

## Geographical Indications as Catalysts for Sustainable Development: Evidence from West Bengal, India

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This study evaluates the contribution of Geographical Indications (GIs) to the United Nations' Sustainable Development Goals (SDGs) through three case studies from West Bengal, India: Gobindabhog Rice, Santiniketan Leather Goods, and Bardhaman Sitabhog and Mihidana. Using a mixed-methods approach—surveys, stakeholder consultations, and secondary data analyses—the study examines production processes, supply chains, and socioeconomic impacts. Results show that these GIs meaningfully advance several SDGs, particularly those related to poverty reduction, decent work, cultural preservation, and responsible production. However, challenges persist in areas such as market awareness, quality control, and innovation uptake. Addressing these gaps through coordinated policy action and stakeholder engagement could significantly amplify the developmental potential of GIs in India and beyond.

**Keywords:** Geographical Indications, Sustainable Development Goals, West Bengal, Socioeconomic Development, Cultural Heritage

Geographical Indications (GIs) stand as hallmarks of tradition, embodying the rich cultural heritage and profound local knowledge of India. From the iconic Darjeeling tea to the intricate Baluchari sarees, GIs are not mere commodities; they are ambassadors of authenticity, deeply rooted in the ethos of their place of origin. To qualify as a Geographical Indication in India, a product must adhere to stringent criteria, encompassing five main parameters:

- Originating from a particular Geographical Area
- Linkage with Geography and the Product (Direct/Indirect)
- Reputation of the Product (Local/National/International)
- Historical Origin
- Uniqueness and Quality of the Product

### Purpose of GIs

The legislation governing Geographical Indications in India is driven by three primary objectives:

- (i). Protection of Producers' Interests: Enacting specific laws ensures adequate protection for producers of goods bearing geographical indications, safeguarding their intellectual property rights and economic interests.

- (ii). Prevention of Misuse: GI legislation aims to prevent unauthorized individuals or entities from exploiting geographical indications for deceptive purposes, thereby protecting consumers from misinformation or deception.
- (iii). Promotion in Export Markets: By promoting goods bearing Indian geographical indications in international markets, the legislation seeks to bolster India's presence in the global arena, showcasing the rich diversity and quality of its traditional products.

### Producers

People dealing with three categories of goods are covered under the term Producer:

- (i). For agricultural Goods, includes the production, processing, trading or dealing;
- (ii). For natural Goods, includes exploiting, trading or dealing; and
- (iii). For handicrafts or industrial goods, includes making, manufacturing, trading or dealing.

### Authorized User (AU)

A producer of goods can apply to become an “authorized user”. This registration is specific to a registered geographical indication. The producer must submit a written application in the prescribed format along with the requisite fee to complete the process.

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### Objective of this study

At their core, GIs serve a multifaceted purpose. They safeguard traditional knowledge, promote local economies, and preserve cultural identity. However, their significance extends beyond commercial viability. GIs inherently align with the Sustainable Development Goals (SDGs) of the United Nations. By fostering sustainable production practices, empowering local communities, and preserving biodiversity, GIs play a pivotal role in advancing the SDGs agenda.

In light of DPIIT's initiative to assess the contribution of GIs to the SDGs, we conducted a comprehensive survey encompassing a diverse range of GI products. Through this collaborative effort, we aimed to showcase India's dedication to sustainability, foster informed policymaking, and ensure the longevity of our cherished GIs.

Our selected GIs for assessment include Gobindabhog Rice, Santiniketan Leather Good, Bardhaman Sitabhog and Bardhaman Mihidana, representing three distinct categories and embodying the essence of the heritage of the state of West Bengal.

### Methodology

The survey methodology aims to comprehensively understand the production process, supply chains, challenges and opportunities encountered by producers/AU of registered Geographical Indications (GIs) and its contributions to SDGs.

- (i). In the month of May 2024, our survey begins by identifying authorized users for each selected GI from the GI registry and engaging them in discussions alongside producers to grasp the industry's complexities. General discussions foster a collaborative environment among stakeholders, including DPIIT-IPR Chair team members.
- (ii). Stakeholders are briefed on the survey format and language to ensure clarity and meaningful participation.
- (iii). However, for the data collection procedure, we opted to use questionnaires in Bengali.
- (iv). Our questionnaire is designed to be straight forward, aiming to facilitate open dialogue and encourage producers to freely share their insights and experiences. This approach ensures a comprehensive understanding of the challenges and opportunities faced by producers of registered GIs and their contributions to SDGs.
- (v). Consensus opinions are gathered through collective decision-making, with responses recorded on questionnaires.

- (vi). Telephone interviews with authorized users complement in-person discussions, enhancing the coverage of all producers. Approximately 15 to 20 producers and authorized users participate in each survey, ensuring diverse perspectives are captured.

### Results and Discussion

Gobinda bhog Rice

#### General Information

Name of GI product: Gobindabhog Rice

State of origin: West Bengal

Type of GI product: Agricultural

Brief about the production process:

1. Land Preparation: The process begins with land preparation, where the field undergoes plowing, and leveling to ensure uniform water distribution during cultivation.
2. Seed Selection and Pre-Treatment: High-quality seeds of Gobindabhog Rice are selected, treated with fungicides, and soaked in water to initiate germination.
3. Transplanting or Direct Seeding: Gobindabhog Rice can be either transplanted from seedbeds or directly sown in prepared fields, depending on the cultivation method preferred by farmers.
4. Field Management: Throughout the growth stages, the crop requires meticulous management, including water management through irrigation methods such as flood, furrow, or drip irrigation. Additionally, pest and disease management practices are implemented using integrated pest management (IPM) techniques to minimize crop damage.
5. Harvesting: Gobindabhog Rice is harvested when the grains reach physiological maturity, which is typically around 120-140 days after sowing. Harvesting can be done manually using sickles or mechanized using reapers.
6. Threshing: After harvesting, the rice plants are threshed to separate the grains from the straw. Traditional methods involve beating harvested bundles on a hard surface or using mechanized threshers.
7. Drying: The freshly threshed grains contain high moisture content and must be dried to a safe storage moisture level (approximately 12-14%) to prevent mold growth and maintain grain quality. This is usually achieved by sun-drying on clean surfaces or using mechanical dryers.

