their both ends.

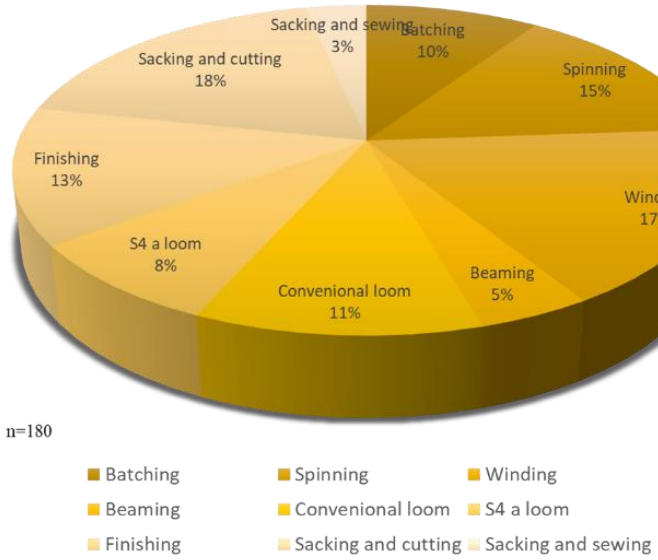

Fig 2: Job profile of female jute mill workers, from the surveyed mills, Hooghly, West Bengal Source: Primary Survey, 2025

Majority of the respondents are from winding, spinning and conventional loom department and they are either unskilled or semi-skilled. All the work done by women workers required huge amount of physical strength. No respondents are from maintenance and engineering departments as all these works required high amount of technical knowledge (Fig 2).

Table 6: Descriptive statistics regarding job satisfaction among female jute mill workers, from the surveyed mills, Hooghly, West Bengal

	N	Minimum	Maximum	Mean	Standard Deviation
Satisfaction with the amount of salary (JS1)	180	1	3	1.73	.615
Satisfaction with the amount of increment (JS2)	180	1	3	1.64	.650
Satisfaction with the amount of basic allowance (JS3)	180	1	4	1.98	.607
Satisfaction with the relation with employees (JS4)	180	2	5	4.07	.725

Satisfaction with the leadership and communication with supervisor (JS5)	180	1	3	2.16	.675
Satisfaction with the working condition (JS6)	180	1	4	1.78	.619
Satisfaction with the organization and division of labour (JS7)	180	1	5	3.03	.808
Satisfaction with the top management (JS8)	180	1	3	1.93	.682
Satisfaction with the working time (JS9)	180	1	4	2.81	.675
Satisfaction with the chance of promotion (JS10)	180	1	3	1.76	.648
Satisfaction with the better work productivity (JS11)	180	1	5	2.88	.861

Source: Based on Primary Survey, 2025

The five point Likert scale is considered an interval scale. The mean is very significant from 1 to 1.8 it means strongly disagree. From 1.81 to 2.60 it means disagree. From 2.61 to 3.40 it means neutral; from 3.41 to 4.20 it means agree; from 4.21 to 5 it means strongly agree.

The first parameter which is satisfaction regarding the wage amount mean value is 1.73 which means most of the workers are not satisfied with their wages.

The second parameter which is satisfaction with the amount of increment the mean value is 1.64 which means most of the workers are not satisfied with their basic increment.

The third parameter satisfaction with the amount of basic allowance, the mean value is 1.98 means they are not satisfied with their basic allowances.

Fourth parameter is satisfaction with the relation with employees shows a mean value of 4.07, which means they have good inter personal relationship with co-workers.

Fifth parameter is satisfaction with the leadership and communication with supervisor is 2.16, which means that they to some extent feel exploited by their supervisors.

Satisfaction with the working condition i.e. the sixth parameter has a value of 1.78, indicating that the jute mill workers have to function in a non-supportive working condition.

Next parameter is satisfaction with the organization and division of labour with a mean value of 3.03; the women mill workers show a neutral attitude because while they are happy with

the organizational structure they are discontented with the works allotted requiring high physical strength which is at times beyond their capacity.

Eighth parameter is the satisfaction with top management (mean value - 1.93); the respondents are not satisfied with their top management who do not pay heed to their demands.

Ninth parameter is satisfaction with working time (mean value of 2.81) - the allotted work time is 8 hours but often due to the work load there is an overshoot. Some mill women also complained that they do not have the time to grab their lunch or to go to washroom.

Tenth parameter about satisfaction with the chance of promotion has a mean of 1.76 as there is almost no chance of promotion.

Final and eleventh parameter is regarding satisfaction with the better work productivity which has a mean value of 2.88 indicating that the respondents are not satisfied with the work productivity and believe better working environment will ensure greater productivity.

Table 7a: KMO and Bartlett's Test for Principal Component Analysis of job satisfaction of the female jute mill workers from the surveyed mills, Hooghly, West Bengal

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.587
Bartlett's Test of Sphericity	Approx. Chi-Square	198.229
	df	55
	Sig.	.000

Source: Based on Primary Survey, 2025

This measure of KMO value varies between 0 and 1, and values closer to 1 are better. The value 0.5 is minimum. These Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity provide a minimum standard which should be passed before a principal components analysis (or a factor analysis) should be conducted (Table 7a).

Table 7b: Correlation Matrix for Principal Component Analysis of job satisfaction of the female jute mill workers from the surveyed mills, Hooghly, West Bengal

	JS1	JS2	JS3	JS4	JS5	JS6	JS7	JS8	JS9	JS10	JS11
JS1	1.000	.382	0.343	0.157	0.223	.035	-.041	.196	-.044	-.028	-.018
JS2	.382	1.000	0.348	0.091	.141	.124	.009	.172	.239	.081	.134
JS3	.343	.348	1.000	0.067	.118	.061	-.124	.185	.017	-.099	-.037
JS4	.157	.091	0.067	1.000	.160	.060	-.051	.112	.028	-.152	-.112
JS5	.224	.141	0.117	0.160	1.000	.081	-.080	.532	-.009	.049	.079
JS6	.035	.124	0.061	0.060	.081	1.000	-.021	.045	-.058	.062	.005
JS7	-.041	.009	-0.124	-0.051	-.080	-.021	1.000	.034	.071	.130	.149
JS8	.196	.172	0.185	0.112	.532	.045	.034	1.000	.070	.026	-.023
JS9	-.044	.239	0.017	0.028	-.009	-.058	.071	.070	1.000	.022	.116
JS10	-.028	.081	-0.099	-0.152	.049	.062	.130	.026	.022	1.000	.139
JS11	-.018	.134	-0.037	-0.112	.079	.005	.149	-.023	.116	.139	1.000

Source: Based on Primary Survey, 2025

Table 7b, gives the correlations between the original variables Before conducting a principal components analysis, you want to check the correlations between the variables.

Table 7c: Communalities for Principal Component Analysis of job satisfaction of the female jute mill workers from the surveyed mills, Hooghly, West Bengal

	Initial	Extraction
Satisfaction with the amount of salary (JS1)	1.000	.523
Satisfaction with the amount of increment (JS2)	1.000	.703
Satisfaction with the amount of basic allowance (JS3)	1.000	.569
Satisfaction with the relation with employees (JS4)	1.000	.342
Satisfaction with the leadership and communication with supervisor (JS5)	1.000	.758
Satisfaction with the working condition (JS6)	1.000	.412

Satisfaction with the organization and division of labour (JS7)	1.000	.324
Satisfaction with the top management (JS8)	1.000	.716
Satisfaction with the working time (JS9)	1.000	.634
Satisfaction with the chance of promotion (JS10)	1.000	.534
Satisfaction with the better work productivity (JS11)	1.000	.418

Source: Based on Primary Survey, 2025

The values in this Table 7c indicate the proportion of each variable's variance that can be explained by the principal components. Variables with high values are well represented in the common factor space, while variables with low values are not well represented. JS2, JS5, JS8 and Js9 are well represented in the common factor space.

Table 7d: Total variance explained for Principal Component Analysis of job satisfaction of the female jute mill workers from the surveyed mills, Hooghly, West Bengal

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.164	19.676	19.676	2.164	19.676	19.676	1.776	16.148	16.148
2	1.459	13.267	32.943	1.459	13.267	32.943	1.600	14.544	30.692
3	1.227	11.156	44.099	1.227	11.156	44.099	1.445	13.139	43.832
4	1.083	9.841	53.940	1.083	9.841	53.940	1.112	10.109	53.940
5	.982	8.930	62.870						
6	.917	8.338	71.208						
7	.847	7.701	78.910						
8	.798	7.251	86.161						
9	.615	5.588	91.749						
10	.492	4.470	96.219						
11	.416	3.781	100.000						
Extraction Method: Principal Component Analysis.									

Source: Based on Primary Survey, 2025

In Table 7d, the cumulative % column contains the cumulative percentage of variance accounted for by the current and all preceding principal components. The fourth row shows a value of 53.940. This means that the first four components together account for 53.940% of the total variance.

Table 7e: Component Matrix for Principal Component Analysis of job satisfaction of the female jute mill workers from the surveyed mills, Hooghly, West Bengal

	Component			
	1	2	3	4
JS1 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	0.660	-0.094	-0.236	0.151
JS2 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	0.641	0.290	-0.453	0.056
JS8 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	0.628	0.073	0.530	-0.188
j5 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	0.620	0.043	0.605	-0.073
JS3 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	0.593	-0.165	-0.408	0.154
JS11 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	0.041	0.644	-0.044	0.006
JS10 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	-0.020	0.585	0.196	0.391
JS7 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	-0.112	0.533	0.078	-0.146
JS4 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	0.336	-0.348	0.073	-0.321
JS6 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	0.198	0.027	0.072	0.606
JS9 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree)	0.143	0.411	-0.310	-0.590

Extraction Method: Principal Component Analysis a.4 components extracted

Source: Based on Primary Survey, 2025

From the component matrix (Table 7e), it can be interpreted that Satisfaction with the amount of salary (JS1), Satisfaction with the amount of increment (JS2), Satisfaction with the top management (JS8), and Satisfaction with the leadership and communication with supervisor (JS5) are the main controlling pointers.

Provisions Safeguarding the Women Workers

Constitutional and legislative protection acts are used to safeguard citizens' rights and guarantee that the government operates 7in conformity with the Constitution. The major provisions available for women factory workers in India are -

a) The Factories Act, 1948

b) Minimum Wages Act, 1948

c) The Maternity Benefit Act, 1961

d) The Equal Remuneration Act, 1976

e) The Prohibition of Sexual Harassment of Women at Workplace Act, 2013

Although there are several programs to protect female employees, the actual situation differs from mill to mill. Every mill that was questioned claimed that all of its female employees are covered by the Provident Fund Program, Employees' State Insurance benefits and gratuities. 71.1% of respondents informed that they have not received benefits at the time of maternity leave, while 28.9% said they are covered under the Maternity Benefit Act and received three months' salary during that time. Additionally, they claim that some women workers quit their jobs during pregnancy due to the extreme pressure of their jobs and involvement of heavy manual labour. Another characteristic noted during the study is that the company currently hires women over 40 years, which automatically lowers the likelihood of pregnancy and allows the mill to make better use of its personnel.

All of the females are protected by the mill's accidental coverage, although it typically takes several months to allocate funds and actually receive the money.
In addition to the aforementioned programs, jute mills offer scholarships to the children of mill workers – Rs. 5,000/- is awarded for passing the Class X and Rs. 8,000/- is awarded for passing the class XII examination as a token of support and encouragement.

Coming to the sensitive issue of workplace harassment; there has been an awkward silence from all the parties especially about sexual harassment. All the jute mill authorities vehemently denied about any sexual harassment and the respondents were also not very vocal and were completely ignorant about the role of Vishakha Commission or Act (1997). However, according to 51.1% of respondents, workplace harassment is common hinting at inequal measures meted out to them. For instance, women employees face significant pressure to perform more work than their male counterparts to prove their mettle.

The female employees engaged in the spinning and winding section are so busy that taking time off for personal reasons (like taking a little break, attending a phone call, using the rest room frequently) is not an option. If a little dereliction of their duty is noticed than they often lose their job or are badly reprimanded. There is no room for protest; if they form a unit and voice their concerns about their rights, they will be prohibited from working for several days, which poses a serious risk to daily wage workers.

Trade Union Politics and Women Workforce in Jute Mills

The narrative of women's continued subordination in labour unions is one that is frequently recounted. This is despite more than a century of union focus on the topic, growing concerns about the gender gap since the 1970s second wave of feminism, rising female employment rates and 21st century anxieties about union futures in the face of a consistent drop in membership and power. It tells the tale of calls for inclusive gender and, more lately, diversity politics versus exclusionary masculinized unionism.

The fast feminization of labour markets and unions almost everywhere creates a challenge for these new, younger, female and varied members on their own terms, as well as for inclusion, or membership. Unions to remain relevant needs to include the new workforces with a vastly diverse range of cultures, ethnicities, sexual orientations, and migrant workers, many of whom are women. Previously, unions primarily represented the exclusive elite of the "pale (white), male, and stale (older men)," who still hold leadership positions in unions (Ledwith, 2012).

Jute mill in West Bengal has been the historical epicentre of all trade union as well as political activities. At present there are 26 trade unions (representing various political ideologies) in jute mills of West Bengal. Study shows that all the surveyed jute mills have the presence of trade union. All the jute mills officially have women’s wings to deal with issues related to the problems faces by women in their work place. However, out of the total respondents only 21.7% women confided in having a trade union membership.

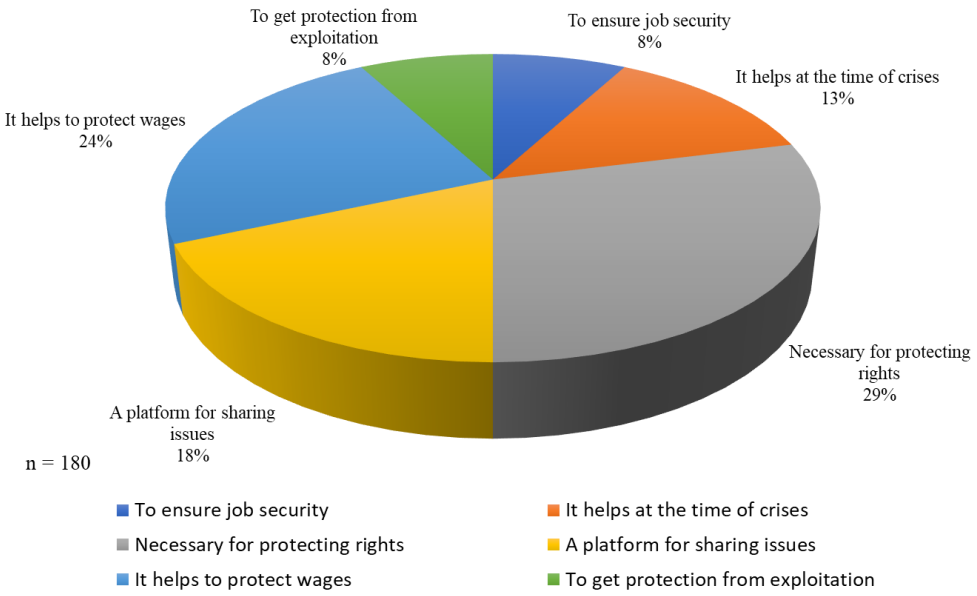

Fig 3: Varied reasons put forward by of female jute mill workers, from the surveyed mills, Hooghly, West Bengal to join trade union platform Source: Primary Survey, 2025

As stated by the majority of the respondents, membership in a trade union is important for protecting rights. This is because it provides them with a unique platform to express their concerns and demands (Fig 3). The respondent from the Ganges Jute Mill stated that all the women workers have party membership, as through the trade union channels they get their jobs in the jute mill and the union leaders also helps them to achieve their different demands related to leaves, due payment, and different other facilities.