8. Milling: Once dried, the grains undergo milling to remove the outer husk, bran layers, and germ, resulting in polished white rice. The milling process is crucial for enhancing the appearance, texture, and cooking quality of Gobindabhog Rice.
  9. Grading and Packaging: The milled rice is graded based on size, shape, and quality parameters to ensure uniformity. It is then packaged in moisture-proof materials to preserve freshness and prevent contamination during storage and transportation.
  10. Quality Control: Throughout the production process, stringent quality control measures are implemented to monitor factors such as grain purity, moisture content, milling efficiency, and presence of contaminants to meet the established quality standards.
- By following these precise technical steps, the production process of Gobindabhog Rice ensures the preservation of its distinct characteristics, nutritional value, and quality, contributing to its recognition as a premium aromatic rice variety with geographical indication status.

#### *Evaluating SDG Contribution*

Scoring: Each "Yes" answer receives 1 point. Table 1 illustrates the SDG Contribution of Gobindabhog Rice as a GI.

**Total Score: 49**

#### **Key Insights And Challenges**

- i. A vast number of farmers and producers have not yet registered as Authorized Users (AU) in the GI registry. The authorized user list for Gobindabhog Rice indicates that some of them are not registered.
- ii. People are unaware that Gobindabhog is a GI-registered product. Various varieties are available in the market. For example, the Reliance Smart Bazaar outlets in Jharkhand and West Bengal sell Gobindabhog rice from a trademark holder Rice Villa. However, they are not listed as Authorized Users in the GI registry.
- iii. According to the survey, getting a trademark registration gives better benefit rather than getting GI registration.
- iv. It is also a general practice to buy the so called "Gobindabhog rice" from local retailers, where it is available loose and in jute bags.
- v. This is an unorganized sector. The GI logo must be there on the packets as well.

- vi. The list of producers may be extensive, and they may or may not be aware of this GI. Having access to the actual dataset of authorized users would enable an accurate assessment of this GI's contribution to the SDGs. In its absence, the survey remains incomplete and inconclusive.
- vii. There are other adulterated, similar, non-aromatic rice available. It diminishes the market demand for actual aromatic varieties.
- viii. The list of farmers mentioned in the IBEF for Gobindabhog cultivation are not associated with Gobindabhog cultivation. They are involved in the cultivation of Radhatilok rice, which is another aromatic rice grown in Nadia, West Bengal.
- ix. There is no proper branding and marketing for GIs after registration.
- x. There is no way to assess the authenticity of Gobindabhog rice available in the market.
- xi. The way Darjeeling tea is under the Tea Board of India and gets proper attention, other GIs do not get that.

#### *Recommendations and Opportunities*

- Implement public awareness campaigns and mandatory GI logo use on packaging.
- Support capacity-building for farmer registration and collective marketing.
- Establish a centralized online marketplace for certified GI products.
- Develop an official traceability or certification system to distinguish genuine Gobindabhog Rice in domestic and export markets.

Santiniketan Leather Goods

#### *General Information*

Name of GI product: Santiniketan Leather Goods

State of origin: West Bengal

Type of GI product: Handicraft

Brief about the production process:

#### **Raw materials:**

- 1 Vegetable Tanned Sheep and Goat Skins known as E.I. (East India) tanned leather is the main
- 2 Raw material of these products are often pre-treated.
- 3 Paper Boards (of different thickness);
- 4 Lining Cloth (of cotton, velvet, silk etc.);
- 5 Rubber Foam Interlining;
- 6 Natural Dyes and Spirit (medium for dyes);
- 7 Rubber Solution & PU Adhesive;
- 8 Accessories like D-Ring, Press Button, Zipper, Lock, Magnetic Button etc. and
- 9 Grinders like thread etc.