Glaring 78.3% of respondents do not have membership in a trade union and stated that after completing all household work and catering to the heavy workload in the factory, they do not have much time to take part in politics and thus they refrain from it; during the time of agitation or other movement if called they do stand by the union. Many respondents also stated that they have the fear of losing their job, as association with different trade unions, basically with the left-wing trade unions, is not liked by the top management, so they do not take official membership in any trade union. But when strikes are announced by the trade union, all of them take part in the strike. The majority express that trade unions are the successful agency to solve labour issues to a great extent.

So, not only female membership is abysmally low in trade unions of jute mills, there are hardly any women at the top rung of the factory leadership creating the entire worker-political environment highly masculine. Probably lack of education, awareness and free time at hand are the factors which keep women away from

politics who view it as an additional burden and not as an instrument to channelise their voice and demands directly.

Conclusion

The jute industry in India faces many challenges, including declining demand, low production, and environmental concerns but at the same time one cannot deny that it has both economic and environmental potential too. Jute is a bio-degradable, carbon-neutral agro-product which typically grows well in the Indian subcontinent. If the Geographical Indicator (GI) tag can be implemented for this product in West Bengal where both raw jute production as well as manufacturing units are conspicuously present then it will help in providing legal protection to products originating from a specific geographical location, ensuring receipt of authentic goods to the consumers with distinct qualities linked to their origin, while also safeguarding producers from imitation and promoting their economic prosperity by enhancing market value and demand for the products. Highlighting the negatives of synthetic packaging materials and promoting jute goods through National Jute Board (NJB) activities can open up the present market where again factory productions will become viable and lucrative. While catering to the high market demand the factories will address the issues of obsolete machinery, low productivity and in turn the labour issues frequent strikes, lockouts, and disputes will also come down with regular work and justified wages.

If the general situation is taken care of then the problems specific to women labour regarding working conditions, service regularities, trade union activism that have come up through this study, will automatically be addressed.

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Traditional Knowledge in North East India: Protection, Challenges, and Sustainable Development

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Abstract: *Traditional Knowledge (TK) is the foundation of indigenous identity, sustainable development, and environmental conservation. In North East India, where diverse ethnic groups have safeguarded TK for generations, it remains a vital resource for food security, healthcare, and ecological sustainability. However, TK faces increasing threats from biopiracy, cultural appropriation, and inadequate legal frameworks.*

This paper provides an extensive analysis of TK in North East India, exploring its significance in agriculture, medicine, textiles, and biodiversity conservation. It delves into contemporary legal and ethical challenges, including intellectual property rights (IPR) violations, lack of benefit-sharing, and conflicts over ownership. The study also evaluates the role of international frameworks such as the Convention on Biological Diversity (CBD), Nagoya Protocol, and Indigenous Rights Declarations in shaping protective mechanisms for TK.

The paper proposes a multi-layered approach to TK protection—combining community-led documentation, technology-driven preservation, stronger legislative measures, and participatory governance. It calls for the adoption of a sui generis legal system tailored to indigenous knowledge systems and proposes policy frameworks that integrate TK into national and international development strategies.

Keywords: *Traditional Knowledge, Intellectual Property, Biopiracy, North East India, Sustainable Development, Indigenous Rights, Policy Frameworks.*

1. Introduction:

Traditional Knowledge (TK) is an essential pillar of indigenous cultural identity and plays a crucial role in shaping environmental sustainability, healthcare practices, and agricultural innovations. Rooted in centuries of observation, experimentation, and adaptation, TK has been passed down orally and practically across generations, forming a collective intellectual heritage. Unlike modern scientific knowledge, which is often codified and patented, TK remains deeply embedded within community practices, rituals, and social structures (WIPO, 2017). However, despite its significant contributions to biodiversity conservation, climate resilience, and rural livelihoods, TK has historically been overlooked in formal legal and intellectual property frameworks.

In North East India, where over 200 ethnic groups coexist, TK is an indispensable part of daily life. Indigenous communities in the region have developed unique methods of sustainable farming, traditional medicine, and natural resource management. Practices such

as jhum (shifting cultivation), herbal remedies, and sacred forest conservation reflect an intimate understanding of the region's biodiversity (Bidyalakshmi et al., 2023). These knowledge systems not only support local economies but also offer solutions to contemporary global challenges, including climate change and sustainable development. Yet, with globalization and rapid commercialization, TK has increasingly come under threat. The rise of biopiracy, corporate exploitation, and cultural appropriation has left many indigenous groups vulnerable to the loss of their intellectual and economic rights.

The lack of clear legal protections has further exacerbated these challenges. Intellectual property laws, which are primarily designed to protect individual inventors and corporations, often fail to accommodate community-based knowledge systems. This has led to numerous instances of TK being patented by multinational corporations without the consent or benefit-sharing arrangements for indigenous groups (Roy, 2006). Addressing these concerns requires an inclusive approach that balances TK protection with its ethical and sustainable utilization. A robust legal framework, combined with community-driven documentation and policy reforms, is essential for preserving North East India's rich traditional knowledge and ensuring that its rightful custodians benefit from its application.

2. Traditional Knowledge and Sustainable Development:

Traditional Knowledge (TK) is deeply interwoven with the principles of sustainability, particularly in regions like North East India, where indigenous communities have long practiced methods of environmental conservation and resource management. These communities rely on a holistic understanding of nature, developed through centuries of interaction with their ecosystems. Their knowledge extends beyond mere survival; it ensures that resources are used responsibly to support future generations. TK plays an essential role in achieving sustainable development by offering eco-friendly solutions in agriculture, medicine, and biodiversity conservation.

In agriculture, traditional farming techniques have helped maintain soil fertility, reduce dependence on chemical fertilizers, and promote biodiversity (Singh & Singh, 2017). Systems such as Zabo farming in Nagaland integrate water harvesting, livestock rearing, and organic farming to create self-sustaining agricultural models (Modak et al., 2024). Similarly, jhum cultivation, though often criticized for deforestation, follows a cyclical pattern that allows forest regeneration when practiced within traditional guidelines (Kurien, 2022). Farmers also cultivate indigenous crop varieties that are naturally resistant to pests and harsh weather conditions, ensuring food security even in unpredictable climates.

The knowledge of medicinal plants and natural healing has been another significant contribution of TK to sustainable development. Indigenous communities have developed complex herbal formulations for treating ailments ranging from common infections to

chronic diseases (Pan et al., 2014). Many of these remedies, derived from plant-based ingredients, have found scientific validation and continue to inspire modern pharmaceuticals. However, commercialization without proper safeguards often leads to biopiracy, where corporations exploit indigenous remedies without acknowledging or compensating the original custodians.

The conservation of forests and water bodies through TK has played a crucial role in maintaining ecological balance in North East India. Sacred forests, such as Mawphlang Sacred Grove in Meghalaya, are protected through indigenous belief systems that restrict human intervention, preserving biodiversity (Choudhury,2007). These traditional conservation practices align with global efforts to combat climate change and protect endangered species. However, the lack of formal recognition of these knowledge systems has left them vulnerable to external pressures such as industrialization and deforestation.

Despite its immense potential, TK remains undervalued in mainstream development policies. Sustainable development strategies need to integrate indigenous knowledge with scientific advancements to create more effective environmental and social policies. Governments and research institutions must collaborate with indigenous communities to document and protect TK while ensuring that local populations benefit from its application. By recognizing TK as a fundamental asset, policymakers can design more inclusive development models that respect cultural heritage while promoting economic growth and ecological sustainability.

3. Biopiracy and Intellectual Property Challenges:

The increasing commercialization of biological resources has led to widespread biopiracy, particularly in regions rich in biodiversity and traditional knowledge. North East India, with its wealth of medicinal plants, unique agricultural practices, and ethnobotanical traditions, has been a prime target for corporations and research institutions seeking to exploit indigenous knowledge for profit. The absence of clear legal frameworks has made it easier for external entities to patent formulations and processes that have been known to indigenous communities for centuries, leading to intellectual property conflicts and economic injustice.

One of the most well-known cases of biopiracy is the turmeric patent controversy, in which a U.S. university attempted to claim exclusive rights over turmeric's wound-healing properties. India successfully challenged this patent by providing documented evidence that turmeric had been used in traditional medicine for generations. Similarly, the neem patent case highlighted how multinational corporations sought to monopolize the medicinal properties of neem, despite its long-standing use in Indian agriculture and healthcare. These cases underscore the need for stronger legal protections against biopiracy, particularly for

communities in North East India whose knowledge remains largely undocumented and vulnerable to exploitation.

Intellectual property laws have traditionally been designed for innovations that are novel and attributable to individual inventors or corporations. This framework often fails to recognize TK, which is collectively developed, orally transmitted, and deeply embedded in cultural practices. Because TK is generally considered "prior art" under patent laws, it is often deemed ineligible for patent protection. However, this does not prevent corporations from isolating active compounds from traditional medicinal plants and patenting them as new inventions, effectively bypassing the community's rights.

Legal mechanisms such as the Traditional Knowledge Digital Library (TKDL) have been established in India to prevent the unauthorized patenting of indigenous knowledge. This database documents thousands of formulations from Ayurveda, Unani, and Siddha systems of medicine, making it accessible to patent offices worldwide to prevent fraudulent claims (Ansari, 2020). However, TKDL primarily covers documented knowledge, leaving a vast amount of orally transmitted TK at risk. For North East India, where much of TK exists only in oral traditions, a more comprehensive strategy is required, including community-led documentation and legal frameworks that recognize collective ownership.

International agreements such as the Convention on Biological Diversity (CBD) and the Nagoya Protocol emphasize fair and equitable benefit-sharing when TK is used for commercial purposes. However, enforcement remains weak, and many indigenous communities lack the resources to engage in legal battles against powerful corporations. There is a pressing need for local, national, and international policies that empower indigenous groups, safeguard their knowledge, and ensure they receive fair compensation when their TK is utilized for commercial or scientific advancements.

4. Comparative Legal Frameworks for TK Protection:

The legal protection of Traditional Knowledge varies widely across countries, with some nations adopting strong legislative measures while others continue to struggle with enforcement. Globally, legal frameworks have evolved to acknowledge the unique nature of TK, but significant gaps remain in ensuring fair benefit-sharing and protecting indigenous rights. A comparative analysis of legal frameworks can provide valuable insights into how India, particularly North East India, can strengthen its own policies.

In Peru, the Indigenous Knowledge Law of 2002 introduced an innovative approach to TK protection by requiring prior informed consent before any commercial use of indigenous knowledge. This law ensures that indigenous groups have a say in how their TK is used and mandates benefit-sharing agreements (Ruiz et al., 2004). Similarly, Panama has implemented an Indigenous IP Rights Law that grants community ownership over traditional

creations, including medicinal knowledge, textiles, and artistic expressions. These models demonstrate how legal systems can be tailored to recognize collective intellectual property rights rather than applying conventional patent laws that favour individual ownership.

In contrast, India has relied on a combination of the Biodiversity Act of 2002, the Geographical Indications (GI) Act of 1999, and the Traditional Knowledge Digital Library (TKDL) to protect TK. The Biodiversity Act aims to regulate access to biological resources and associated knowledge, ensuring that benefits are shared with local communities. The GI Act provides recognition to region-specific TK-based products such as Assam's Muga silk and Naga chili, protecting them from unauthorized commercial exploitation. However, these measures are often limited in scope and enforcement. Unlike Peru and Panama, India has yet to implement a comprehensive sui generis law that grants TK holders exclusive rights over their knowledge.

Internationally, the Convention on Biological Diversity (CBD) and the Nagoya Protocol set guidelines for the fair and equitable sharing of benefits derived from TK. These agreements recognize the sovereignty of nations over their biological resources and stress the importance of community consent. However, many developed nations continue to resist binding legal frameworks, leading to ongoing disputes over TK commercialization. North East India, with its rich biodiversity and deep-rooted traditional knowledge, requires a more robust legal framework that aligns with global best practices while addressing local challenges.

For an effective legal system, India must strengthen its domestic policies by incorporating elements of international best practices. Establishing Indigenous Intellectual Property Rights (IIPR) similar to Panama's model, creating a stronger mechanism for prior informed consent, and ensuring equitable benefit-sharing agreements should be key priorities. Additionally, digital documentation efforts must be expanded to cover oral traditions, preventing further biopiracy and ensuring that indigenous communities retain control over their knowledge systems.

5. Role of Technology in TK Preservation:

The integration of technology into the documentation and protection of TK has the potential to transform how indigenous knowledge is preserved and utilized. Digital databases, artificial intelligence, and blockchain technology are emerging as powerful tools that can safeguard TK while ensuring fair benefit-sharing.

One of the most effective initiatives in India has been the Traditional Knowledge Digital Library (TKDL), which serves as a repository of documented TK, making it accessible to global patent offices. However, TKDL primarily focuses on Ayurveda, Unani, and Siddha medicine, leaving a vast portion of North East India's orally transmitted knowledge undocumented (Ansari, 2020). Expanding TKDL to include indigenous farming techniques,

textile production, and ethnobotanical practices from the region is essential for preventing unauthorized commercialization.

New technologies such as blockchain can offer decentralized, tamper-proof records of TK ownership, ensuring that any commercial use is traceable and legally accountable. AI-powered databases can help in identifying and validating TK applications, bridging the gap between traditional practices and modern scientific research. By integrating these technologies, policymakers can create more transparent and enforceable legal mechanisms that recognize and protect the intellectual heritage of indigenous communities.

6. Policy Recommendations:

To effectively protect Traditional Knowledge (TK) in North East India, a multi-faceted approach integrating legal, technological, and community-driven strategies is essential. A sustainable framework must recognize collective ownership, ensure fair benefit-sharing, and prevent biopiracy while promoting economic sustainability.

Legal reforms should strengthen community rights over TK by expanding the Biodiversity Act, 2002, and Geographical Indications (GI) Act, 1999, to explicitly protect oral and undocumented knowledge. India should introduce a Sui Generis Traditional Knowledge Protection Law, modelled on Peru and Panama's frameworks, ensuring TK is treated as community-owned intellectual property rather than mere prior art. Prior informed consent (PIC) and mutually agreed terms (MAT) must be mandated for any commercial use of TK.

Community-led documentation initiatives must be reinforced. The Traditional Knowledge Digital Library (TKDL) should include North East India's agricultural, textile, and medicinal knowledge. Biocultural protocols should allow indigenous groups to control how their knowledge is accessed while protecting sacred TK from exploitation.

Technology-driven protection mechanisms like blockchain-based registries can ensure secure documentation and traceability in benefit-sharing. AI-powered databases can help catalogue and validate TK-based innovations, fostering ethical research collaborations.

Financial incentives must support TK-based industries, including medicinal plant cultivation, organic farming, handicrafts, and eco-tourism. Governments should provide grants, subsidies, and training programs while enforcing fair compensation agreements in industries utilizing TK.

Education and awareness initiatives should integrate TK into school and university curricula to foster appreciation for indigenous knowledge. Legal literacy programs can empower communities to safeguard their TK rights.

Finally, international collaborations with WIPO, CBD, and the Nagoya Protocol should strengthen global protections against TK misappropriation. A comprehensive, inclusive policy that leverages legal, technological, and economic tools is key to preserving and protecting North East India's TK for future generations.

Conclusion:

Traditional Knowledge (TK) is more than an intellectual asset; it is a dynamic system of wisdom that sustains indigenous cultures, ecosystems, and economies. In North East India, TK has long influenced agriculture, medicine, textiles, and environmental conservation. However, globalization, commercialization, and weak legal recognition have made it increasingly vulnerable to biopiracy and unfair intellectual property practices. While India has introduced legal and digital measures to protect TK, gaps in legislation, enforcement, and benefit-sharing persist, leaving indigenous communities at risk of exploitation.

Addressing these challenges requires comprehensive legal reforms, technology-driven documentation, and community-led governance. Strengthening IPR laws, expanding the TKDL, and utilizing blockchain for secure documentation can help safeguard indigenous knowledge. Financial incentives, education, and global collaborations must reinforce these efforts to ensure TK holders retain control over their innovations and receive fair benefits.

Despite these strategies, limitations remain. Weak enforcement, legal illiteracy among indigenous groups, and the sacred nature of some TK complicate protection efforts. Striking a balance between commercialization and preservation is difficult, as excessive regulation may hinder innovation. Additionally, global patent laws favour corporate interests, making legal battles costly and complex for indigenous groups.

Nevertheless, protecting TK is a cultural, ethical, and economic necessity. Integrating it into policy, research, and sustainable development will preserve its legacy and enhance its contribution to global innovation. By empowering indigenous communities and ensuring fair benefit-sharing, India can set an international benchmark for TK protection.

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SPICE ROUTE DIARIES: EXPLORING THE FLAVOURS AND TRADITIONS OF INDIA

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Indian cuisine is a rich tapestry woven together by centuries of history, culture, and diverse regional influences. At the heart of this culinary landscape is the profound significance of spices, which have shaped not only the flavour but also the identity of Indian food. The Indian spice trade, or the "Spice Route," has played a pivotal role in the development of Indian culinary traditions, bridging India with the world for millennia. This paper explores the origins, significance, and evolution of spices in Indian cuisine, examining their diverse regional uses, health benefits, and the global impact of Indian spices. With Geographical Indications identifying a product as originating from a specific geographical location helps to protect its tradition, enhance the reputation, meet specific quality standards and of course development.

India's culinary traditions are a testament to the country's rich cultural heritage and diversity. With over 1.3 billion people, India's food is as varied as its people, shaped by distinct geographical, historical, and cultural influences (Pidathala, 2017). One of the most defining features of Indian cuisine is the abundant use of spices, which not only contribute to the unique taste profiles but also serve medicinal and preservation purposes. The "Spice Route" is more than just a historical phenomenon; it is a way of life that permeates every aspect of Indian food, from the simple home kitchen to the grandest feasts. Spices are an ideal candidate for GIs due to their unique characteristics, which are often shaped by their geographical origin. Spices are also an important part of many cultures and traditions, making GIs an effective way to protect and promote their cultural heritage.

This paper explores the historical and cultural significance of spices in Indian cuisine, the origins of the Spice Route, and the journey of Indian spices through time giving importance to GI. It delves into how spices have shaped culinary traditions across India's diverse regions and the role they play in the health and nutrition of Indian society.

Historical Significance of the Spice Route

The Spice Route, also known as the Maritime Silk Road, was not merely a trade route for goods but also a conduit for cultural exchange. Spices like pepper, cinnamon, cardamom, and cloves were once as valuable as gold. The trade of these precious commodities began as early as the 2nd century BCE, when Indian merchants began to export spices across the Arabian Sea to the Mediterranean, Southeast Asia, and beyond. India's role in the spice trade was integral, as it was home to some of the most sought-after spices in the ancient world (Achaya,1994).

The historical importance of the Spice Route cannot be overstated. It facilitated not just trade but also the blending of cultures, religions, and cuisines (Achaya,1994). The legacy of this exchange is evident in the wide array of spice-based dishes and cooking techniques that are now central to Indian culinary traditions.

History of food

The history of food is as old as human civilization itself, evolving alongside humanity's journey through time. It encompasses the origins, transformations, and innovations in how food is produced, prepared, consumed, and understood. From ancient hunter-gatherer societies to the rise of agriculture and the development of complex culinary traditions, the history of food is a fascinating reflection of human progress, culture, and the environment.

Prehistoric Era: The Beginnings of Food Consumption

In the earliest days of human existence, food acquisition was a matter of survival. Early humans were primarily hunter-gatherers, relying on wild plants, fruits, seeds, and animals for sustenance. Tools made from stone and bones were crafted to aid in hunting and food preparation. The discovery of fire played a pivotal role in transforming food consumption, allowing early humans to cook and thus make food more palatable, digestible, and safe (Collingham, 2012).

Cooking also offered health benefits by reducing the presence of harmful pathogens and making certain nutrients more bioavailable. The use of fire allowed for the development of rudimentary food preparation techniques, such as roasting and boiling, and eventually led to the invention of more complex cooking methods (Kiple, 2000).

Agricultural Revolution: The Shift to Farming (10,000 BCE - 3,000 BCE)

The transition from a nomadic, hunter-gatherer lifestyle to settled agricultural communities marked one of the most profound changes in food history. This period, known as the Agricultural Revolution, began around 10,000 BCE, as early humans started to cultivate crops such as wheat, barley, rice, and maize, and domesticate animals like cattle, sheep, and goats. This allowed for a more stable food supply and the rise of permanent settlements (Kiple, 2000).

Agriculture provided humans with surplus food, which led to the development of food storage techniques, trade, and the eventual specialization of labor (Standage, 2009). As people settled in one place, culinary traditions began to take shape, influenced by regional climate, soil conditions, and cultural preferences. The domestication of animals also led to the creation of dairy products and meat preservation methods, such as smoking, salting, and drying (Visser, 1986).

The Birth of Culinary Traditions: Ancient Civilizations

As civilizations developed in the ancient world, so did their culinary traditions. Mesopotamia, Egypt, India, China, and the Americas each developed unique methods of food production, preparation, and consumption that were deeply connected to their geography, climate, religion, and societal structures.

- **Ancient Egypt (circa 3000 BCE - 30 BCE):** Egyptians had a diverse diet, which included bread, beer, vegetables (like onions and garlic), fish, and meat from domesticated animals. They were also pioneers in food preservation, using drying and salting techniques, and relied heavily on the Nile River for irrigation and food production.
- **Ancient Greece and Rome (circa 800 BCE - 476 CE):** In the Mediterranean region, food was an important aspect of daily life and social gatherings. The Greeks and Romans were known for their use of olive oil, wine, grains, and legumes. They also had an early appreciation for the balance of flavours and the medicinal properties of food (Samat, 1987). The Romans, in particular, developed a complex system of food trade and distribution across their empire, bringing new ingredients and spices to Europe.
- **Ancient China (circa 2,000 BCE):** The Chinese developed an array of food preservation techniques, such as fermentation, drying, and pickling. Their cuisine included rice, noodles, soybeans, tea, and spices like ginger, garlic, and cinnamon. The concept of balance and harmony in cooking, represented by the five elements (wood, fire, earth, metal, and water), was central to Chinese culinary traditions.

The Middle Ages: Culinary Exploration and Spices (5th - 15th Century CE)

The Middle Ages saw significant advancements in food culture, particularly in Europe, the Middle East, and Asia. The expansion of trade routes and the establishment of empires facilitated the exchange of ingredients, spices, and cooking methods (Tannahill, 1973).

The use of spices, especially in Europe, became more widespread during this period. Spices like black pepper, cinnamon, cloves, and nutmeg, often brought from India and the Far East, were highly prized and used not just for flavouring but also for preserving food and for medicinal purposes. This era also saw the rise of large feasts and banquets, where the wealthy could display their culinary prowess and social status (Tannahil, 1973).

In the Islamic world, food became a means of showcasing generosity and hospitality, and new culinary techniques were introduced. The art of baking bread, creating intricate pastries, and preparing complex stews was refined, and many of these innovations spread to Europe and beyond (Visser, 1986).

Renaissance and Early Modern Period (15th - 18th Century)

The Renaissance era and the Age of Exploration led to a dramatic expansion of the global food network. The discovery of the Americas by European explorers in the late 15th century brought new foods to Europe, such as potatoes, tomatoes, maize, chocolate, and peppers. These ingredients would go on to become staples in European and global cuisines.

Similarly, the Columbian Exchange, the widespread transfer of plants, animals, culture, and technology between the Old World and the New World, introduced crops like sugar, tobacco, and coffee to Europe and Africa, profoundly changing diets and economies (Tannahill, 1973).

The rise of European colonial empires also facilitated the spread of culinary practices and ingredients across continents, as European settlers brought their cooking traditions to the Americas, Africa, and Asia. Spices continued to be highly valuable, and the quest for trade routes to secure them led to further exploration and the establishment of global trade networks (Smith, 2007; Kiple and Ornelas, 2000; Samat, 1987).

Industrial Revolution and Modern Food Production (18th - 20th Century)

The Industrial Revolution in the 18th and 19th centuries transformed food production and distribution. Advancements in agriculture, such as the development of new machinery, irrigation techniques, and crop rotation, led to increased food production. However, it was the rise of food processing technologies, such as canning, refrigeration, and mechanized milling, that revolutionized the way food was produced, preserved, and consumed.

This era also saw the development of global food markets, where food could be transported over long distances. The birth of mass-produced packaged foods, including canned goods, breakfast cereals, and processed meats, made food more accessible to the growing urban populations (Kurlansky, 2002; Standage, 2009).

The 20th century saw even more innovations in food production, including the development of fast food chains, frozen meals, and modern agricultural practices like the Green Revolution. However, this also led to challenges, such as the rise of processed foods, concerns about food quality, and the environmental impact of industrial agriculture (Standage,2009).

The Role of Spices in Indian Culinary Traditions

Spices in Indian cuisine serve a multitude of functions: they enhance flavour, color, texture, and aroma; they also have medicinal properties and are used for preservation. The diversity of spices used in Indian cooking is staggering, and their application varies widely across regions. While the northern regions favor dishes with rich gravies and bold spices like cumin, coriander, and garam masala, the southern regions tend to focus on lighter, tangier preparations that incorporate mustard seeds, curry leaves, and tamarind.

Key spices integral to Indian cuisine include:

- **Turmeric (Curcuma longa):** Known for its vibrant yellow color and anti-inflammatory properties, turmeric is a cornerstone of Indian cooking. It is used in everything from curries to rice dishes and even as a preservative in pickles.
- **Cumin (Cuminum cyminum):** A staple in both Indian and Middle Eastern cuisine, cumin adds a warm, earthy flavour to a variety of dishes and is used in both whole and ground forms.
- **Cardamom (Elettaria cardamomum):** A sweet and aromatic spice, cardamom is used in both savory dishes and sweets, notably in chai tea and in desserts like kheer (rice pudding).
- **Chili (Capsicum annuum):** While originally a New World crop, chilies quickly became central to Indian cuisine. They provide heat and depth to a variety of dishes, from spicy curries to pickles.
- **Mustard seeds (Brassica juncea):** Especially in the southern and eastern parts of India, mustard seeds are used for tempering, releasing a distinct nutty flavour when cooked in oil.

These spices are not only fundamental to the flavour profile of Indian dishes but also form an integral part of India's medicinal system, Ayurveda, where they are believed to have healing properties that balance the body's internal energies. Indian culinary traditions are as diverse as the country's cultural tapestry, with dietary habits varying significantly across regions, religions, and communities. Here are some key statistical insights into these traditions:

Vegetarianism in India

Approximately 39% of Indian adults are being identified as vegetarians. Religious Influence is also dominant in India like Jains are predominantly vegetarian, with 92% adhering to a meat-free diet again Hindus, 44% identified as vegetarians whereas Sikhs about 59% follow a vegetarian diet and Muslims and Christians show a lower prevalence, with 8% and 10% identifying as vegetarians, respectively (PEW Research Centre, 2021). Variation is prevalent on the basis of region like the Northern Regions show a higher rate of vegetarianism among Hindus, with 71% in the North and 61% in Central India whereas Southern and Eastern Regions have lower rates, with 30% in the South and 18% in the East (PEW Research Centre, 2021). Looking into the Non-Vegetarian Consumption approximately 70% of Indian men and 78% of Indian women consume non-vegetarian foods, including fish, chicken, or meat, on a weekly basis.

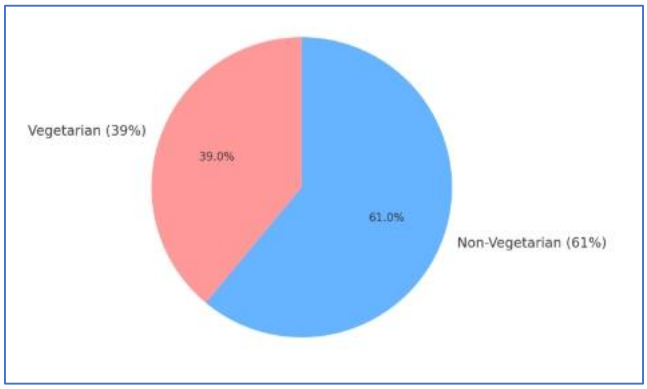

Fig I Vegetarian Vs Non-Vegetarian Population in India (Khatau, 2011)

Global influence has etched diversity in culinary. Indian cuisine ranks as the third most common restaurant type in major global cities, accounting for 8% of establishments, following Chinese (9.5%) and Italian (8.5%) cuisines (The Food Institute, 2023).