Table 1 — SDG Contribution of Gobindabhog Rice as a GI

UN Sustainable Development Goal	Description	Question 1	Question 2	Question 3
1. No Poverty	Promotes employment and livelihoods for low-income individuals	Employs workers from low-income backgrounds (Yes/No)? <b>Yes</b>	Offers fair wages and working conditions (Yes/No)? <b>Yes</b>	Provides training or skill development programs (Yes/No)? <b>Yes</b>
Comments: It helps unemployed people and their families by offering fair jobs and offers skill development training programs to equip others with valuable expertise. Focuses on both economic empowerment and skill enhancement to uplift its workforce and community.				
2. Zero Hunger	Promotes sustainable agricultural practices and food security	Uses sustainable agricultural practices (e.g., crop rotation) (Yes/No)? <b>Yes</b>	Contributes to food security in the region (Yes/No)? <b>Yes</b>	Promotes traditional food knowledge and skills (Yes/No)? <b>Yes</b>
Comments: Its cultivation helps ensure food security, promotes nutrition, and preserves cultural heritage, aligning with the objectives of the SDG.				
3. Good Health and Well-being	Promotes healthy products and worker well-being	Offers healthy ingredients or consumption practices (Yes/No)? <b>Yes</b>	Minimizes health risks for workers (safe working conditions) (Yes/No)? <b>Yes</b>	Contributes to economic well-being of producers (enabling healthcare access) (Yes/No)? <b>Yes</b>
Comments: Govindabhog rice into diets can be an effective strategy for promoting good health and aligning with the objectives of initiatives focused on well-being.				
4. Quality Education	Promotes education and preservation of traditional knowledge	Offers educational programs for producers/communities (Yes/No)? <b>Yes</b>	Contributes to preserving traditional knowledge and skills (Yes/No)? <b>Yes</b>	Collaborates with educational institutions (Yes/No)? <b>Yes</b>
Comments: Capacity building programs on production to packaging were offered by Bidhan Chandra Krishi Viswavidyalay and Ramkrishna Mission Ashram for low cost organic farming. The farmer we spoke with, received a National award for working in traditional farming in 2019.				
5. Gender Equality	Promotes gender equality in employment and empowerment	Offers equal employment opportunities for all genders (Yes/No)? <b>Yes</b> , but this is a labour intensive industry. females are involved in lighter works here.	Empowers women producers or entrepreneurs (Yes/No)? Not explicitly	Caters to specific needs or preferences of women (if applicable) (Yes/No)? <b>Yes</b>
Comments: Female members are involved during land preparation, planting, weeding, and post-harvest handling.				
6. Clean Water and Sanitation	Minimizes water usage and promotes sanitation	Minimizes water usage or promotes water conservation (Yes/No)? <b>Yes</b>	Ensures proper sanitation facilities for workers (Yes/No)? <b>Yes</b>	Uses packaging that minimizes water pollution (Yes/No)? <b>Yes</b>
Comments: Govindobhog rice farmers rely on clean rainwater for irrigation. They use eco-friendly jute bags or Low-Density Polyethylene (LDPE) packets for direct rice contact.				
7. Affordable and Clean Energy	Utilizes clean energy sources and promotes energy efficiency	Utilizes renewable energy sources (e.g., solar power) (Yes/No)? <b>Yes</b>	Strives to improve energy efficiency in production (Yes/No)? <b>Yes</b>	Promotes energy-efficient practices during consumption (if applicable) (Yes/No)? <b>Yes</b>
Comments: Farmers uses solar-powered irrigation pumps or opting for energy-efficient milling machinery to lower their environmental impact. Also, rice mills are now powered with solar power.				
8. Decent Work and Economic Growth	Creates employment opportunities and promotes fair trade	Creates significant employment opportunities in the region (Yes/No)? <b>Yes</b>	Prioritizes fair trade practices within the supply chain (Yes/No)? <b>Yes</b>	Promotes entrepreneurship and business development among producers (Yes/No)? <b>Yes</b>
Comments: Contributes in creating employment opportunities, increasing income for farmers, promoting value addition, and enhancing the skills of individuals involved in rice production. <i>(Contd.)</i>				

Table 1 — SDG Contribution of Gobindabhog Rice as a GI (Contd.)

UN Sustainable Development Goal	Description	Question 1	Question 2	Question 3
9. Industry, Innovation and Infrastructure	Utilizes innovative production techniques and invests in infrastructure	Uses innovative techniques or resource management (Yes/No)? <b>Yes</b>	Invests in infrastructure development for GI production (Yes/No)? <b>Yes</b>	Collaborates with research institutions for improvement (Yes/No)? <b>Yes</b>
Comments: Governments often promote various agricultural techniques and practices through extension services, research institutions, and agricultural departments to enhance rice cultivation in general.				
10. Reduced Inequalities	Narrows income gaps and promotes inclusivity	Contributes to narrowing the income gap within the region (Yes/No)? <b>Yes</b>	Promotes inclusive practices for disadvantaged communities (Yes/No)? <b>Yes</b>	Offers affordable products catering to a wider range of consumers (Yes/No)? <b>Yes</b>
Comments: Fosters economic inclusivity and reduces income disparities by empowering smallholder farmers with income-generating opportunities, encouraging participation from diverse community members, facilitating market access improvements, and supporting skill development initiatives within rural areas.				
11. Sustainable Cities and Communities	Contributes to sustainable livelihoods and cultural heritage	Develops sustainable livelihoods in the community (Yes/No)? <b>Yes</b>	Promotes cultural heritage and traditional knowledge (Yes/No)? <b>Yes</b>	Caters to urban consumers seeking sustainable and ethical products (Yes/No)? <b>Yes</b>
Comments: Preserves traditional methods of cultivation and production of Govindabhog rice.				
12. Responsible Consumption and Production	Minimizes waste and uses eco-friendly practices	Minimizes waste generation during production (Yes/No)? <b>Yes</b>	Uses eco-friendly packaging materials (Yes/No)? <b>Yes</b>	Promotes sustainable resource management practices (e.g., water conservation) (Yes/No)? <b>Yes</b>
Comments: Farmers use rain water harvesting and solar-powered irrigation pumps or opting for energy-efficient milling machinery to lower their environmental impact.				
13. Climate Action	Reduces greenhouse gas emissions and adapts to climate change	Implements measures to reduce greenhouse gas emissions (e.g., using efficient machinery) (Yes/No)? <b>No</b>	Adopts practices to adapt to climate change impacts (e.g., water scarcity) (Yes/No)? <b>Yes</b>	Promotes climate-friendly practices throughout the supply chain (Yes/No)? <b>Yes</b>
Comments: Production of this rice variety takes very less water. Nowadays, tube well and water plants are there in every rice mill.				
14. Life Below Water	Protects and sustainably uses marine and freshwater resources	Avoids practices that pollute water bodies (Yes/No)? <b>Yes</b>	Uses resources from sustainable sources (e.g., certified fisheries) (Yes/No) <b>Yes</b>	Promotes responsible water management practices (Yes/No)? <b>Yes</b>
Comments: Uses less water, eco friendly bags for packaging.				
15. Life on Land	Protects and restores terrestrial ecosystems and promotes sustainable land use	Uses practices that minimize deforestation or land degradation (Yes/No)? <b>Yes</b>	Promotes biodiversity conservation (e.g., using native plant species) (Yes/No)? <b>Yes</b>	Contributes to sustainable land management practices (e.g., soil fertility improvement) (Yes/No)? <b>Yes</b>
Comments: Most of the farmers have gone through the training for low cost sustainable agriculture practice.				
16. Peace, Justice and Strong Institutions	Promotes peaceful societies, access to justice, and accountable institutions	Complies with environmental and labor regulations (Yes/No)? <b>Yes</b>	Promotes fair trade practices and ethical sourcing (Yes/No)? <b>Yes</b>	Contributes to the economic development of the region (Yes/No)? <b>Yes</b>
Comments: Raina area of Bardhaman district is the highest grower of this variety. The rice is locally grown and sourced.				

(Contd.)

Table 1 — SDG Contribution of Gobindabhog Rice as a GI (*Contd.*)

UN Sustainable Development Goal	Description	Question 1	Question 2	Question 3
17. Partnerships for the Goals	Strengthens partnerships to achieve the SDGs	Collaborates with stakeholders (e.g., government, NGOs) to promote GI sustainability (Yes/No)? <b>Yes</b>	Promotes knowledge sharing and capacity building for sustainable GI production (Yes/No)? <b>Yes</b>	Advocates for policies that support sustainable GI practices (Yes/No)? <b>Yes</b>

Comments: They partner with Bidhan Chandra Krishi Viswavidyalay to promote capacity building for GI products.

#### **Process:**

1. Preparation of Tanned Leathers:
  - a. They are generally made of E. I. Leather from sheepskin and goatskin
  - b. Premium quality tanned leathers arranged in roll form, each enclosing 3 or 4 skins heavily covered with Magnesium Sulphate (Epsom salt) to prevent oxidization.
  - c. Skins washed thoroughly and soaked in a wooden vat or pit.
  - d. Stretched to flatten and dried.
2. Cutting and Marking:
  - a. Leathers marked with cutting patterns for desired products and cut with scissors.
  - b. For block printed products, components moistened and imprinted with graphic designs using zinc blocks and a ball press.
3. Coloring Process:
  - a. Spirit-based natural dyes applied manually by touch dyeing or by mouth spray.
  - b. Batik dyed products treated with Gum Arabic solution to block areas, then colored with spirit-based natural dyes via mouth spray.
4. Glazing and Finishing:
  - a. Components manually glazed with a smooth stone or glazing machine.
  - b. Dyed components skived for uniform thickness.
5. Assembly:
  - a. Rubber foam interlining, paper board, and cloth lining attached using suitable adhesive.
  - b. Accessories like buttons, zippers, and locks affixed as required.
  - c. Stitching machines used for stitched leather products; suitable adhesive used for pasted products.

#### **Evaluating SDG Contribution**

Scoring: Each "Yes" answer receives 1 point.

#### **Total Score: 43**

We have contacted the AU of Santiniketan Artistic Leather Goods Manufacturers Welfare Association.

As a result, the information provided below is based on their knowledge and expertise in the field. Table 2 illustrates the SDG Contribution of Santiniketan Leather Goods as a GI.

#### **Key Insights and Challenges**

- 1 Incorporating GI logos onto products is essential for authenticity and recognition. Implementing strong quality control mechanisms and certification processes is crucial to ensure the origin and quality of GI products. However, this poses a significant challenge, especially for small-scale producers who often have limited resources.
- 2 Balancing traditional methods with modern standards and consumer preferences challenges producers of Handicrafts. Preserving traditional knowledge is vital for product uniqueness, yet meeting evolving quality standards and market demands innovation. Achieving this balance without compromising authenticity or quality is an ongoing struggle for this GI producers.

#### **Recommendations and Opportunities**

- 1 Develop a system or app where consumers can easily verify the authenticity of real GI registered Santiniketan Leather Goods.
- 2 Explore the use of sustainable options like recycled paper or biodegradable materials for Santiniketan Leather packaging, promoting eco-friendly practices.
- 3 Showcase Santiniketan Leather products at key industry gatherings or organize live demonstrations by skilled artisans, allowing visitors to witness traditional leather-working techniques firsthand, thus enhancing awareness and appreciation.
- 4 Establish an online/offline marketing platform specifically dedicated to promoting and selling GI registered Santiniketan Leather Goods, making them more accessible to consumers and increasing market visibility.