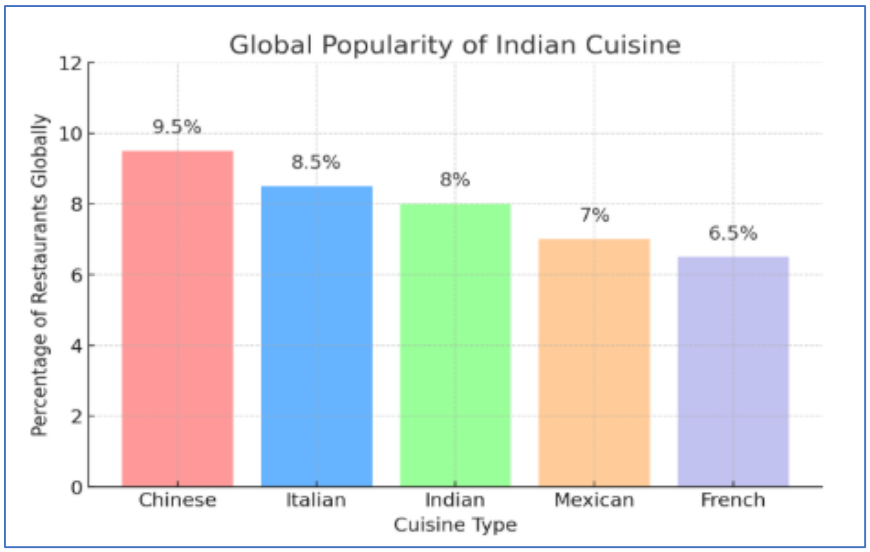

Fig II Popularity of Indian Cuisine (The Food Institute, 2023)

In India, fusion cuisine has gained popularity as chefs' experiment with traditional Indian flavours while incorporating global techniques and ingredients. The blending of elements from different culinary traditions to create innovative and unique dishes is what fusion cuisine deals with. A survey indicates that 78% of respondents prefer fusion dishes that incorporate Indian flavours, highlighting the global appreciation and adaptation of Indian

culinary elements (The Economic Times, 2024). This particular type appeals the younger generation who are experimental food lovers and bridges cultural food gaps, making global flavours more accessible. These statistics underscore the rich and varied nature of Indian culinary traditions, shaped by cultural, religious, and regional influences, and their significant impact on global food culture (Khatau, 2011; Bharadwaj, 2007).

Regional Variations in Indian Cuisine

The vast expanse of India, from the Himalayas in the north to the coastal regions in the south, has given rise to a wide range of culinary traditions, each with its own distinctive use of spices.

- **North India:** Characterized by rich, hearty dishes, the northern states often employ a heavy use of dairy products such as yogurt, ghee (clarified butter), and cream. Spices such as garam masala, cumin, coriander, and saffron feature prominently in dishes like butter chicken, naan, and biryani (Singh and Sharma, 2010).
- **South India:** The southern states of Tamil Nadu, Kerala, Karnataka, and Andhra Pradesh are known for their rice-based dishes, which often feature sour and tangy ingredients like tamarind and yogurt. Spices such as curry leaves, mustard seeds, and fenugreek are key in preparing curries, dosas (rice crepes), and sambars (lentil-based stews) (Pidathala, 2017).
- **West India:** Gujarat and Maharashtra are known for their use of jaggery (unrefined sugar) and a combination of sweet and spicy flavours. In Gujarat, the food is typically vegetarian and heavily spiced, with spices like cumin, coriander, and mustard being commonly used. Coastal regions such as Goa and Kerala, where fish and coconut are central to the diet, use spices like kokum, coconut, and tamarind to impart a distinct flavour.
- **East India:** Bengali cuisine, for example, is known for its use of mustard oil and mustard seeds, as well as a delicate balance of spices in dishes like fish curry and sweets like rasgulla. Similarly, Odisha and Assam incorporate spices like bay leaves, cumin, and green chilies into their culinary practices (Banerji, 2014).

Spices and Health: Ayurveda and Beyond

Indian culinary traditions are deeply intertwined with Ayurvedic principles. Ayurveda, the ancient Indian system of medicine, posits that food is not only a source of nourishment but also a means of maintaining balance within the body. Spices, which are abundant in Indian cooking, are often prescribed for their therapeutic effects. For instance:

- **Turmeric** is renowned for its anti-inflammatory and antioxidant properties.
- **Ginger** is used to aid digestion and soothe nausea.
- **Cumin** helps in improving digestion and alleviating bloating.

- **Fennel** is often consumed after meals to aid in digestion and freshen the breath.

These health benefits are deeply embedded in Indian culinary traditions, where food is seen as both a source of enjoyment and medicine (Bharadwaj, 2007).

Global Impact of Indian Spices

The Spice Route has played a crucial role in shaping global trade, and Indian spices continue to have a profound influence on global cuisine. From Thai to Middle Eastern to Caribbean cuisines, the legacy of Indian spices is felt worldwide. The introduction of spices like cardamom, cinnamon, and pepper into European and Arab kitchens revolutionized culinary traditions, influencing everything from sweet confections to savoury stews.

In recent years, there has been a growing global interest in the health benefits of Indian spices, especially turmeric, which has gained international acclaim for its potential to combat inflammation and chronic diseases. As the world continues to embrace the vibrant and diverse flavours of Indian cuisine, the influence of Indian spices on global culinary practices is likely to grow. Indian spices with GI tags are recognized and respected globally, facilitating international trade and commerce. The global popularity of Indian spices has facilitated cultural exchange and cooperation between India and other countries.

Contemporary Food Culture: Globalization and Sustainability (21st Century)

In the 21st century, food culture has become increasingly globalized. Migration, travel, and the rise of the internet have made culinary traditions from all corners of the world accessible to people everywhere. Global food chains and international cuisines now coexist side by side, allowing people to explore diverse flavours and cooking techniques from different cultures.

At the same time, there is a growing awareness of food sustainability and health concerns related to modern food production. Issues like food security, the environmental impact of industrial agriculture, and the ethical treatment of animals are at the forefront of food-related discussions today. This has sparked movements like farm-to-table dining, plant-based eating, and sustainable food practices. Kashmiri Saffron of India, which is GI-protected, promotes sustainable agriculture and supports local economies. Similarly, Parmigiano-Reggiano Cheese from Italy promotes traditional dairy farming practices and supports local economies and Japanese Wagyu Beef sustainable cattle farming practices and supports local economies.

People are also revisiting traditional diets and incorporating ancient food wisdom, such as Ayurvedic, Mediterranean, and Asian food philosophies, into modern culinary practices. This has led to an increased appreciation for locally sourced, organic, and seasonal ingredients.

Culinary styles

India's culinary traditions are as diverse as its people, geography, and history. The country is home to a wide range of culinary styles, each reflecting the unique cultural, climatic, and regional factors that shape them. These diverse cooking traditions combine a variety of spices, grains, cooking methods, and ingredients, which not only create distinct flavours but also express the rich cultural heritage of India (Abaza, 2002; Prakash, 2018). Below is an overview of some of the prominent culinary styles in India, categorized by regions and influences.

1. North Indian Cuisine

Key Characteristics:

- North Indian cuisine is known for its rich, hearty flavours, with a focus on robust spices, dairy, and wheat-based products.
- Commonly used ingredients include wheat (for bread like naan and roti), dairy products (like ghee, yogurt, and paneer), and a range of spices like cumin, coriander, garam masala, and cardamom.

Notable Dishes:

- **Kebabs (Lucknow, Delhi):** These are skewered meats, typically marinated in yogurt and spices, then grilled or roasted. Famous varieties include seekh kebabs and galouti kebabs.
- **Curries (Punjabi, Mughlai):** Rich gravies made with yogurt, tomatoes, and cream, often served with tandoori breads. Dishes like **Butter Chicken** and **Rogan Josh** are quintessential.
- **Biryani (Hyderabadi):** A spiced rice dish made with fragrant basmati rice, meat (usually chicken or mutton), and a blend of aromatic spices.
- **Aloo Gobi (Punjabi):** A classic curry of potatoes and cauliflower cooked with spices.

Influences:

- North India has been heavily influenced by Mughal and Persian culinary traditions. The use of dairy products and the art of slow cooking and grilling meat can be traced to these influences.

2. South Indian Cuisine

Key Characteristics:

- South Indian cuisine is often characterized by rice as a staple food and a lighter, tangier profile compared to the north. Coconut and tamarind are also prominent ingredients, as well as mustard seeds, curry leaves, and dry chilies.
- Rice is typically served with lentils and vegetables, and fermented foods like dosa (a type of rice pancake) and idli (steamed rice cakes) are common.

Notable Dishes:

- **Dosa (Tamil Nadu, Karnataka):** A thin, crispy pancake made from fermented rice and lentil batter, often served with chutneys and sambar (a spiced lentil soup).
- **Sambar (Tamil Nadu, Kerala):** A spicy, tangy soup made with lentils, tamarind, and vegetables, usually served with rice or dosa.
- **Chettinad Cuisine (Tamil Nadu):** Known for its bold, aromatic flavours, Chettinad dishes often incorporate freshly ground masalas (spices) and include spicy curries and seafood preparations.
- **Hyderabadi Biryani (Telangana):** A variant of biryani, known for its intricate blend of spices and fragrant rice, often made with mutton or chicken.

Influences:

- South Indian food has a deep connection to the region's agriculture and climate. The use of rice, coconut, and curry leaves reflects the region's tropical environment. The influence of Portuguese (in Kerala) and Dutch colonialism can also be seen in the use of spices and methods like pickling.

3. West Indian Cuisine

Key Characteristics:

- West Indian cuisine is marked by a fusion of traditional Indian flavours with the influence of trade and colonialism. It has a diverse range of cooking styles due to the variety of states in the region.
- The region also relies heavily on grains, beans, seafood, and sweet-sour flavour profiles.

Notable Dishes:

- **Pav Bhaji (Maharashtra):** A street food consisting of spicy mashed vegetables served with buttered bread rolls (pav).

- **Dhokla (Gujarat):** A steamed savory cake made from fermented rice and chickpea flour, often served with chutney.
- **Goan Cuisine (Goa):** Known for its use of seafood, coconut milk, and spices like kokum, Goan cuisine offers dishes like **Goan Fish Curry** and **Prawn Balchão**.
- **Bhel Puri (Mumbai):** A popular snack made from puffed rice, vegetables, tamarind chutney, and spices, served as a quick bite on the streets of Mumbai.

Influences:

- West India has been influenced by Portuguese, British, and Arab trade, leading to a blend of flavours, cooking techniques, and ingredients. The use of coconut and vinegar, especially in coastal regions, is a result of Portuguese influence, while the inclusion of seafood is due to the long coastline of the region.

4. East Indian Cuisine

Key Characteristics:

- Eastern Indian cuisine is characterized by its subtle yet complex flavours. Rice is a staple food, and mustard oil, green chilies, and poppy seeds are often used in cooking. Fish and seafood, especially in coastal regions like Bengal, are predominant.
- The cuisine is also marked by the use of mustard paste, which imparts a pungent and distinctive flavour.

Notable Dishes:

- **Macher Jhol (West Bengal):** A light, fragrant fish curry made with mustard oil, green chilies, and turmeric.
- **Rasgulla (Bengal):** A spongy, syrupy dessert made from chhena (a type of fresh cheese) and sugar.
- **Litti Chokha (Bihar):** A rustic dish made of wheat flour balls stuffed with roasted gram flour and spices, served with mashed vegetables.
- **Chingri Malai Curry (Bengal):** A creamy shrimp curry made with coconut milk and mustard paste.

Influences:

- East Indian cuisine, particularly from Bengal, has been influenced by its proximity to the Bay of Bengal, leading to a diet rich in fish and seafood. The use of mustard oil and the preference for simpler, lighter dishes reflect the region's aesthetic and cultural values.

5. Central Indian Cuisine

Key Characteristics:

- Central India's cuisine reflects the rural and agricultural base of the region. It often includes vegetarian dishes, lentils, and millets, which are staple foods.
- The cuisine tends to be simpler, focusing on locally grown ingredients like corn, millet, and various vegetables.

Notable Dishes:

- **Poha (Madhya Pradesh):** Flattened rice cooked with mustard seeds, curry leaves, and turmeric, often served with yogurt and pomegranate.
- **Bhutte Ka Kees (Madhya Pradesh):** A dish made from grated corn cooked with spices and milk.
- **Dal Bafla (Madhya Pradesh):** A variation of dal baati (from Rajasthan), consisting of wheat flour dough balls served with a spicy lentil soup.

Influences:

- The cuisine here reflects the agrarian lifestyle and the availability of locally grown grains, lentils, and vegetables. The use of mustard oil is common, and the simplicity of the food ties into the cultural preference for frugality and self-sufficiency.

6. Kashmiri Cuisine

Key Characteristics:

- Kashmiri cuisine is known for its use of whole spices and the extensive use of yogurt, dried fruits, and saffron. The food is often rich, aromatic, and deeply spiced, featuring slow-cooked stews and gravies.
- The use of **wazwan** (a traditional Kashmiri feast) is a defining feature, where multiple courses are served, including meat-based dishes.

Notable Dishes:

- **Rogan Josh:** A slow-cooked lamb dish made with a blend of spices, yogurt, and saffron.
- **Gushtaba:** Meatballs made from minced lamb and cooked in a creamy gravy with yogurt and spices.
- **Kashmiri Pulao:** A fragrant rice dish made with saffron, dry fruits, and aromatic spices.

Influences:

- Kashmiri cuisine was influenced by Persian and Mughal rulers who introduced saffron, dry fruits, and intricate cooking methods. The harsh winter climate also contributed to the use of rich, warming foods.

Conclusion:

The history of food is a journey through human civilization, reflecting the development of societies, technologies, and cultures. From the earliest days of foraging and hunting to the complexities of modern food systems, food has been a central element of human life. The way we produce, prepare, and consume food continues to evolve, shaped by advancements in science, trade, technology, and the growing global consciousness around sustainability and health. As the world continues to change, the history of food will remain a vital and ever-evolving part of the human story.