*Bardhaman Sitabhog and Bardhaman Mihidana*

Table 2 — SDG Contribution of Santiniketan Leather Goods as a GI

UN Sustainable Development Goal	Description	Question 1	Question 2	Question 3
1. No Poverty	Promotes employment and livelihoods for low-income individuals	Employs workers from low-income backgrounds (Yes/No)? <b>Yes</b>	Offers fair wages and working conditions (Yes/No)? <b>Yes</b>	Provides training or skill development programs (Yes/No)? <b>Yes</b>
Comments: Significant number of workers are from Below Poverty Level. Workers get 300-400 rs per day. They also get bonuses yearly. They were trained under the Rural Development Programme of Visva-Bharati University at Santiniketan. Nowadays there is also training given by MSME.				
2. Zero Hunger	Promotes sustainable agricultural practices and food security	Uses sustainable agricultural practices (e.g., crop rotation) (Yes/No)? <b>Not Applicable</b>	Contributes to food security in the region (Yes/No)? <b>Yes</b>	Promotes traditional food knowledge and skills (Yes/No)? <b>Yes</b>
Comments: Offers a significant livelihood option for that region. This art is a traditional skill, over 70 years old. However, it is not learnt through generations. It is learnt from Amar Kutir at Santiniketan.				
3. Good Health and Well-being	Promotes healthy products and worker well-being	Offers healthy ingredients or consumption practices (Yes/No)? <b>Yes</b>	Minimizes health risks for workers (safe working conditions) (Yes/No)? <b>Yes</b>	Contributes to economic well-being of producers (enabling healthcare access) (Yes/No)? <b>Yes</b>
Comments: Workshops have toilets for male and female. The workers have Swastho Sathi health cards from the West Bengal Govt. The association helps for their medical check ups, also for some cases of cancer.				
4. Quality Education	Promotes education and preservation of traditional knowledge	Offers educational programs for producers/communities (Yes/No)? <b>Yes</b>	Contributes to preserving traditional knowledge and skills (Yes/No)? <b>Yes</b>	Collaborates with educational institutions (Yes/No)? <b>Yes</b>
Comments: Workers are trained at Santiniketan to preserve this 70 year old cart. Collaboration is there with NID and NIFT.				
5. Gender Equality	Promotes gender equality in employment and empowerment	Offers equal employment opportunities for all genders (Yes/No)? <b>Yes</b>	Empowers women producers or entrepreneurs (Yes/No)? <b>Yes</b>	Caters to specific needs or preferences of women (if applicable) (Yes/No)? <b>Yes</b>
Comments: Designs are made by women. Stitches were made by men earlier. Nowadays, women are also doing that.				
6. Clean Water and Sanitation	Minimizes water usage and promotes sanitation	Minimizes water usage or promotes water conservation (Yes/No)? <b>Not in Practice</b>	Ensures proper sanitation facilities for workers (Yes/No)? <b>Yes</b>	Uses packaging that minimizes water pollution (Yes/No)? <b>Yes</b>
Comments: Water is obtained from wells, municipal water supply, etc. Salted water disposal is done in the drain. Toilet is there for workers at the workshop since the beginning.				
7. Affordable and Clean Energy	Utilizes clean energy sources and promotes energy efficiency	Utilizes renewable energy sources (e.g., solar power) (Yes/No)? <b>No</b>	Strives to improve energy efficiency in production (Yes/No)? <b>No</b>	Promotes energy-efficient practices during consumption (if applicable) (Yes/No)? <b>No</b>
Comments: Earlier the sewing was done by hand. But sales increased with machine sewing.				
8. Decent Work and Economic Growth	Creates employment opportunities and promotes fair trade	Creates significant employment opportunities in the region (Yes/No)? <b>Yes</b>	Prioritizes fair trade practices within the supply chain (Yes/No)? <b>Yes</b>	Promotes entrepreneurship and business development among producers (Yes/No)? <b>Yes</b>
Comments: Workshop has 25 workers for making showpieces, ladies purses, shopping bags, boxes, etc. Creates employment opportunities among locals.				

(Contd.)

Table 2 — SDG Contribution of Santiniketan Leather Goods as a GI ( <i>Contd.</i> )				
UN Sustainable Development Goal	Description	Question 1	Question 2	Question 3
9. Industry, Innovation and Infrastructure	Utilizes innovative production techniques and invests in infrastructure	Uses innovative techniques or resource management (Yes/No)? <b>Yes</b>	Invests in infrastructure development for GI production (Yes/No)? <b>Yes</b>	Collaborates with research institutions for improvement (Yes/No)? <b>Yes</b>
Comments: They collaborate with National Institute of Design, Ahmedabad and National Institute of Fashion Technology.				
10. Reduced Inequalities	Narrows income gaps and promotes inclusivity	Contributes to narrowing the income gap within the region (Yes/No)? <b>Yes</b>	Promotes inclusive practices for disadvantaged communities (Yes/No)? <b>Yes</b>	Offers affordable products catering to a wider range of consumers (Yes/No)? <b>Yes</b>
Comments: There is no discrimination between workers. Customers can buy wide range of products made by the workshop.				
11. Sustainable Cities and Communities	Contributes to sustainable livelihoods and cultural heritage	Develops sustainable livelihoods in the community (Yes/No)? <b>Yes</b>	Promotes cultural heritage and traditional knowledge (Yes/No)? <b>Yes</b>	Caters to urban consumers seeking sustainable and ethical products (Yes/No)? <b>Yes</b>
Comments: They go for trade fairs, exhibitions in Kolkata and nearby areas.				
12. Responsible Consumption and Production	Minimizes waste and uses eco-friendly practices	Minimizes waste generation during production (Yes/No)? <b>Yes</b>	Uses eco-friendly packaging materials (Yes/No)? <b>Yes</b>	Promotes sustainable resource management practices (e.g., water conservation) (Yes/No)? <b>Yes</b>
Comments: Earlier packaging was done with plastic, Now mostly cotton is used for packaging. The leather is sourced from Kolkata or Chennai.				
13. Climate Action	Reduces greenhouse gas emissions and adapts to climate change	Implements measures to reduce greenhouse gas emissions (e.g., using efficient machinery) (Yes/No)? <b>Yes</b>	Adopts practices to adapt to climate change impacts (e.g., water scarcity) (Yes/No)? <b>Yes</b>	Promotes climate-friendly practices throughout the supply chain (Yes/No)? <b>Yes</b>
Comments: Automatic dryers are not used for the manufacturing. Products are dried under sunlight.				
14. Life Below Water	Protects and sustainably uses marine and freshwater resources	Avoids practices that pollute water bodies (Yes/No)? <b>Yes</b>	Uses resources from sustainable sources (e.g., certified fisheries) (Yes/No)? <b>Yes</b>	Promotes responsible water management practices (Yes/No)? <b>Yes</b>
Comments: Salted water is disposed of in the drain. Leather is locally sourced. Water is obtained from local wells, tube well, municipal supply.				
15. Life on Land	Protects and restores terrestrial ecosystems and promotes sustainable land use	Uses practices that minimize deforestation or land degradation (Yes/No)? <b>Not Applicable</b>	Promotes biodiversity conservation (e.g., using native plant species) (Yes/No)? <b>Not Applicable</b>	Contributes to sustainable land management practices (e.g., soil fertility improvement) (Yes/No)? <b>Not Applicable</b>
Comments: This is a handicraft with leather materials.				
16. Peace, Justice and Strong Institutions	Promotes peaceful societies, access to justice, and accountable institutions	Complies with environmental and labor regulations (Yes/No)? <b>Yes</b>	Promotes fair trade practices and ethical sourcing (Yes/No)? <b>Yes</b>	Contributes to the economic development of the region (Yes/No)? <b>Yes</b>
Comments: Some of the workers do work from home for colouring. Stitching is done at the workshop. There is no discrimination among the workers. <i>(Contd.)</i>				

Table 2 — SDG Contribution of Santiniketan Leather Goods as a GI (*Contd.*)

UN Sustainable Development Goal	Description	Question 1	Question 2	Question 3
17. Partnerships for the Goals	Strengthens partnerships to achieve the SDGs	Collaborates with stakeholders (e.g., government, NGOs) to promote GI sustainability (Yes/No)? <b>Yes</b>	Promotes knowledge sharing and capacity building for sustainable GI production (Yes/No)? <b>Yes</b>	Advocates for policies that support sustainable GI practices (Yes/No)? <b>Yes</b>
Comments: Collaborates with state Govt for promotion of their products in state exhibition. Several capacity building programs are organized for promotion of GI tagged products.				