With Geographical Indication (GI) highlighting on the uniqueness of the quality, reputation and of course characteristics of the regional origin, spices are good examples of the products that can be protected by GIs. Many spices are grown in specific regions or countries, and their unique flavour, aroma, or quality is often attributed to the local soil, climate, or traditional farming practices. To mention a few like Kashmiri Saffron, known for its distinctive flavour and aroma, is grown exclusively in the Kashmir Valley, Ceylon Cinnamon is grown in Sri Lanka, Tellicherry Peppercorns grown in the Tellicherry region of Kerala, India. GIs help protect traditional farming practices, processing methods, and cultural heritage associated with spice production. It guarantee that the spice meets specific quality standards, which enhances consumer trust and confidence. Thus contributing to economic development of rural areas and communities involved in spice production.

The Spice Route, both historically and metaphorically, represents much more than a trade route—it is a journey through the rich culinary traditions of India. Spices are at the heart of Indian cuisine, serving not only as flavouring agents but also as a bridge between cultures, history, and health. From the ancient trade networks to contemporary global kitchens, Indian spices have left an indelible mark on the world's culinary landscape. Indian cuisine is a melting pot of diverse culinary styles that vary widely across its regions. Each regional cuisine reflects the climate, geography, cultural influences, and historical connections of the area, from the dairy-heavy dishes of the North to the rice-based meals of the South. With the connection between GIs and spices highlights the importance of preserving traditional knowledge, ensuring quality, and promoting regional development. By protecting and promoting spice GIs, we can help safeguard the cultural heritage and economic livelihoods of communities involved in spice production. With an endless array of flavours, ingredients, and cooking techniques, Indian food offers something for every palate, while also being a testament to the country's rich and multifaceted history. As we explore the rich flavours of Indian cuisine, we are reminded that food is not just about taste; it is an expression of history, culture, and tradition, made all the more vibrant and meaningful through the spices that continue to shape the "Spice Route of Life."

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Unravelling the Decline of Tulaipanji Rice of Uttar Dinajpur: A Geographical Indication (GI) Tagged Crop's Struggle with Aromatic Quality, Counterfeiting, and Farmer Satisfaction

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Abstract: *Tulaipanji rice is a beloved rice variety renowned for its delightful fragrance and distinctive taste, enhancing the flavor of dishes made with this rice. Cultivated primarily in the Uttardinajpur district of West Bengal, this rice owes its fame to its exceptional quality and aroma, leading it to receive a Geographical Indicator (GI) tag in the year 2017. The optimum cultivation period for this rice variety generally falls between the months of July and December, during which it flourishes best. The Tulaipanji rice variety holds significant importance for farmers and retailers, with Raiganj subdivisions being strongly associated with its region of origin due to its distinctiveness and acclaim. In order to preserve the rice's quality and integrity, farmers have traditionally adhered to time-tested methods passed down through generations. However, the emergence of increased competition has led some farmers to resort to the usage of fertilizers for enhanced yields. The Tulaipanji rice's quality and reputation are under threat due to the negative effects of chemical fertilizers and practices and the proliferation of counterfeit and mixed "Tulaipanji" rice in the market. Inadequate government support has contributed to farmers' abandonment of this rice variety in favour of more profitable crops. Lack of resources has prevented certified Tulaipanji rice groups from expanding their market presence, and if the situation continues without proper attention and support, Tulaipanji rice's prominence in the market may diminish. Immediate measures are required to preserve and promote genuine Tulaipanji rice to safeguard its status.*

Introduction

Uttardinajpur is a key rice-growing region within West Bengal, thanks to its fertile alluvial soil and conducive climate. Different varieties of rice are cultivated in the area throughout the year, but one specific variety stands out for its popularity and high demand in the National and International market. Tulaipanji is a renowned and premium rice variety, highly sought after for its distinctive taste, pleasant aroma, and cotton-like softness. This rice is straw-yellow coloured grain with long awns, medium slender type kernel (length 5.3 mm and L/B ratio 2.8), amylose 17.2 %, protein 7.2%, intermediate gelatinization temperature, elongation ratio 1.7 and medium aroma. (mr)(Ghosh Bidhan Chandra Krishi Viswavidyalaya et al., n.d.). This particular rice variety significantly contributes to the region's prominence, and the term "Raiganj" is often used interchangeably with "Tulaipanji." There is seemingly no equivalent substitute for these rice varieties. People who've tasted it often recommend it to others, as dishes prepared from Tulaipanji rice offer an unparalleled level of satisfaction. It

is very popular in the domestic market for preparation of scented table rice, polao and biryani, payash (desert), pistak or pitha (home-made cake), chira (flattened rice), etc. during social functions and religious festivals in the region for a long period (Ghosh Bidhan Chandra Krishi Viswavidyalaya et al., n.d.). A GI tag was bestowed upon Tulaipanji rice in 2017 due to its uniqueness. These special rice varieties are mainly cultivated in Raiganj Subdivision within the Uttardinajpur district and have been cultivated for over 100 to 200 years by generations of farmers. Tulaipanji rice, also referred to as "Mohiniganj Tulaipanji," is widely recognized by this name, leading some to believe that Tulaipanji rice is primarily cultivated in the Mohiniganj area. However, this is not accurate, as Mohiniganj is not a major Tulaipanji cultivation area. Historically, many farmers sold their Tulaipanji paddy in the Mohiniganj market, causing outsiders to widely refer to the rice as "Mohiniganj Tulaipanji." The main areas where Tulaipanji rice is cultivated are Jogodishpur, Runia, Bhatol, Baharail, Dehuchi, Kolua, Kathandari, Anantapur, Dhankoil, Laxmipur, etc.

Achieving a good rice quality requires diligently following each step during cultivation and processing. Tulaipanji paddy is typically planted in the months of July to August and harvested in the months of November to December. Unlike other rice varieties, the processing process for transforming Tulaipanji paddy into rice requires meticulous adherence to traditional methods to preserve its quality. Farmers believe that if modern processing techniques were implemented, the rice's quality would be compromised, leading them to advocate for traditional methods of rice processing. Nowadays, farmers are either using fertilizers to increase productivity compromising with its quality or preferring other non-aromatic high yielding local or outsourced cultivars to mix with tulaipanji for getting higher yield and profit at the expense of quality (Sen and Kar, 2006)(Sen & Sarkar, 2010).

Chief Minister Mamata Banerjee is a strong supporter of Tulaipanji rice, personally endorsing it as an unofficial brand ambassador. The rice's reputation has been enhanced through her gift-giving and promotion of it to guests from home and abroad. The state even introduced Tulaipanji at the London Olympics food festival, where its unique aroma and taste captured the attention of attendees. Additionally, the Bengali cinema industry has contributed by highlighting the uniqueness of this rice variety. To analyze and improve Tulaipanji rice varieties, numerous experts have employed advanced techniques and scientific methods. The research continues with the aim of enhancing rice varieties. Various agricultural institutions and individuals have contributed significantly to the development of Tulaipanji rice by authoring books and articles. The government and various organizations have also organized training sessions and motivational programs designed to advance the development of Tulaipanji rice. This collective effort has significantly contributed to the recognition and progress of Tulaipanji rice. The dedication and hard work of several farmers and institutions, coupled with the government's initiatives and the support of government officials, have played a pivotal role in elevating Tulaipanji rice to its current status. All these

collective efforts have significantly contributed to the recognition and success of Tulaipanji rice internationally.

Several studies have examined Tulaipanji rice in the past, but few have thoroughly investigated the decline in its aromatic quality, counterfeits, and farmers' satisfaction. This new study is designed to explore these aspects in depth through both field visits and extensive surveys of farmers, agricultural experts, and government officials. This comprehensive approach aims to gain a more comprehensive understanding of the issues facing Tulaipanji rice and how they can be addressed. The primary objective of this study is to scrutinize the challenges faced by Tulaipanji rice farmers in preserving the traditional attributes of the rice despite the GI certification status, as well as to examine the problem of counterfeiting in the Tulaipanji rice marketplace and the consequences it has on farmers' confidence and satisfaction within the sector.

Description of the study Area:

Raiganj is one of the two subdivisions in the Uttardinajpur district of the Indian state of West Bengal, covering four major community development blocks—Raiganj, Hemtabad, Kaliyaganj, and Itahar—with two municipalities, namely Raiganj and Kaliyaganj. The subdivision shares borders with Bangladesh in the east and Bihar in the west, while on its southern side lies Malda district, and the northern side has Islampur subdivision. The presence of important rivers such as Kulick and Nagor ensures fertile soil and favorable conditions for rice cultivation. The total population of the subdivision is about 430,221, with 221,738 males and 208,438 females (Census 2011). Raiganj subdivisions' populations predominantly inhabit rural areas, with agriculture being their primary occupation. National Highway 12 traverses through the subdivisions, while several state highways are also present in this region. The area is well-connected to the railway stations of Raiganj, Kaliyaganj, and Radhikapur, emphasizing the importance of transportation. This region is particularly rich in flora and fauna, with Asia's second largest bird sanctuary, Kulick Wildlife Sanctuary, located within these subdivisions. This sanctuary hosts an array of bird species from across the world, showcasing the region's unique and diverse ecosystem.

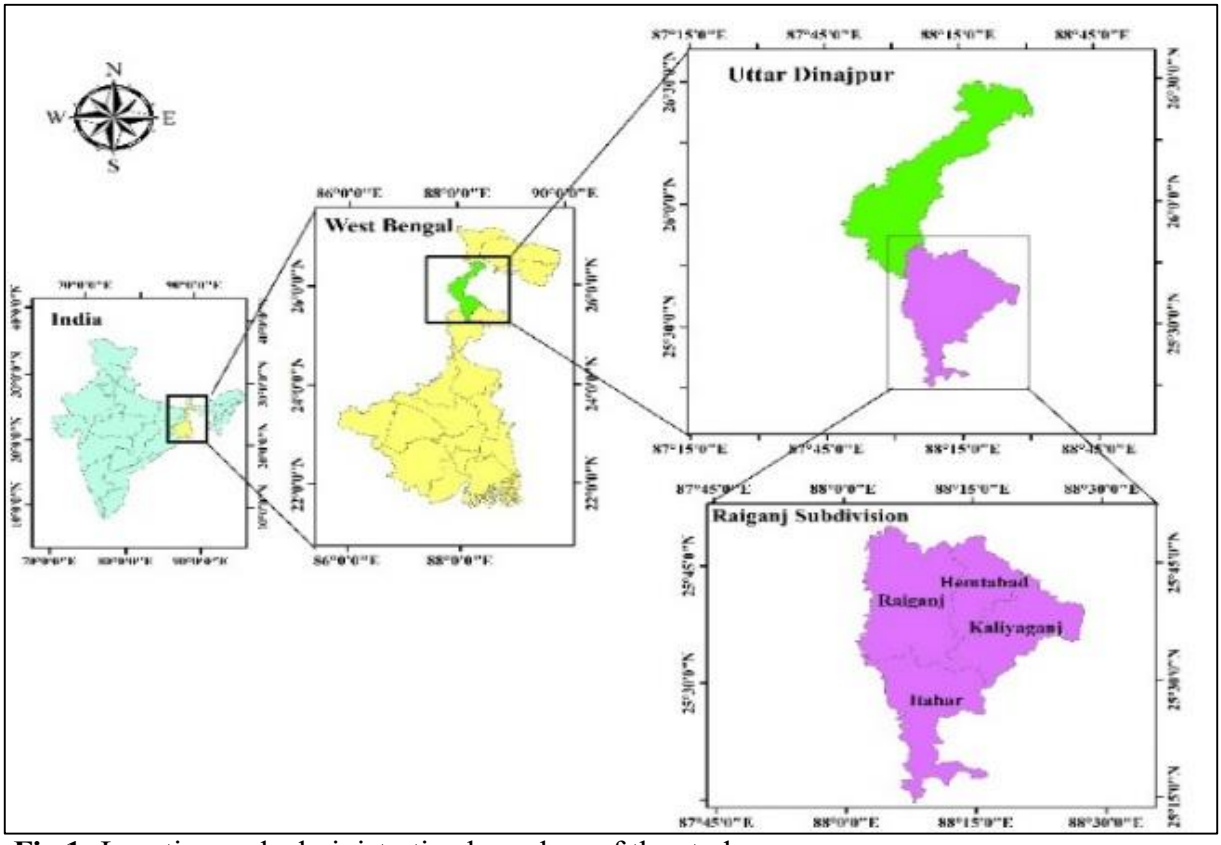

Fig.1: Location and administrative boundary of the study area**.**

Database and adopted Methods:

A comprehensive survey was conducted to identify the key challenges faced by farmers and the reasons behind the diminishing aroma of Tulaipanji rice. The field survey targeted major Tulaipanji rice cultivation areas within the Raiganj subdivisions, encompassing Raiganj, Hemtabad, and Kaliyaganj and Itahar blocks of the Uttardinajpur district. In the survey, we placed emphasis on major Tulaipanji rice-cultivating farmers and various farmers' organizations, while also visiting the blocks, sub-divisions, and district agricultural offices, as well as the Kishan Mandis. For this study, a specific sampling technique known as purposeful sampling was employed to ensure accurate survey outcomes. Fifty samples were collected from important tulaipanji-cultivated villages and key tulaipanji-selling markets, encompassing both buyers and sellers of tulaipanji. Information about the past five years' tulaipanji paddy prices and tulaipanji production, along with challenges and changes in cultivation processes within tulaipanji cultivation areas, was gathered through a survey of relevant individuals.

Results and Discussion:

It is quite unfortunate that out of 5000 indigenous rice landraces of Bengal more than 90% have disappeared from the rice field (Sinha and Mishra, 2013) (Biswas et al., 2021). Tulaipanji paddy cultivated farmers are traditionally employed organic farming methods and traditional cultivation practices, focusing on maintaining the unique taste and aroma of Tulaipanji rice. However, in recent times, due to intense competition and lower profitability, farmers have begun to switch to more lucrative crops. Additionally, some farmers who continue to cultivate Tulaipanji rice have resorted to using fertilizers and modern pesticides, which prioritize higher productivity over preserving the crop's original qualities. Sadly, these changes have resulted in a swift deterioration in Tulaipanji's distinct aroma, thickness, and unique taste, causing a significant decrease in its once-renowned popularity. Different important aspects towards declining tulaipanji rice cultivation practices are discussed below in details-

Year Wise Paddy Production Per Hectare in Kilograms

Year	Tulaipanji	Other Paddy varieties	Difference
2021	1500	4500	-3000
2022	1650	4875	-3225
2023	1575	4650	-3075
2024	1800	4800	-3000
2025	1875	4575	-2700
Average	**1680**	**4680**	**-3000**

Table 1: Last five years paddy production difference between tulaipanji and other HYV paddy varieties.

In the case of any paddy variety a good production rates are very much important for providing farmers satisfaction. Compared to Tulaipanji, other HYV paddy varieties produce much higher yields. On average, Tulaipanji paddy yields approximately 1680 kilograms per hectare, while other paddy varieties can produce as much as 4680 kilograms, a significant 3000-kilogram difference. The significant disparity in production rates between tulaipanji and other paddy varieties has influenced farmers' decisions regarding crop cultivation. As Swarna gives more than twice yield than Tulaipanji, so that farmers ignore the cultivation of Tulaipanji (Chakraborty, 2019). Generally, the production rates of paddy varieties are directly influenced by the amount of fertilizer used in the fields, yet this factor has a different impact on tulaipanji rice. The use of chemical fertilizers instead of organic methods in tulaipanji farms leads to a marked decrease in the rice's aroma and quality. This discrepancy is a primary reason for the reduced production rates of Tulaipanji rice. As a result, farmers who previously cultivated Tulaipanji on a larger scale now allocate smaller plots for cultivation, primarily for self-consumption rather than for market sales.

Year Wise Peddy Price Per 100 Kilograms

Year	Tulaipanji	Other Paddy varieties	Difference
2021	2600	1868	732
2022	3000	2040	960
2023	3200	2060	1140
2024	2800	2203	597
2025	6000	2300	3700
Average	**3520**	**2094**	**1426**

Table 2: Last five years paddy selling price difference between tulaipanji and other HYV paddy varieties.

The price of Tulaipanji paddy experiences significant fluctuations based on production quantities and outside demand. Over the last five years, the average price has hovered around Rs. 3,520 per 100 kilograms, whereas other rice varieties have averaged just Rs. 2,094, making the disparity surprisingly low at only Rs. 1,426 per 100 kilograms. The substantial hike in Tulaipanji rice prices in 2025 is a subject of debate among farmers and agricultural experts. Farmers attribute the surge to lower cultivation and reduced production due to the shift towards more profitable alternatives in the preceding year. However, certain individuals suggest that the GI (Geographical Indication) tag is responsible for the price increase in 2025, which raises the question of how the tag, acquired in 2017, could influence the current situation several years later. There is a vast divergence in production levels between tulaipanji rice and other varieties of rice, yet this dissimilarity is not reflected in the selling price. This price disparity undermines farmers' satisfaction and motivation, ultimately diminishing their interest in cultivating tulaipanji rice. The West Bengal government has established a minimum support price (MSP) for regular paddy but fails to extend this support to premium varieties such as Tulaipanji. Experts posit that this differential treatment contributes to the decline in Tulaipanji paddy cultivation due to the absence of a fixed purchasing system. Prior to the implementation of MSP, the price for regular paddy ranged from 1200 to 1400 rupees per 100 kg, while Tulaipanji rice was sold for 2500 to 3000 rupees per 100 kg. The price gap between these two rice varieties was previously over double, but currently, the difference is minimal due to government intervention. This has caused a shift towards normal paddy cultivation by farmers seeking higher profits through subsidized MSP for regular paddy. Despite the eight-year GI tag certification, opportunities for selling Tulaipanji paddy to farmers are limited to the Mohiniganj and Komlabari areas. Farmers express concern about the absence of a fixed price and dedicated selling locations, alleging arbitrary pricing by businessmen owing to their monopoly.

Fig.2: Tulaipanji paddy cultivation site.

Tulaipanji rice is renowned for its exceptional quality and aroma, which is enhanced when planted in a field recently cultivated with jute, as the jute leaves serve as natural fertilizer, boosting both yield and quality. Due to the depletion of the water bodies, jute farmers are facing challenges in their cultivation and processing practices. Access to suitable water bodies is crucial for the successful cultivation and processing of jute. Lack of suitable water bodies hinders their ability to maintain optimal conditions for jute processing and impacts the quality of jute fibers and the efficiency of processing operations. Moreover, labour-intensive jute cultivation has become increasingly challenging due to rising labour costs, resulting in labour shortages during peak seasons. Despite the hard work and significant investments required in cultivation, farmers often receive insufficient compensation when selling products at the market. To make matters more challenging, alternative crops offering higher profits with less labour and lower investment costs have gained prominence, prompting farmers to shift away from jute farming. In the current context, the demand for jute has been declining due to the widespread use of plastic alternatives and the popularity of jute alternatives in the market. Moreover, crops like maize have become increasingly attractive due to their high profit margins, low investment requirements, and constant demand. As jute and tulaipanji are closely related, the decrease in jute production and the increase in maize cultivation have affected the crop cycle in the area, thereby reducing the area of tulaipanji paddy cultivation and causing a deterioration in its quality.

Fig. 3: Tulaipanji paddy fields just before the harvesting.

Tulaipanji belongs to long-duration type rice with late heading (113 days) and late maturity (146 days) (Biswas et al., 2021). This rice has an unparalleled reputation for its distinctive taste and exceptional aroma, but maintaining its uniqueness and quality over time is not without challenges. Previously, farmers successfully cultivated Tulaipanji rice using organic methods, resulting in exceptional quality. However, in the last 10 to 15 years, intense competition has led many farmers to resort to using fertilizers, pesticides, and other materials to prioritize higher productivity and higher profits. Despite some organizations attempting to produce Tulaipanji rice using organic methods, they have not yet achieved the same exceptional standards of taste and aroma.

Some farmers and agricultural experts have noticed declining rice quality over time, attributing this issue to the usage of inferior seeds and the lack of fresh seeds upon consecutive usage. Additionally, there are concerns about decreased rice thickness from year to year, along with suspicions of mixing other rice varieties with Tulaipanji rice. Some farmers have adopted modern techniques for increased production, but this approach has led to further reductions in rice quality.

Many middlemen or retail sellers are ruining the reputation of Tulaipanji rice to earn more profits from unsuspecting customers by blending it with other rice varieties such as Alai and Zira and falsely selling it as pure Tulaipanji rice. This deceptive practice has significantly

reduced customer demand for authentic Tulaipanji rice, leading to a serious issue. Furthermore, since the receipt of the GI certification, this problem has worsened and requires immediate attention to preserve the glory of Tulaipanji rice before it vanishes entirely.

Fig 4: Tulaipanji paddy after harvesting.

Small-scale farmers and farmer groups experience financial difficulties because of insufficient resources for proper branding and marketing. Moreover, other businessmen view these farmers' groups as competition, making it difficult for them to establish a strong presence in the market. The farmers also criticize the lack of government support in addressing these issues. These farmers groups are the only option to revive the glory of tulaipanji. The farmers also emphasize that profits are not their primary concern, but rather, they aim to elevate the prestige and distinctiveness of Tulaipanji rice worldwide. They believe that with adequate support, they will be able to enhance the quality and authenticity of Tulaipanji rice and ensure that they provide the genuine Tulaipanji rice to consumers.

Fig 5: Tulaipanji rice processing in a rice mill.

S.L. No.	Name of The Organisation	Location
1	Kaliyaganj Krishi Udyog Producer Company	Kaliyaganj
2	Samasti Krishak Unnayan Samiti	Hemtabad
3	Uttar Dinajpur Krishi Vigyan Kendra	Chopra
4	Dakshin Dinajpur Krishi Vigyan Kendra	Balurghat

Table 3: Tulaipanji GI tag certified organization.

Tulaipanji rice received its GI tag in 2017, but even after 8 years, only 2 farmers' groups have successfully obtained the certification. Only one of the groups has commenced sales, but they have been held back by inadequate financial support, hindering their ability to expand production. The remaining groups have yet to start selling, and the certificates have

been issued in 2 KVK (Krishi Vigyan Kendra) locations. Regrettably, the Tulaipanji rice that can be found in the market and other areas are primarily uncertified products.

Fig 6: GI-tagged certified tulaipanji packages.

The government's support and efforts in promoting Tulaipanji rice cultivation are inadequate. Despite being awarded the GI tag in 2017, over half of the farmers remain unfamiliar with the certification, and they have received little to no government support or training to sustain and expand Tulaipanji rice production. The government has only distributed seeds and minor training to a selected few farmer.

Conclusion and Recommendations

Tulaipanji paddy cultivation is facing significant challenges due to low production rates, declining profitability, competing profitable crop options, and compromised quality due to chemical fertilization and repetitive seed usage in the same fields. Addressing the proliferation of fake Tulaipanji rice and government inaction is crucial for preserving the reputation and quality of this prized rice variety. Immediate intervention is necessary to protect and promote Tulaipanji rice; otherwise, its reputation and legacy will be at risk. Some important recommendations are-

1. The government should set a fair price for Tulaipanji rice, just like other rice varieties.

2. Strict measures should be implemented against businessmen peddling fake Tulaipanji rice to disrupt their supply chain.

3. Financial assistance should be extended to farmer groups that have obtained a GI certification tag to boost their business.

4. Hands-on training, quality seed support, and regular motivation should be offered to farmers for cultivating Tulaipanji rice.

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Assessment of Livelihoods of Artisans involved in Pottery Industry through Principal Component Analysis: A study of Matigara Block, West Bengal

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Abstract: livelihood is a way to meet the basic needs of an individual for a means of living. The current study explores the assessment of the livelihoods of the artisans belonging to the Matigara Block of West Bengal—the artisans in this tract involved in traditional crafts viz. pottery, woodwork, and so on. The sole aim of the study is to find out the current scenario, hurdles, and opportunities faced by this community for decades. To conduct the study a mixed-methods approach viz. combo of qualitative interviews and quantitative surveys has been considered. The main factors that have been focused on are generation of income, access to market centers, development of skills, and formal recognition. Later on, Principal Component Analysis (PCA) has been applied to identify the top influencing factors on the livelihoods of artisans of the study area. The finding suggests that instead of having a rich cultural tradition the artisans have been prone to significant challenges; even they became the prey of modernization of production techniques and gigantic competition with easy access to the market. So, more adoption to new skills, access to the internet, and digital marketing opportunities for capturing wider market size will help them in the long run.

Keywords: Potters and pottery, perception study, PCA

1. INTRODUCTION

"Craft specialization is the form of specialization studied in priority by archaeologists, because other forms of specialization (politic, ritual, for example) are, at the moment, difficult to identify and define based on material remains, particularly when it comes to ancient periods (Neolithic)" - Roux, Valentine and Daniela Corbet (3, 1989).

Crafts made with machines in bulk are not handicrafts, rather handicrafts are the sole creation of artisans out of their creative minds with the combo of natural materials and traditional knowledge (Karpagavalli, 2013). Handicrafts made by artisans are the backbone of the livelihood development of millions in India (Akilandeeswari et al., 2016) viz. ancient tradition of rural Bengal was ceramic art (Hazra et al., 2018). West Bengal has a long historical past of reach handicrafts, particularly in pottery due to its phenomenal heritage and cultural pluralism with a combo of gigantic migration in the state. This ultimately motivates artisans to become more creative with their skills which results in marvelous quality products (Mukherjee et al., 2016). Currently, the pottery industry in our country is treated as a 'major cottage industry' which can generate more job options (Meena et. al., 2005). It's a too much labour-intensive industry that consumes both skilled and unskilled

people, (Mukherjee et al, 2016) as well as traditional craft creates huge livelihood options for rural and semi-urban artisans (Karpagavalli, 2013).

With the evolution of civilizations clay or pottery industry flourished between 400 to 100 BCE and it reached its peak by the Gupta era where we can find a remnant of more than 14 feet of temple built solely upon clay bricks (Hazra et al., 2018). Generally glory of Indian handicrafts flourished throughout the centuries, but poor rural handicraft artisans mostly became the prey of lesser frame and recognition (Shah et al., 2018). The artisans associated with the pottery industry have been noticeable since the dawn of human civilization (Kasemi, 2014) and hold the prime position in the society but later on, it became a small-scale cottage-based industry in India (Gupta, 1988). Even currently the potters of rural pockets receive a very minimal wage to meet the basic needs of their life (Meena et. al., 2005). Even these traditional artisans faced a huge clash with modern pieces of machinery and became vulnerable in terms of livelihoods (Subrahmanya M.H.B, 1991).

2. STATEMENT OF PROBLEM

The entire study is plotted around the assessment of the Livelihoods of Artisans involved in the Pottery sector of Matigara Block (Darjeeling). The sole problem of the artisans of this area is the vulnerability of their job scopes. Due to the fastest arrival of modern techniques as well as digital marketing most of the artisans are lagging. So, throughout our entire study, we have tried to identify the most influential factors that are affecting their livelihoods,

3. PREVIOUS WORK

Indian handicraft sector offers a bouquet of artisans as well as consumers with a gigantic range of artifacts (Singh and Singh, 2023). It remained the second largest sector just after agriculture which consumes such a huge labour force (Mehrotra, 2019). Even ILO (1995) recognized it as the first position holder in terms of creating most job opportunities in the informal sector which incorporates the usage of local raw materials and manpower. Even the Office of Development Commissioner (Handicrafts), Ministry of Textiles, and Government of India also raise their voice in favor of the promotion of handicrafts made by artisans due to its three core features i.e. *higher value addition, lower initial investment, and good foreign exchange.* According to Kathuria (1988), these handmade crafts are the most reliable source of foreign exchange earners in the Indian economy.

The most positive side of the sector is that it became the means of eliminating the financial crisis among the most vulnerable sections by generating more livelihood options (Richard, 2007). Besides our handicrafts are the showcase of our glorious past, and the pluralism of heritage and culture which infiltrated through the generations of the artisans (Saraf, 1987). Even handicrafts give a scope of diversifications of the roles women in society by playing '*dual roles' i.e.* household and public roles (Kunjurman & Hussain, 2016), they got an opportunity to gain fame as *entrepreneurs* in the society (Halim, 2018). Many females have

been able to reconstruct their vision and become independent economically (Kumari et al., 2020).

Now if we come to the topic of 'livelihoods' then we may identify the period of the late 1980s as born period of the concept (De & Das, 2021). It was contradictory to the concept of a technocratic 'employment' framework to highlight the attainment of a decent lifestyle (Scoones, 2009). But in the context of potters, they mostly fall for the vulnerability of livelihood options. They are receiving a very minimal wage (Meena et. al., 2005) to earn their meals with a packaged combo of lesser frame and recognition (Shah et al., 2018). In the context of Matigara CD Block the Livelihood options are triggered by modernization (Sarkar, 2017).

4. RESEARCH GAP

The potters of Matigara CD Block were skilled enough and even they tried well to adopt the modernization. But there very minimal study has been done on the livelihood assessment regarding this traditional 'Kumbhakar community'. So there is an existing research gap that we have tried to fill through our research.