**General Information**

Name of GI products: Bardhaman Sitabhog and Bardhaman Mihidana State of origin: West Bengal  
Type of GI product: Food Stuff

**Method of preparation for Sitabhog****Ingredients:**

- i. Cottage cheese (Chhana) - 1 kg.
- ii. Govindabhog Rice powder/flour - 1 kg.
- iii. Sugar and water mixed syrup
- iv. Ghee (made of cow milk) or Banaspati
- v. Leaves of Pulao plant
- vi. Flour
- vii. Milk powder

The preparation of the delicious sweet dish Sitabhog involves the production of the vermicelli-like tiny chhana threads along with small dumplings of gulab jamun which are added to Sitabhog to enhance its appearance and taste. Thus the preparation of Sitabhog consists of the following steps about the production process:

- i. The cottage cheese and rice flour are rolled into a smooth dough using ghee in a 1:4 proportion.
- ii. The dough is then passed through a 'sev mould' so that it strains like thin threads of vermicelli.
- iii. The threads are then deep fried in a pan of pure ghee. These strips are fried until they are cooked properly.
- iv. Then these droplets are poured into sugar syrup that has been flavoured with pulao leaves soaked into it.
- v. After 10-12 minutes when the droplets become soft, it is taken away from the syrup with a ladle.
- vi. The white rice or vermicelli like fine sitabhog is now ready with which the tiny gulab jamun will be mixed later on.
- vii. The small dumplings that are added to Sitabhog are known as 'Nikhuti' which are made up of flour, milk powder and ghee. A dough is formed out of the ingredients and shaped in the form of small oval balls.

viii. These dumplings are deep fried in ghee

ix. After getting fully fried these balls are dipped into concentrated sugar syrup

x. Finally, the 'Nikhuti's are taken out of the syrup and then added to thin strips of rice flour and channa.

By following this traditional method and using specified ingredients, producers of Bardhaman's Sitabhog ensure that the sweet maintains its unique taste, texture, and cultural significance as defined by its GI registration.

**Method of preparation for Mihidana****Ingredients:**

- i. Bengal gram flour – 1 kg.
- ii. Gobindabhog Rice powder and Kaminibhog Rice powder – 1 kg.
- iii. Ghee (made of cow milk) or Banaspati
- iv. Sugar - 5 kg.
- v. Bay leaves – 10 pcs.

1 Preparing the batter: Bengal Gram flour is mixed with Gobindabhog or Kaminibhog rice Powder and particular amount of water is added to it for preparing froth like mixture. The batter should have smooth and mild texture.

2 Mixing of Ghee: ghee is added to the batter to make it more flavoursome and saffron is mixed for excellent golden yellow colour

3 Frying: ghee is poured in a pan and melted by heating over the flame, a mesh or an iron net is placed over the pan. The prepared batter is taken and rubbed against the net. Small droplets of the mix start coming out of the net. Those droplets are fried in ghee thoroughly and kept in a scuttle to free those droplets from ghee.

4 Preparation of Sugar Syrup: About 5 kg of sugar is added to 3.5 lt. of water to prepare the concentrated sugar syrup.

5 Immersing the droplets into sugar syrup: fried Droplets are poured into syrup, bay leaves are

added to it for flavour. By means of immersion the droplets become soft after some time and the pan is then kept out of the flame.

### Evaluating SDG Contribution

Scoring: Each "Yes" answer receives 1 point.

### Total Score: 41

We have contacted the Bardhaman Sitabhog and Mihidana Traders Welfare Association and District Industries Centre. They are the authorized users/producers of both GI products as mentioned above. Therefore, the answers provided in the table below are applicable for both of the products. Table 3 illustrates

the SDG Contribution of Bardhaman Sitabhog and Bardhaman Mihidana as a GI.

### Key Insights and Challenges

- 1 Limited Impact of GI Tag: Despite being granted the GI (Geographical Indication) tag, authorized users experience stagnant sales because of insufficient public knowledge about the designation's significance.
- 2 Low public awareness about GI: Even with efforts to highlight the GI status through media channels, consumers tend to opt for less expensive alternatives, diminishing the perceived value of GI products.

Table 3 — SDG Contribution of Bardhaman Sitabhog and Bardhaman Mihidana as GI

UN Sustainable Development Goal	Description	Question 1	Question 2	Question 3
1. No Poverty	Promotes employment and livelihoods for low-income individuals	Employs workers from low-income backgrounds (Yes/No)? Yes	Offers fair wages and working conditions (Yes/No)? Yes	Provides training or skill development programs (Yes/No)? Yes
<p>Comments: According to the authorized users (AUs), this type of work is passed down from one generation to another within a family like a family tradition. However, now the young generation is going to academia and is not interested in this work. Therefore, nowadays, only persons from low income backgrounds come to seek employment in this kind of work.</p> <p>Wages slightly vary from one AU to another. On an average, it is 500 to 600 rs per day for skilled workers, and 350-400 rs per day for un/semi skilled workers. According to West Bengal's minimum wages, skilled workers should get minimum 458 rs and unskilled workers should get minimum 378 rs per day. The association trains newcomers for this work.</p>				
2. Zero Hunger	Promotes sustainable agricultural practices and food security	Uses sustainable agricultural practices (e.g., crop rotation) (Yes/No)? Yes	Contributes to food security in the region (Yes/No)? Yes	Promotes traditional food knowledge and skills (Yes/No)? Yes
<p>Comments: Sugar is sourced locally. This sweet industry promotes the livelihood of local people. This employment gives a source of earning and hence food security in the region. The art of this sweet manufacturing dates back to 1902. Therefore, making this sweet is a traditional food knowledge.</p>				
3. Good Health and Well-being	Promotes healthy products and worker well-being	Offers healthy ingredients or consumption practices (Yes/No)? Yes	Minimizes health risks for workers (safe working conditions) (Yes/No)? Yes	Contributes to economic well-being of producers (enabling healthcare access) (Yes/No)? Yes
<p>Comments: The sweet is made with Chhana. Gas tank and fire extinguisher are there in the working area</p>				
4. Quality Education	Promotes education and preservation of traditional knowledge	Offers educational programs for producers/communities (Yes/No)? No	Contributes to preserving traditional knowledge and skills (Yes/No)? Yes	Collaborates with educational institutions (Yes/No)? Yes
<p>Comments: This is a century old art for hand made sweets. Manufacturing of these sweets definitely preserves traditional knowledge and skill. Collaborated with IIT Kharagpur to find a preservation packaging system for these sweets.</p>				
5. Gender Equality	Promotes gender equality in employment and empowerment	Offers equal employment opportunities for all genders (Yes/No)? Yes	Empowers women producers or entrepreneurs (Yes/No)? Yes	Caters to specific needs or preferences of women (if applicable) (Yes/No)? Yes
<p>Comments: This work opportunity doesn't discriminate between genders. There is an initiative to involve the housewives in this art so that economy can be boosted from the household level</p>				

(Contd.)

Table 3 — SDG Contribution of Bardhaman Sitabhog and Bardhaman Mihidana as GI (*Contd.*)

UN Sustainable Development Goal	Description	Question 1	Question 2	Question 3
6. Clean Water and Sanitation	Minimizes water usage and promotes sanitation	Minimizes water usage or promotes water conservation (Yes/No)? Not the main practice in this trade	Ensures proper sanitation facilities for workers (Yes/No)? Yes	Uses packaging that minimizes water pollution (Yes/No)? Yes
Comments: Workers get proper toilets and a healthy working environment.				
7. Affordable and Clean Energy	Utilizes clean energy sources and promotes energy efficiency	Utilizes renewable energy sources (e.g., solar power) (Yes/No)? No	Strives to improve energy efficiency in production (Yes/No)?No	Promotes energy-efficient practices during consumption (if applicable) (Yes/No)?No
Comments: Uses traditional/regular energy sources for oven, broiler etc.				
8. Decent Work and Economic Growth	Creates employment opportunities and promotes fair trade	Creates significant employment opportunities in the region (Yes/No)? Yes	Prioritizes fair trade practices within the supply chain (Yes/No)? Yes	Promotes entrepreneurship and business development among producers (Yes/No)? Yes
Comments: This is a big source of livelihood in the area of Bardhaman.				
9. Industry, Innovation and Infrastructure	Utilizes innovative production techniques and invests in infrastructure	Uses innovative techniques or resource management (Yes/No)? Yes	Invests in infrastructure development for GI production (Yes/No)? Yes	Collaborates with research institutions for improvement (Yes/No)? Yes
Comments: Export opportunity was offered from APEDA for the GI products, e.g., to Kuwait. They used the GI logo for exported products.				
10. Reduced Inequalities	Narrows income gaps and promotes inclusivity	Contributes to narrowing the income gap within the region (Yes/No)? Yes	Promotes inclusive practices for disadvantaged communities (Yes/No)? Yes	Offers affordable products catering to a wider range of consumers (Yes/No)? Yes
Comments: There are three different versions of these sweets. The GI version of the sweet goes through quality control. But it costs around 700 rs per kg. Regular customers can not afford that price. If they make only that GI version of that sweet, their sales go down. Therefore, they make another two versions. One with ghee, that costs around 400 rs per kg. Customers nowadays are interested in buying ghee sweets. Therefore, this version sells fast. The next version is with white oil, and costs 200 rs per kg. So, it offers affordable products catering to a wider range of consumers. However, not with the help of a GI tag.				
11. Sustainable Cities and Communities	Contributes to sustainable livelihoods and cultural heritage	Develops sustainable livelihoods in the community (Yes/No)? Yes	Promotes cultural heritage and traditional knowledge (Yes/No)? Yes	Caters to urban consumers seeking sustainable and ethical products (Yes/No)? Yes
Comments: As mentioned above, workers get decent wages, work at safe working conditions, they are using locally made ingredients, minimizing environmental impact.				
12. Responsible Consumption and Production	Minimizes waste and uses eco-friendly practices	Minimizes waste generation during production (Yes/No)? Yes	Uses eco-friendly packaging materials (Yes/No)? Yes	Promotes sustainable resource management practices (e.g., water conservation) (Yes/No)? Yes
Comments: The challenge with food stuff is that it has got a specific shelf life. When the sweets spoil, they sell it to fisheries for 7 rs /kg. So, there is no waste accumulation. For eco-friendly packaging, there was a collaboration with IIT kharagpur. However, the research ultimately did not go to market. And these AUs did not get the result.				
13. Climate Action	Reduces greenhouse gas emissions and adapts to climate change	Implements measures to reduce greenhouse gas emissions (e.g., using efficient machinery) (Yes/No)? No	Adopts practices to adapt to climate change impacts (e.g., water scarcity) (Yes/No)? Yes	Promotes climate-friendly practices throughout the supply chain (Yes/No)? Yes
Comments: The whole process is generally done by hand. They use water from their home/shop.				