5. STUDY AREA

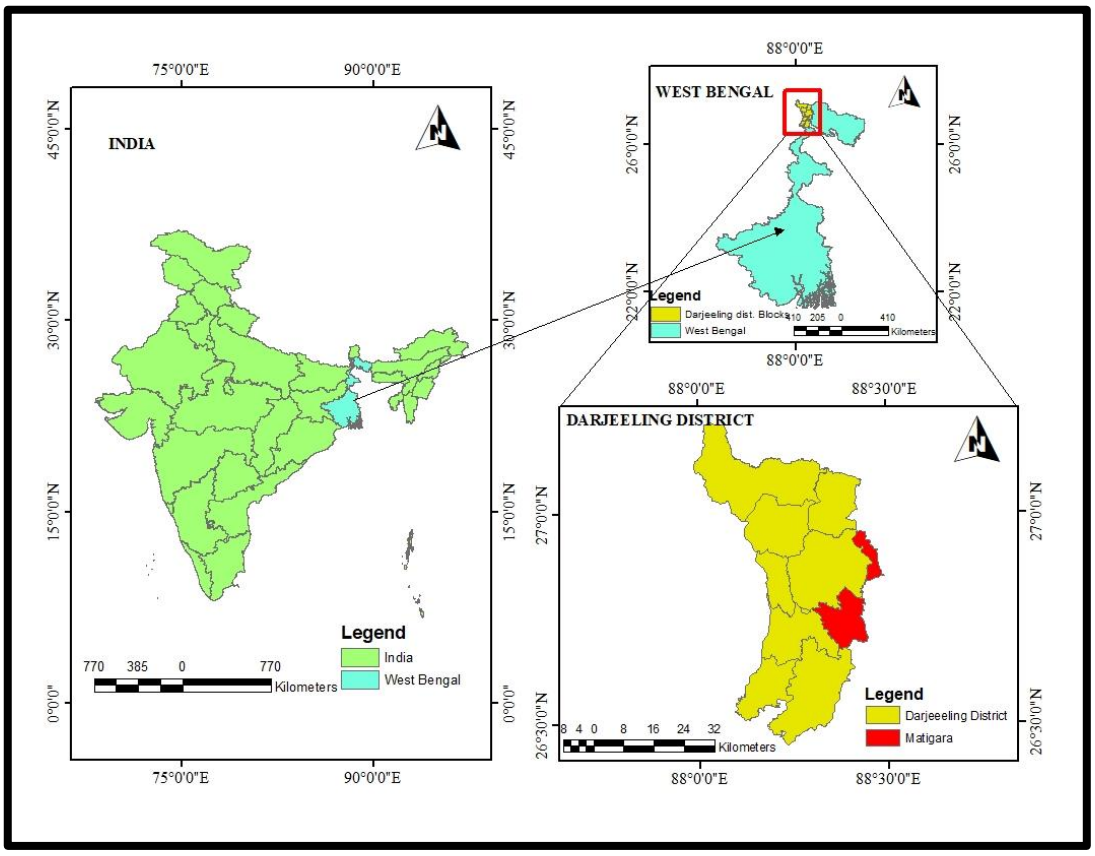


Fig 1: Location map of the study area
Source: Compiled by researchers based on Survey of India

Matigara is a community development block (CD block) in the district of Darjeeling, West Bengal, India. It is also an administrative division of the Siliguri subdivision with headquarters at Bairatisal. The block is hemmed at 26°43′0″N 88°23′0″E. It shares borders with Kurseong (North), Rajganj (East), Phansidewa (South) and Naxalbari (West). The area extension of the block is 143 with an elevation of 127 m above sea level. As per the latest census 2011, the total population of the area is 197,278 with a density of 1,400/km^2. Mostly the inhabitants of the block are rural.

6. OBJECTIVES

Some simple objectives have been considered for the entire study. The prime objectives are-

1. To know the scenario of potters in the study area.
2. To find out the most influential factors for determining the livelihood of the artisans in Matigara CD Block.

7. DATABASE

7.1 Pre-field:

To conduct the entire study we have gathered our data from a *Primary field survey (January 2025).* Besides an extensive *literature review* has been done to find out the existing gap. We have adopted *a simple Random sampling technique* to select our respondents. Simply *100 respondents* have been surveyed for this purpose from the Matigara CD Block which *belongs to the 'Kumbhakar' or 'Potter' community.*

7.2 Field:

To conduct the survey a structured *open-ended questionnaire* had been prepared. Besides *in-depth interviews and focused group discussion* methods have also been conducted to gain deeper insights.

7.3 Post field:

For the analysis of data, a simple *cartographic representation* has been done. Besides identifying the most influential factors affecting the livelihoods of the artisans of the study area *Principle Component Analysis (PCA)* has also been applied. Prior to applying PCA *Chronbach's alpha testing has been done to check the reliability of the questioner or schedule associated* with various factors. All the analysis has been done on Jamovi *2.6.23.* and MS Excel software.

8. METHODOLOGY

7.4 **Chronbach's alpha**

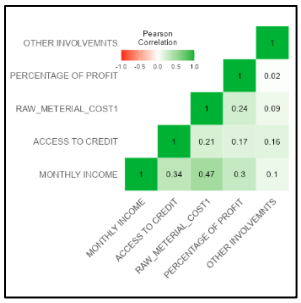


Fig 2: Economic

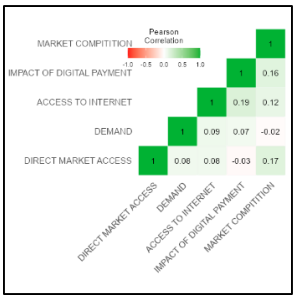


Fig 3: Market and employment

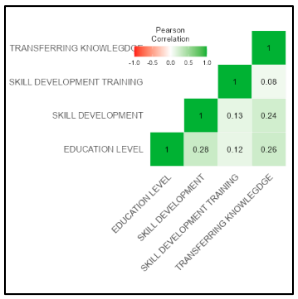


Fig 4: Education and Skills

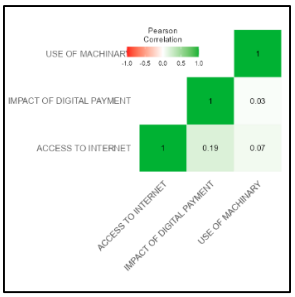


Fig 5: Technological

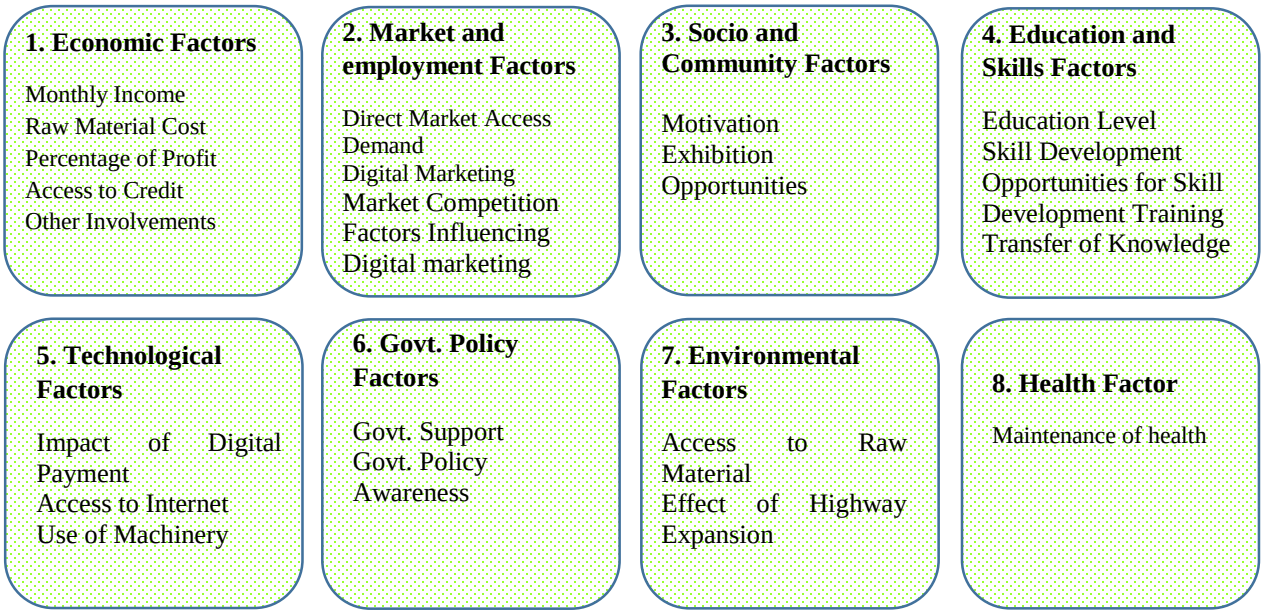
We already know that Chronbach's *alpha is a method through which we can understand is the prepared questioner or schedules are reliable or not. Simply it's a measure of accuracy.* To conduct the study we have done this test under 4 different domains associated with livelihood related questions of the artisans in *Jamovi software version 2.6.23.* To conduct the test the domains which have more than 3 questions in each have been considered. In this regard economic, market and employment, educational and skill, technological factors have been considered.

Fig 2, 3, 4 and 5 are the depiction of correlation heat map where the darker color depicts more strong correlation between the questions under each domain. Here the colors ranges between moderately darker to medium dark means the alpha values ranges between good to acceptable.

7.4 PCA: a simple glimpse

Principle Component Analysis (PCA) was devised by Karl Pearson In 1901. It is a multivariate statistical process resulting in dimension reduction. In the output of PCA a set of variables which non-correlated, known as the principal components (PCs). This PCs explains the maximum variation of actual variables (Pearson 1901; Jollife 2003; Hossein MH 2011). The technique can identify the prime variables or a group of variables that control the entire study (Dhakre & Bhattacharya, 2023).

We have used 24 variables to conduct PCA which belongs to the 8 individual factors. The detailed account is given below.



8. RESULT AND DISCUSSION

8.1 Potters and Pottery

Artisans who make pots are ‘Kumbhakar’ or ‘Kumar’ a potter caste confined mainly in the belt of West Bengal, Bihar, and Orissa (Sen, 2015). Basically this community or ‘Jati’ is associated with the production of clay utensils for daily uses (Mukherjee, 2013:211). As we all know Our Indian handicrafts have good impression globally in the past but the artisans are missing out on fame and recognition (Shah et al., 2018).

Potters have become an inseparable part of our society since the ancient period. Their handicraft holds the prime position in auspicious rituals, work in agricultural fields even for equipment used in households (Gupta, 1988). The art of pottery dates back to the Neolithic era, even approx. 5000 years back the flourishment of the Indus Valley Civilization was marked by a highly improved version of 'pottery and terracotta' (Meena et. al., 2005). Even during the *rule of the crown* in India pottery as well as other handicrafts of West Bengal had a mammoth demand in the market of Europe, due to its higher reliability with cheaper value (Mukherjee et. al., 2016).

Pottery is an art form where any kind of crafts or decorative pieces are created by artisans solely by hand or by native tools with a blend of traditions that have a socio-religious value (Akilandeeswari et.al, 2016). Even the pottery of *Matigara Block is also famous for its blend of tradition with modernity, marvelous shapes, eye catchy colors, and innovation*. Most importantly the potters of the study area slowly adopting the *'Pedal driven wheel'* to produce more within a short period (Sarkar, 2017). But too much labour intensiveness and lower returns (Veluchamy, 2011) make the livelihoods of the artisans of this industry much vulnerable. On the other hand, this community is facing huge competition with other contemporary crafts (Subrahmanya. M.H.B, 1991) which ultimately going to hamper the

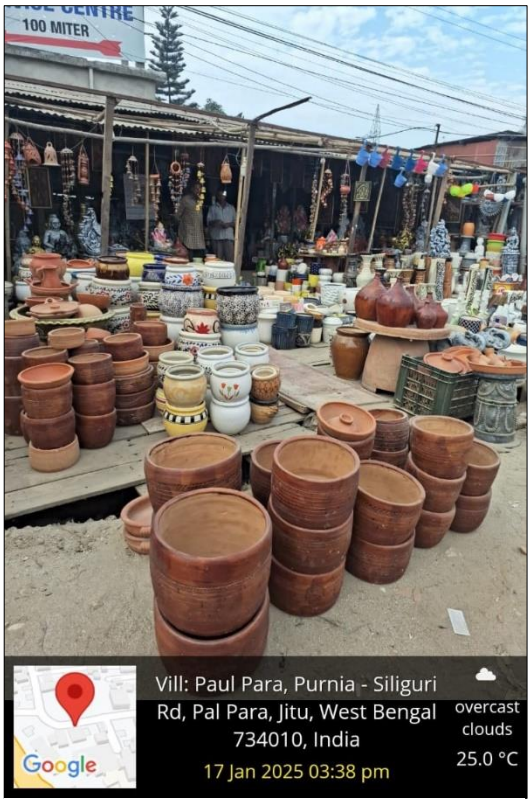


Fig 6: Eye catchy and vibrant colors of the products of Matigara Block

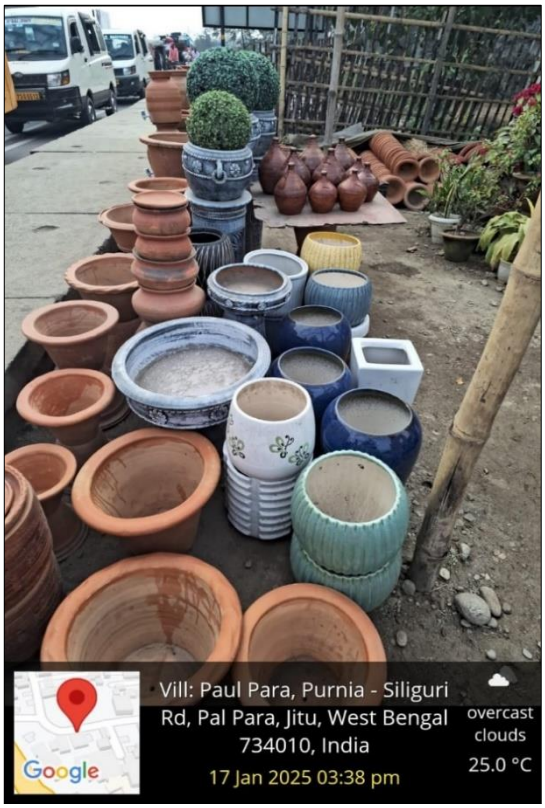


Fig 7: Blend of tradition with modernization by potters of the study area

Source: Captured during field survey (January, 2025)

locals in the long run.

8.2 Analytical Approach on Livelihood of the Artisans Involved In Pottery of Matigara CD Block

8.2.1 Perception study on respondents

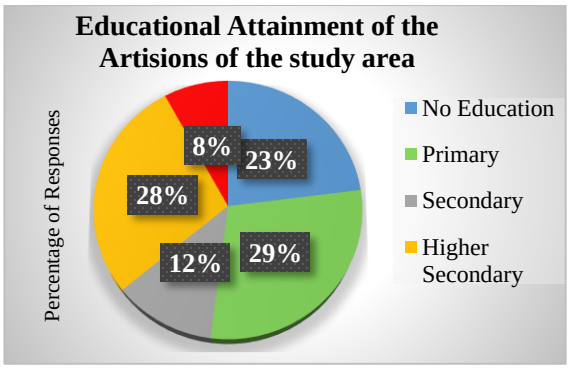


Fig: 8 Source: Primary Survey, 2025

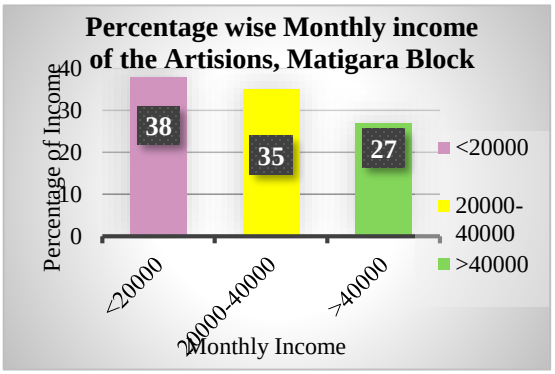


Fig: 9 Source: Primary Survey, 2025

Fig 8 it is highlighted that 29% of the respondents of the study area have taken only primary education followed by higher secondary (28%). While the level of Graduation is touched only by 8% of respondents. Besides the percentage share of illiterate respondents is also

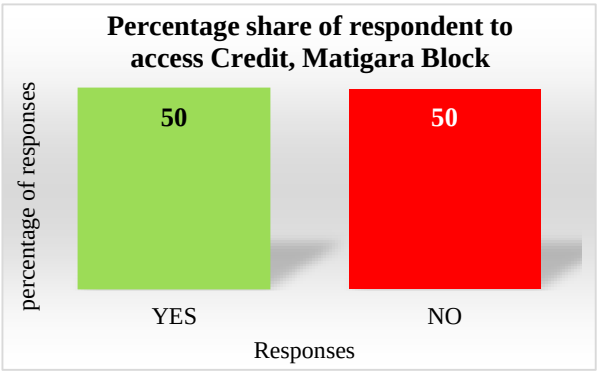


Fig 10 Source: Primary Survey, 2025

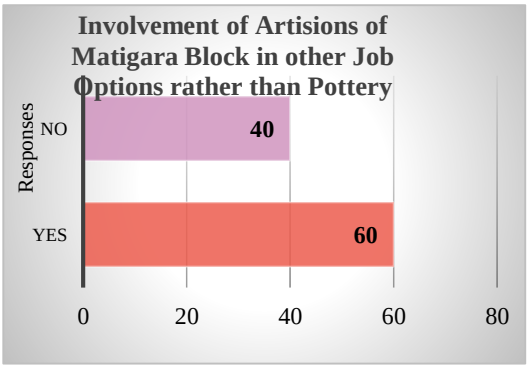


Fig 11 Source: Primary Survey, 2025

quite high (23%). It seems that there is a need for proper attention as it is very clear that disparity in terms of attaining education by the respondents is very much prevalent in the block. Fig 9 also showcased the disparity in terms of monthly income in the potter community of Matigara CD Block. 38% of the respondents have a monthly income of rs. <20000/month, while only 27% have rs. >40000/month from their profession. That means most of the artisans here earn rs. <666.

As we already come to know income inequality is prevalent over the tract possibly triggers the artisans to take credit to sustain their livelihoods. Fig 10 stated that half of the respondents have to take credit while the rest of the respondents denied the fact. This ultimately triggers the artisans to be involved in other jobs rather than pottery solely. In this

context, fig 11 depicts that most of the respondents from the potter community (60%) of the Matigara CD Block are facing difficulty in taking pottery as their sole livelihood option.

8.3 PRINCIPAL COMPONENT ANALYSIS (PCA)

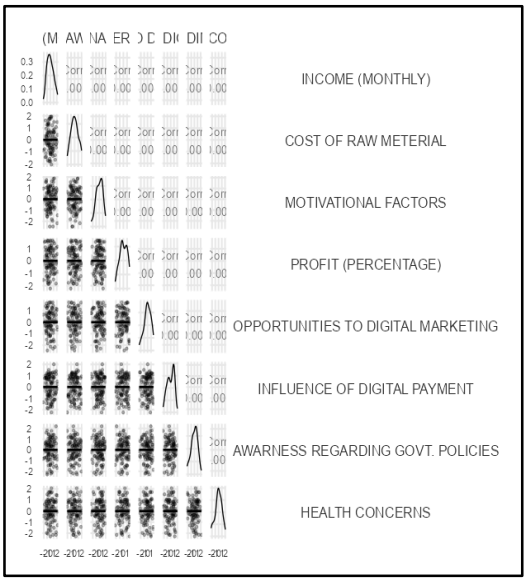


Fig 12: Correlation matrix plot

It's a technique that reduces the dimensions in a huge dataset by retaining its most of original information. From correlation matrix plot it is found that several variables are highly correlated (fig 12), which means there is a presence of multicollinearity in the dataset. The two other assumptions checking for PCA are Kiser-Meyer-Olkin (KMO) for adequacy of sampling and Bartllet's test of sphericity. From Table 1 we can get the value of overall KMO 0.702 and the value of Bartllet's test is also said to be very significant as here p <0.001.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.702
Bartlett's Test of Sphericity	Chi-Sq. (X2)	399
	Sig	<0.001

Table 2: Eigen Values

Component	Eigenvalue	% of Variance	Cumulative %
1	3.36	13.98	14
2	2.33	9.71	23.7
3	1.91	7.96	31.7
4	1.69	7.05	38.7
5	1.41	5.89	44.6
6	1.28	5.35	49.9
7	1.11	4.64	54.6
8	1.05	4.39	59

Now for the determination of the number of PCs, the Eigen value is considered here i.e. Eigenvalues = or >1. According to Table 2, there are 8 no. of PCs whose values are >1.

As per this table, we should consider the first eight components as top influencing factors. Together these components explain *59 percent of variance over total* (Table 2). Among all of these *monthly income of the potters solely explains approx. 14 percent of the variance* with other contributing components on the livelihood of the artisans of the region. Which means various other variables also triggers their livelihoods which is approx. 40 percentage out of total variability.

Table 3: PCA

Component Loadings									
	Component								
	1	2	3	4	5	6	7	8	Uniqueness
Monthly Income	0.712								0.39
Raw Material Cost	0.687								0.38
Motivation	-0.636								0.42
Percentage Of Profit	0.632								0.55
Digital Marketing Opportunities	-0.51								0.50
Impact Of Digital Payment	0.494			-0.428					0.42
Govt. Policy Awareness		0.744							0.35
Health		0.708							0.41
Direct Market Access		-0.444						0.432	0.45
Access To Internet		-0.349		0.307			0.302		0.48
Skill Development			0.726						0.39
Education Level			0.679						0.37
Importance Of Transferring Knowledge			0.577	-0.413					0.29
Market Competition				0.742					0.42
Use Of Machinery				0.595					0.44
Factors Influencing Digital Marketing		-0.308			0.738				0.28
Other Involvements		-0.307			-0.665				0.32
Access To Credit	0.435				-0.495				0.45
Exhibition Opportunities						0.704			0.40
Demand						0.697			0.41
Govt. Support							0.689		0.37
Access To Raw Material							0.661		0.39
Effect Of Highway Expansion								-0.733	0.40
Opportunities For Skill Development Training								0.547	0.56

Now table 3 represents the top PCs which explains the maximum variance. According to this table *monthly income, cost of raw materials, the motivation level of the artisans, percentage of profit, and digital marketing opportunities* constitute constitutes 1st group of PC, and the 2nd group constitutes factors like *Policy of govt., Health conditions of potters, direct market access, and use of the internet by artisans*. Now by examining the scree plot (fig 13), we can determine the actual number of PCs that are important for studying the livelihood of the potters of Matigara CD Block.

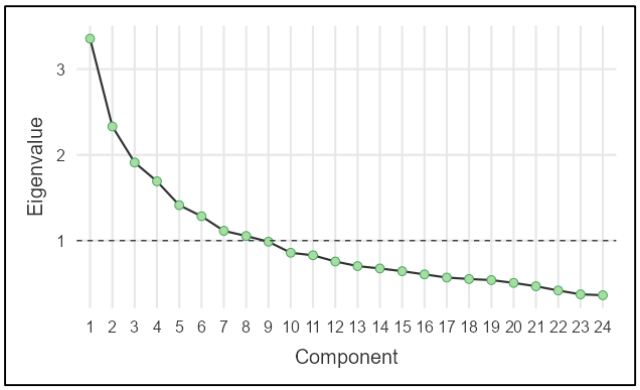


Fig 13: Scree plot for the PCs

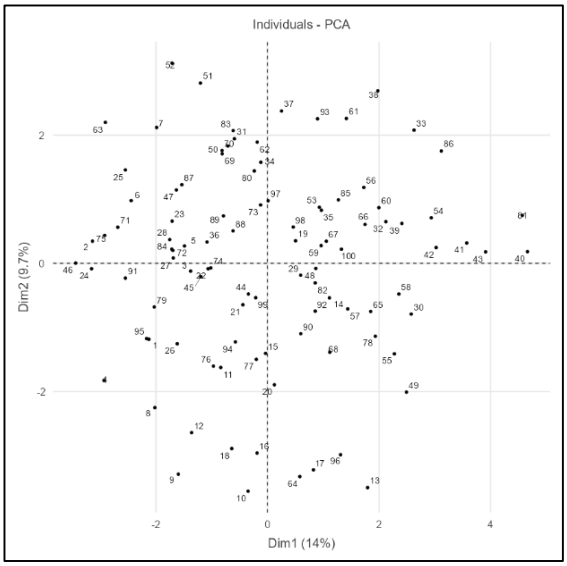


Fig 14: Individuals PCA

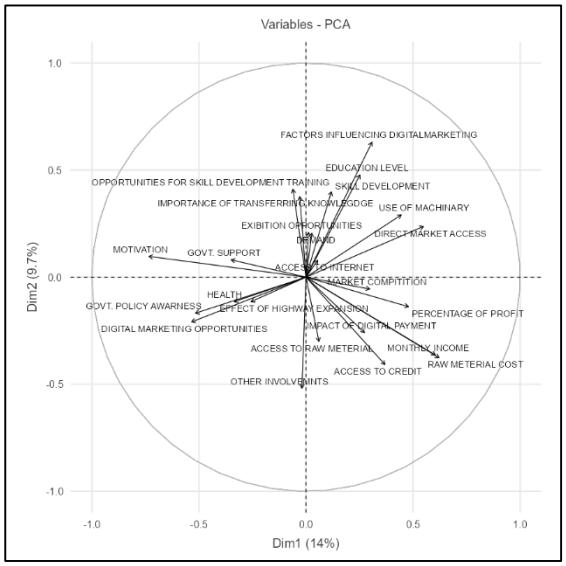


Fig 15: Variables PCA

Now from Table 3, we can see that from a group of PC 1 *motivation of the potters and digital marketing opportunities are highly negatively contributing* to the livelihoods of the artisans of the study area. On the other *hand, digital access to the market and internet access* by the respondents are two other factors that *negatively contribute* to the group PC 2. Together these Pcs cumulatively showcased approx. 24% of variation out of the total.

Fig 14, fig 15, and fig 16 depict individuals, variables, and PCA biplot. With the help of this plot, we can identify more similar variables. The vectors projecting towards the same direction indicate the variables which are positively correlated with each other and vice versa. Basically through these plots we came to know about the compact summary regarding the structure and relationships of the data set.

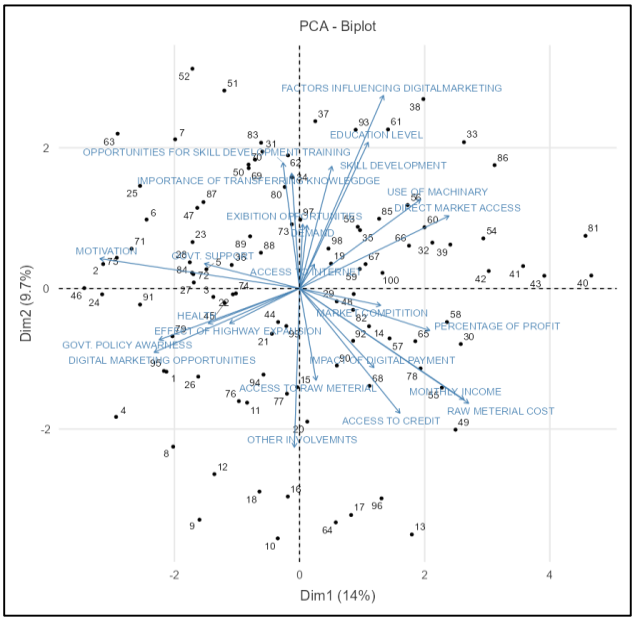


Fig 16: PCA biplot

According to the PCA biplot (fig 12) *monthly income, cost of raw materials, and Percentage of Profit are positively affecting* the livelihoods of the potters of the Matigara. The livelihood of the artisan is highly dependent on two factors viz. *monthly income and cost of raw materials, while the motivation level of the artisans and digital marketing opportunities are highly negatively affecting* their lives as these two are plotted on the negative side for dimension 1. For dimension 2 *awareness regarding governmental policies among the artisans and condition of health are two top most positively contributing factors* which are crucial for determining the livelihood of the respondents. Interestingly the artisans of the study area are triggered by *direct access to the market and access to the internet services.*

CONCLUSION

Though the story of potters and their pottery-making started back in the Neolithic era they hold a strong position even today society too. But currently, they are found basically as unorganized workers. Through this study, we tried to find out the most contributing factors that area influencing the livelihoods of the artisans who are involved in the pottery sector of the Matigara Block. But sadly we come to know that the motivation level of the artisans, digital marketing opportunities, direct access to the market, and access to the internet services, are highly negatively affecting their livelihood decisions. So there is a need to overcome these four factors to adopt a more reliable livelihood option in the long run for the native potters.

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Standee in front of Entrance to Seminar Auditorium

Artisans Displaying the Mechanism of Patachitra as GI Product

Standee in front of Entrance to the Department of Geography

Displaying of Banner (Supported by NABARD)

Valedictory Session

Introductory Speech given by the Convener in NABARD Sponsored National Seminar

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