 (*Contd.*)

Table 3 — SDG Contribution of Bardhaman Sitabhog and Bardhaman Mihidana as GI (*Contd.*)

UN Sustainable Development Goal	Description	Question 1	Question 2	Question 3
14. Life Below Water	Protects and sustainably uses marine and freshwater resources	Avoids practices that pollute water bodies (Yes/No)? Yes	Uses resources from sustainable sources (e.g., certified fisheries) (Yes/No)? Yes	Promotes responsible water management practices (Yes/No)? Not applicable
Comments: Their waste goes to fisheries. They are using an eco-friendly packaging system. They use water from their home/shop.				
15. Life on Land	Protects and restores terrestrial ecosystems and promotes sustainable land use	Uses practices that minimize deforestation or land degradation (Yes/No)? Not Applicable	Promotes biodiversity conservation (e.g., using native plant species) (Yes/No)? Not Applicable	Contributes to sustainable land management practices (e.g., soil fertility improvement) (Yes/No)? Not Applicable
Comment: This is a hand-made sweet manufacturing industry.				
16. Peace, Justice and Strong Institutions	Promotes peaceful societies, access to justice, and accountable institutions	Complies with environmental and labor regulations (Yes/No)? Yes	Promotes fair trade practices and ethical sourcing (Yes/No)? Yes	Contributes to the economic development of the region (Yes/No)? Yes
Comments: This is a knowledge based work. Workers get 4 days of leave in a month. Their daily wages are more than the minimum wage mentioned by West Bengal Labour Dept for sweet manufacturing.				
17. Partnerships for the Goals	Strengthens partnerships to achieve the SDGs	Collaborates with stakeholders (e.g., government, NGOs) to promote GI sustainability (Yes/No)? Yes	Promotes knowledge sharing and capacity building for sustainable GI production (Yes/No)? Yes	Advocates for policies that support sustainable GI practices (Yes/No)? Yes
Comments: West Bengal State Govt made a one-stop sweet destination for all kinds of sweet called “Mishti Hub”. These products were also kept in “One station one product” in the railway stations.				

### Conclusion

- 3 Challenge of Shelf Life: Unlike typical GI products, food items have a finite shelf life. Consequently, unsold GI-labelled products quickly lose value, posing a significant challenge for producers.
- 4 Incomplete Collaboration for Preservative Packaging: Collaborative efforts with IIT Kharagpur to develop preservative packaging have not been fully realized, leaving authorized users in need of further support to address this critical aspect.
- 5 Impact of Unorganized Sector: The unstructured nature of the sector exacerbates challenges, with skilled workers often leaving to work in unregistered shops, perpetuating instability within the industry and hindering its growth.

### Recommendations and Opportunities

Authorized users are looking for Govt support to help with preservative packaging research to increase the shelf life of their GI food stuffs for exports. They are looking for further export opportunities.

Our survey for the production processes and supply chains of selected Geographical Indications (GIs) – Gobindabhog Rice, Santiniketan Leather Goods, and Bardhaman Sitabhog and Mihidana – offers compelling evidence of their substantial contribution to advancing the United Nations Sustainable Development Goals (SDGs) with total scores of 49/51, 43/51, and 41/51 respectively.

Through meticulous development for GI protection and implementation, coupled with effective legal safeguards and the strategic expansion of market channels, these GIs can serve as catalysts for sustainable development. They not only preserve cultural heritage but also drive economic prosperity, promote environmental sustainability, and enhance social well-being.

Despite the evident positive impact, challenges persist. Addressing issues such as broader awareness and understanding of GIs, market access, enforcement and compliance, inclusive stakeholder participation, access to research and innovative technologies (for example, preservative packaging for Sitabhog and

Mihidana) remains crucial to maximizing their contribution to the SDGs.

A cross-case comparison suggests that certain SDGs—such as ‘No Poverty,’ ‘Decent Work and Economic Growth,’ and ‘Sustainable Cities and Communities’—are consistently supported across all three types of GI products. Conversely, goals related to ‘Climate Action’ and ‘Affordable and Clean Energy’ remain less addressed, particularly in the handicraft and food processing sectors. Furthermore, while GIs can foster cultural pride and economic inclusion, they may also inadvertently reinforce market inequalities if small-scale producers are excluded from certification schemes due to cost or bureaucratic hurdles. Ongoing monitoring of both the positive and potential negative externalities of GI commercialization is therefore essential to ensure inclusive and sustainable outcomes.

Nevertheless, with collaborative efforts and targeted initiatives, these obstacles can be overcome. By harnessing the potential of GIs and leveraging them effectively, we can expedite progress towards achieving the Sustainable Development Goals, fostering a more equitable, resilient, and prosperous future for all.

- 1 One possibility is to establish a dedicated online platform for purchasing and selling registered GI products of India, featuring the GI slogan *Atulya Bharat ki Amulya Nidhi*. This initiative could effectively raise awareness about GIs and attract global attention to these unique products.
- 2 One such offline platform can be at all the major Railway platforms under *One Station One Product* umbrella, featuring products from the state where the station is located and showing a list of all other registered GIs from different states of India. This can also be at the major airports in India.
- 3 Registered GIs from a state can also be featured in the official tourism website of that state.

All these promotional efforts will definitely enhance the export opportunities as well, which is one of the primary objectives of the statute.

The DPIIT, Ministry of Commerce and Industry, has already released a draft for the National GI Policy of India. Once implemented, it is expected to help the sector overcome its current challenges.

### Limitations and Future Research

While this study offers valuable insights into the alignment of selected Indian GIs with the SDGs, it is limited in geographic and product scope, focusing only on three GIs from West Bengal. Future research could broaden the analysis to include a wider range of GIs across different Indian states and product categories—such as textiles, natural products, and industrial goods—to build a more comprehensive national picture. In addition, comparative international studies could explore how Indian GIs perform in relation to those in other emerging and developed economies. Longitudinal studies are also needed to assess the dynamic impact of GIs over time, especially in response to evolving market and policy contexts.

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